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DELAWARE WEED CONTROL RESULTS - 2014

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WEED CONTROL RESULTS

Mark VanGessel, Mark Isaacs, Quintin Johnson, Barbara Scott

The purpose of this report is to present results and details of many of the 2014 weed control field trials conducted by Cooperative Extension at the University of Delaware. Results are summarized from data obtained at the Georgetown Research and Education Center and other test locations throughout the state. These results, as well as results from previous years back to 2002, are available at the UD Weed Science web site; http://extension.udel.edu/ag/weed-science/.

The results obtained and any conclusions stated are not published herein as recommended practices. The data in this report are especially intended for use by cooperators, commercial field workers, county agents, agricultural teachers, and researchers. They will also be of value to growers who are interested in following closely the development of new herbicides and weed control systems.

Treatments are listed by trade names to facilitate reading by non-technical people. No discrimination is intended and no endorsement is implied by the University of Delaware. Chemical index is cross-referenced by common and trade names.

Many of the chemicals listed are actually a combination of two or more herbicides. Where this is the case, the name of the combination is usually followed by the word "Premix". The common names of the herbicides in that premix are listed in the Index of Chemicals at the front of this document. In addition, the name of the combination is often followed by the herbicides that make up that combination. For example, Bicep II Magnum is a combination of s-metolachlor and atrazine, so Bicep II Magnum will be listed as such:

Bicep II Magnum Premix	5.5 L	2.2 lb ai/A
----s-metolachlor	2.4	0.96
----atrazine	3.1	1.24

This quickly illustrates that Bicep II Magnum (5.5 L lb a.i./gal) contains 2.4 lb a.i./gal of s-metolachlor and 3.1 lb a.i./gal of atrazine, and that Bicep II Magnum applied at a rate of 2.2 lb a.i./A is equivalent to an application of s-metolachlor at 0.96 lb a.i./A and atrazine at 1.24 lb a.i./A.

When analyzing the information in this report, we strongly urge you to read carefully the site description section of each study. We trust you will find the information in this report useful and accurate.

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WEED INDEX

Common Name	WSSA Code	Scientific Name	Trial
Amaranth, Palmer	AMAPA	Amaranthus palmeri S.Wats.	Corn1, 2, 3, 5, 7, 8, 9a, 10a, 11, 12, 13, 15, 18; Scrn1; Milo3; DSB2, 3, 4, 6, 8; Soy1, 4, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 22; Cuke1, 2; Meln1, 2, 3; Pmkn1
Carpetweed	MOLVE	Mollugo verticillata L.	Soy20; Meln1
Chickweed, Common	STEME	Stellaria media (L.) Vill./cyr.	SG6, 8, 15, 19a
Chickweed, Jagged	HLOUM	Holosteum umbellatum L.	SG1, 2, 4, 5, 7, 13
Chickweed, Mousear	CERVU	Cerastium vulgatum L.	SG4, 19a; DSB2; Soy1
Cocklebur	XANST	Xanthium strumarium L.	Soy20
Crabgrass, Large	DIGSA	Digitaria sanguinalis (L.) Scop.	Corn1, 2, 3, 5, 7, 10a, 11, 12, 13, 18; Scrn1; Milo3; DSB2, 7, 9; Soy7, 9, 15, 22; Cuke1, 2; Meln2; Pmkn1
Dock, Curly	RUMCR	Rumex crispus L.	SG15
E.primrose, Cutleaf	OEOLA	Oenothera laciniata Hill	Corn3, 13; SG4, 15a; Soy1, 7
Filaree, Redstem	EROCI	Erodium cicutarium (L.) L'Her. Ex Ait.	Soy1
Goosefoot Species	CHESS	Chenopodium ssp.	Meln1
Grapehyacinth	MUSBO	Muscari neglectum Mill.	DSB5
Grass, Annual	GGGAN		Corn9a; DSB3; Soy13; Meln3; Pmkn1
Henbit	LAMAM	Lamium amplexicaule L.	SG1, 2, 3a, 3b, 4, 4a, 5, 6, 7, 8, 15, 19a, 19b, 20; Soy1
Horseweed	ERICA	Erigeron canadensis L.	SG4, 4a, 15a; DSB2, 7, 9; Soy7, 17, 19

Common Name	WSSA Code	Scientific Name	Trial
Knawel	SCRAN	Scleranthus annuus L.	Corn3; DSB2; Soy1
Knotweed, Japanese	POLCU	Polygonum cuspidatum Sieb. & Zucc.	JKnt1
Lambsquarters, Cmn.	CHEAL	Chenopodium album L.	Corn10a, 18; Soy4, 6, 7, 10, 13, 20; Cuke1; Meln1, 2, 3
Morningglory Species	IPOSS	Ipomoea ssp.	Corn1, 2, 3, 5, 7, 8, 9a, 10a, 11, 12, 13, 18; Scrn1; Milo1, 3; DSB2, 3, 4; Soy4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 18, 20; Pmkn1
Nutsedge, Yellow	CYPES	Cyperus esculentus L.	Meln1
Panicum, Fall	PANDI	Panicum dichotomiflorum (L.) Michx.	Corn10b; Scrn1; Soy5, 6, 9, 14, 22
Pansy, Field	VIORA	Viola rafinesquii Greene	Corn2, 3; SG4, 4a, 15a; DSB2; Soy1, 17
Purselane, Common	POROL	Portulaca oleracea L.	Meln3
Ragweed, Common	AMBEL	Ambrosia elatior L.	Corn18; Scrn1; Soy4, 5, 9, 10, 13, 20
Ryegrass, Annual	LOLMU	Lolium multiflorum Lam.	SG2, 5, 13
Speedwell, Ivyleaf	VERHE	Veronica hederifolia L.	SG15, 20
Spurge, Spotted	EPHMA	Euphorbia maculata L.	Meln1
Star-of-Bethlehem	OTGUM	Ornithogalum umbellatum L.	Soy2
Stinkgrass	ERAME	Eragrostis cilianensis (All.) E. Mosher	Meln1
Velvetleaf	ABUTH	Abutilon theophrasti Medik.	Soy20
Venuslookingglass	TJDPE	Triodanis perfoliata (L.) Nieuwl.	SG15
Vetch Species	VICSS	Vicia ssp.	SG15, 15a; Soy1; Veg3

INDEX OF CHEMICALS

Trade Name	Common Name	Trial
Abundit Extra	glyphosate	Corn1, 2; SG9; Soy6; Veg3
Aim	carfentrazone	DSB9; Soy2
Anthem ATZ Premix	pyroxasulfone + fluthiacet + atrazine	Corn3, 11, 12
Anthem Premix	pyroxasulfone + fluthiacet	Corn12; DSB9; Soy5; Lima2
AquaPro	glyphosate	JKnt1
Armezon	topramezone	Corn11
Atrazine	atrazine	Corn1, 3, 5, 7, 8, 9a, 9b, 10a, 10b, 11, 12, 13, 15, 18; Scrn1, 3, 7; Milo1, 3; Soy4
Authority Elite Premix	sulfentrazone + s-metolachlor	Soy13, 20
Authority First Premix	sulfentrazone + cloransulam	Soy10, 13, 20
Authority Maxx Premix	sulfentrazone + chlorimuron	Soy5, 9, 13, 20
Authority MTZ Premix	sulfentrazone + metribuzin	SG1; Soy7, 10, 13, 20
Authority XL Premix	sulfentrazone + chlorimuron	DSB7; Soy3, 7, 13, 20, 22
Axial XL	pinoxaden	SG2, 13, 23, 26
Axiom Premix	flufenacet + metribuzin	SG1, 2, 5, 6, 13
Balance Flexx	isoxaflutole	Corn6, 7, 15
Banvel	dicamba	Corn8; Milo1; Soy1, 2(-13)
Basagran	bentazon	Scrn1; Lima1
Basis Blend Premix	rimsulfuron + thifensulfuron	Corn6; Soy1
Bicep II Magnum Premix	s-metolachlor + atrazine	Corn6, 7, 9a, 9b, 10a, 10b, 12, 13, 15; Scrn7; Milo3
Bicep Lite II Magnum Premix	s-metolachlor + atrazine	Corn3
Boundary Premix	s-metolachlor + metribuzin	Soy6, 7, 16, 17
Breakfree ATZ Premix	acetochlor + atrazine	Corn1
Buctril	bromoxynil	Milo1
Cadet	fluthiacet	Corn12; Scrn1; Soy11, 13

Trade Name	Common Name	Trial
Callisto	mesotrione	Corn8, 12, 13; Scrn7; DSB7; Soy4
Canopy EX Premix	chlorimuron + tribenuron	DSB2; Soy1
Canopy Premix	chlorimuron + metribuzin	DSB2, 7, 9; Soy1, 5, 6, 7, 10, 13, 14, 15, 17, 19, 20, 22
Capreno Premix	tembotrione + thiencarbazone + Isoxadifen	Corn6, 7, 8, 18
Chateau	flumioxazin	Cuke2; Meln2, 3; Veg2
Cinch ATZ Premix	s-metolachlor + atrazine	Corn1, 2
Cinch	s-metolachlor	Soy6
Clarity	dicamba	Corn3; SG4, 4a, 12, 15, 15a, 22; DSB3
Classic	chlorimuron	Soy6, 17
Clearcast	imazamox	JKnt1
Cobra	lactofen	DSB6; Soy5, 14, 18
Command	clomazone	Cuke1; Lima2
Corvus Premix	thiencarbazone + isoxaflutole	Corn6, 7, 9a, 9b, 11, 15
Curbit	ethalfluralin	Cuke1, 2; Meln2; Pmkn1
DiFlexx	dicamba	Corn7
Dual II Magnum	s-metolachlor	Corn15; Scrn1; Soy5, 6
Dual Magnum	s-metolachlor	DSB4, 6; Lima2; Meln1; Veg2
Durango DMA	glyphosate	Corn5; Soy14
Engenia	“experimental”	Soy4, 7
Envive Premix	chlorimuron + flumioxazin + thifensulfuron	DSB3; Soy6
Express	tribenuron	SG8, 15, 15a, 19a; Soy1; Veg3
F9387-1	“experimental”	Corn12
Facet L	quinclorac	Milo1
Fierce Premix	flumioxazin + pyroxasulfone	Corn3, 15; SG5; Soy5, 6, 7, 9, 10, 14, 15, 16, 20

Trade Name	Common Name	Trial
Finesse Premix	chlorsulfuron + metsulfuron	SG9, 11, 20; DSB5; Soy2
Firstrate	cloransulam	Soy14
Flexstar GT Premix	fomesafen + glyphosate	Soy5, 16, 17, 18
Glory	metribuzin	SG19a
Glyphosate	glyphosate	DSB6
Goal 2XL	oxyfluorfen	DSB7
Gramoxone SL	paraquat	Corn13; SG3a, 3b; DSB2, 7; Soy1, 2, 16, 17, 19, 22; Meln2, 3; Veg2
Habitat	imazapyr	JKnt1
Halex GT Premix	s-metolachlor + glyphosate + mesotrione	Corn5, 10a, 10b, 11, 13, 18
Harmony Extra SG Premix	thifensulfuron + tribenuron	SG4, 5, 8, 9, 13, 15, 15a, 19a, 20, 22; DSB3
Harmony SG or XP	thifensulfuron	SG8; Soy1; Veg3
Harness Xtra Premix	acetochlor + atrazine	Corn9a, 9b, 10a, 10b
Hornet WDG Premix	flumetsulam + clopyralid	Corn6
Huskie Premix	pyrasulfotole + bromoxynil	Milo1; Sg4, 4a, 6, 7, 15, 15a, 19a, 19b, 20, 22; Soy2(-13), 19
Impact	topramezone	Corn8, 18; Scrn1, 3, 7
Instigate Premix	rimsulfuron + mesotrione	Corn1, 2, 6
Keystone LA NXT Premix	acetochlor + atrazine	Corn5
Keystone NXT Premix	acetochlor + atrazine	Corn5
KFD-104-01	“experimental”	DSB8
Laudis	tembotrione	Corn8, 11; Scrn7
Lexar EZ Premix	s-metolachlor + mesotrione + atrazine	Corn3, 5, 9a, 9b, 13
Liberty 280	glufosinate	Scrn1; DSB4, 6, 7, 8, 9; Soy4, 8, 10, 18
Linex	linuron	Soy6, 17

Trade Name	Common Name	Trial
Lumax EZ Premix	s-metolachlor + mesotrione + atrazine	Corn1, 2, 5, 9a, 9b, 10a, 10b, 11, 12, 13; Milo3
Marvel Premix	fluthiacet + fomesafen	Soy13
Maverick	sulfosulfuron	DSB5; Soy2(-13), 2
MCPA ester 4	MCPA	SG8
Metribuzin	metribuzin	SG1, 2, 4, 4a, 5, 6, 7, 8, 9, 10, 19b, 20, 23, 26; Soy1, 5, 6
Mon 10	“experimental”	Soy16
MON 76832	“experimental”	Soy16
Olympus Flex Premix	mesosulfuron + propoxycarbazone	SG13; Soy2(-13)
Olympus	propoxycarbazone	SG13
Osprey	mesosulfuron	SG5, 6, 7, 13, 15
Outlook	dimethenamid-p	Corn11; DSB4
Peak	prosulfuron	SG1
Permit	halosulfuron	Milo1
PowerFlex HL	pyroxsulam	SG4, 4a, 5, 7, 13, 15, 15a, 19b, 22
Prefar	bensulide	Meln1
Prefix Premix	s-metolachlor + fomesafen	DSB6; Soy5, 9
Prequel Premix	rimsulfuron + isoxaflutole	Corn6, 9a, 9b
Princep	simazine	Corn5, 7
Prowl H_20	pendimethalin	Corn5, 9a, 9b, 10a, 10b, 11, 13; Scrn1; DSB4
Raptor	imazamox	DSB8; Lima1
Realm Q Premix	rimsulfuron + mesotrione	Corn1, 2, 6, 8, 10a, 10b
Reflex	fomesafen	DSB4, 6; Soy4, 5, 6, 11, 13, 17, 18; Cuke2; Lima1; Meln1, 2, 3
Renovate	triclopyr	JKnt1
Resolve Q Multi-Pak	rimsulfuron + thifensulfuron	Corn8

Trade Name	Common Name	Trial
Resolve SG	rimsulfuron	Corn9a, 9b, 10a, 10b
Resource	flumiclorac	Soy11
Roundup PowerMax	glyphosate	Corn3, 11, 12, 18; SG5; DSB7, 8, 9; Soy5, 13, 14, 16, 18, 19
Roundup WeatherMax	glyphosate	Corn6, 7, 8, 10a, 10b, 13, 15; SG1, 3a, 3b; DSB2, 3; Soy1, 2(-13), 11, 17
Sandea	halosulfuron	Corn8; Cuke1; Lima2; Meln1, 2
Select Max	clethodim	DSB4, 6; Soy11
Sequence Premix	glyphosate + s-metolachlor	Corn18
Sharpen	saflufenacil	Corn11, 12, 15; Scrn1; Milo3; SG1, 2, 3a, 3b, 4; DSB9; Soy3, 19; Cuke2; Meln2, 3; Veg2, 3
Simazine	simazine	Corn9a, 9b, 13
Sinbar	terbacil	Meln1
Sonic Premix	sulfentrazone + cloransulam	Soy7, 14
Spartan	sulfentrazone	Veg3
Spartan Charge Premix	carfentrazone + sulfentrazone	Bean2; Cuke2; Lima1; Meln2, 3; Veg2
Starane Ultra	fluroxypyr	Scrn1; Milo1; SG4, 4a, 5, 7, 8, 9, 12, 15, 15a, 19a, 19b, 20, 22
Status Premix	diflufenzopyr + dicamba + safener	Corn8, 11
Stingray	carfentrazone	JKnt1
Storm Premix	bentazon + acifluorfen	DSB8
Strategy Premix	ethalfluralin + clomazone	Cuke1; Meln2; Pmkn1
SureStart Premix	acetochlor + clopryalid + flumetsulam	Corn5, 11
Surveil FR	cloransulam	Soy14
Surveil V	flumioxazin	Soy14
Synchrony XP Premix	chlorimuron + thifensulfuron	DSB8
Touchdown HiTech	glyphosate	Soy11

Trade Name	Common Name	Trial
Touchdown Total	glyphosate	Corn5; DSB5; Soy2, 5
Tricor DF	metribuzin	Soy5, 9, 16
Trivence Premix	chlorimuron + metribuzin + flumioxazin	Soy6
Ultra Blazer	acifluorfen	DSB8; Lima1
Valor SX	flumioxazin	SG1, 3a, 3b, 4, 5; DSB2, 6; Soy5, 9, 15; Veg3
Valor XLT Premix	flumioxazin + chlorimuron	DSB7; Soy5, 7, 9, 10, 11, 14, 15, 16, 20, 22
Verdict Premix	saflufenacil + dimethenamid-p	Corn11, 15; Soy5
Warrant	acetochlor	Corn18; DSB4; Soy5, 9, 15, 16
Zemax Premix	s-metolachlor + mesotrione	Corn15; Soy16
Zidua	pyroxasulfone	Corn7, 9a, 9b, 11, 18; Scrn1; Milo3; SG2, 3a, 3b; DSB4; Soy5, 6; Meln3
2,4-D amine	2,4-D amine	SG4, 4a, 12, 15, 15a, 22; DSB3
2,4-D choline	2,4-D choline	Soy4
2,4-D ester	2,4-D ester	Corn3; DSB2; Soy1, 2(-13), 7, 17

Daily Temperature Record

October 2013 - September 2014

University of Delaware, Research and Education Center

Georgetown, Delaware

	2013																							
	Oct		Nov		Dec		Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sept	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	80	50	72	66	49	25	46	24	50	22	46	13	59	33	76	65	73	48	90	70	78	66	87	71
2	83	58	69	52	54	27	41	28	61	36	61	31	66	39	68	51	78	43	93	73	73	61	91	70
3	84	59	54	36	57	30	31	5	43	33	35	10	64	47	71	46	86	57	93	71	78	67	85	65
4	85	58	48	29	55	36	35	2	36	30	30	6	55	46	75	45	88	64	78	62	85	65	83	60
5	87	62	61	37	63	47	61	33	40	34	39	26	58	43	64	46	75	62	81	58	86	64	85	65
6	87	62	67	37	66	40	63	15	35	25	32	26	59	31	71	50	76	58	82	58	82	65	87	69
7	83	60	64	44	42	29	16	7	40	23	38	32	59	33	63	45	81	54	89	67	81	62	76	62
8	63	52	50	35	37	29	28	8	31	23	59	30	65	51	81	55	83	57	91	74	79	58	71	61
9	63	54	53	27	38	33	37	20	34	20	48	34	64	38	72	55	84	67	87	71	84	57	74	66
10	66	58	64	42	35	29	50	26	31	18	54	32	66	38	79	62	85	71	82	68	84	58	79	61
11	67	64	56	34	41	24	67	51	29	16	71	38	77	54	79	57	77	67	82	67	81	55	82	62
12	65	62	51	31	31	20	54	31	33	14	68	39	73	49	86	55	74	67	85	62	78	69	75	58
13	65	60	41	25	41	22	58	29	40	32	38	23	79	50	84	55	86	70	88	68	81	67	74	56
14	67	50	56	24	57	29	54	40	50	32	51	20	76	62	63	55	75	60	91	73	79	57	68	51
15	67	49	57	36	56	29	53	34	41	30	64	40	68	33	80	60	79	54	90	71	76	55	73	45
16	73	56	53	45	35	28	41	28	37	26	43	29	47	31	70	56	86	57	82	67	83	59	76	55
17	75	58	67	44	49	31	49	27	36	22	29	26	47	30	67	51	93	68	81	60	84	59	74	51
18	69	47	67	49	39	25	45	22	54	27	39	29	52	39	67	49	94	75	82	58	80	59	76	45
19	63	44	51	35	55	25	47	21	64	34	55	36	64	39	71	43	86	66	77	63	81	64	71	49
20	61	42	45	29	60	44	53	32	55	30	58	42	55	39	74	48	81	62	75	63	81	59	76	52
21	66	37	56	31	68	54	37	16	70	37	57	33	64	34	76	60	76	63	80	62	84	63	78	64
22	67	46	60	39	73	61	16	3	58	34	69	36	76	41	82	61	79	63	85	62	78	65	72	54
23	54	41	56	33	66	40	23	-1	63	43	46	33	60	47	74	58	81	57	88	65	75	60	64	44
24	52	36	33	23	40	26	19	7	43	27	36	24	61	40	73	54	86	59	78	69	76	59	70	50
25	53	33	36	20	33	21	31	15	33	24	38	23	65	35	80	51	86	70	82	60	78	54	68	58
26	57	29	62	33	44	19	36	14	34	20	34	26	72	50	85	59	84	69	81	59	81	55	70	52
27	59	38	66	32	47	24	48	24	39	16	44	17	64	45	88	67	78	61	83	69	86	54	76	48
28	66	33	36	26	54	32	24	11	28	11	66	38	59	41	78	56	83	57	84	70	81	59	80	48
29	64	41	41	23	62	42	18	5			64	57	50	45	56	53	83	54	78	57	77	52	72	57
30	59	43	43	23	48	32	31	-6			61	37	66	50	69	53	86	61	79	56	82	56	74	57
31	72	49			44	28	45	8			58	37			74	53			83	56	87	68		

Data Collected Midnight- Midnight

Daily Rainfall Record

October 2013 - September 2014

University of Delaware, Reserch and Education Center

Georgetown, Delaware

	2013											
	Oct	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**
1	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.01	0.00	0.00	0.18	0.08
2	0.00	0.03	0.00	0.10	0.02	0.10	0.00	0.03	0.00	0.00	1.35	0.04
3	0.00	0.00	0.00	0.00	1.02	0.23	0.01	0.00	0.00	0.00	1.60	0.08
4	0.00	0.00	0.00	0.02	0.03	0.04	0.00	0.00	0.06	2.76	0.00	0.00
5	0.00	0.00	0.00	0.07	0.33	0.00	0.00	0.00	0.54	0.00	0.01	0.00
6	0.00	0.00	0.06	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65
7	0.69	0.16	0.24	0.00	0.00	0.10	0.36	0.13	0.00	0.00	0.00	0.06
8	0.00	0.00	0.45	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.20
9	0.83	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00
10	1.22	0.00	0.19	0.38	0.00	0.00	0.00	0.00	0.23	1.20	0.00	0.00
11	1.85	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00
12	0.68	0.00	0.00	0.01	0.05	0.12	0.00	0.11	0.04	0.01	1.67	0.00
13	0.06	0.00	0.00	0.00	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.13
14	0.00	0.00	0.75	0.48	0.04	0.00	0.00	0.02	0.00	0.11	0.00	0.00
15	0.00	0.00	0.01	0.01	0.22	0.00	1.22	0.00	0.00	1.02	0.00	0.00
16	0.00	0.35	0.00	0.00	0.00	0.00	0.13	1.51	0.00	0.04	0.01	0.03
17	0.01	0.00	0.14	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.29	0.04	0.00	0.22	0.02	0.00	0.00	0.00	0.00	0.00	0.00
19	0.01	0.00	0.01	0.00	0.02	0.12	0.00	0.00	0.05	0.00	0.01	0.00
20	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.07	0.00	0.00
21	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.01	0.03	0.00	0.19	0.00
22	0.00	0.16	0.34	0.00	0.00	0.00	0.01	0.06	0.00	0.00	1.25	0.00
23	0.23	0.00	0.47	0.00	0.00	0.02	0.00	0.00	0.00	0.23	0.07	0.00
24	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.35
25	0.00	0.00	0.00	0.00	0.00	0.03	0.30	0.00	0.26	0.00	0.00	2.63
26	0.01	0.63	0.00	0.00	0.03	0.13	0.07	0.00	0.06	0.45	0.00	0.00
27	0.00	0.78	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	1.09	0.00		0.99	0.53	0.11	0.00	0.00	0.00	0.05
30	0.00	0.00	0.00	0.01		0.53	0.49	0.02	0.00	0.00	0.00	0.05
31	0.01		0.00	0.00		0.02		0.00		0.00	0.00	
Total	**5.60**	**2.40**	**4.69**	**1.74**	**3.83**	**2.54**	**3.52**	**2.16**	**1.66**	**6.12**	**6.34**	**4.35**

Total for Period = 44.95 Inches

Data Collected Midnight- Midnight

Measurements shown in Inches

University of Delaware

Weed Control Programs with Instigate in Field Corn

Trial ID: Corn1-14 Location: Field #14 Trial Year:
Protocol ID: Corn1-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: DuPont

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: DKC62-58RIB

Planting Rate, Unit: 28000 S/A
Depth, Unit: 2 in
Row Spacing, Unit: 30 in

Soil Temperature, Unit: 67 F
Soil Moisture: NORMAL normal, adequate
Seed Bed: MEDIUM medium

Planting Date: 05/05/14
Planting Method: PLANTD planted
Planting Equipment: PP Plot Planter
Emergence Date: 05/12/14
Harvest Date: 09/24/14
Harvested Width, Unit: 5 FT
Harvested Length, Unit: 25 FT
Harvest Equipment: Plot combine
% Standard Moisture: 15.5

Pest Description

Pest 1 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morning glory

Site and Design

Treated Plot Width: 10 FT
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 8
Replications: 3

Site Type: FIELD field
Tillage Type: CONTIL conventional-till
Study Design: RACOBL Randomized Complete Block (RCB)

Field Prep./Maintenance:
Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

Soil Description

% Sand: 81 % OM: 1.1 Texture: LS loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.7 Fert. Level: G good
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.3 mi

Application Description

	A	B
Application Date:	05/06/14	06/02/14
Appl. Stop Time:	09:40 AM	09:30 AM
Application Method:	SPRAY	SPRAY
Application Timing:	PRE	28DAP
Application Placement:	BROADC	BROADC
Applied By:	Johnson	Johnson
Air Temperature, Unit:	58 F	70 F
% Relative Humidity:	55	49
Wind Velocity, Unit:	2 mph	3 mph
Wind Direction:	W	SW
Dew Presence (Y/N):	N no	N no
Soil Temperature, Unit:	57 F	69 F
Soil Moisture:	NORMAL	NORMAL
% Cloud Cover:	55	30

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:		DESC
Stage Majority, Percent:		V4 60
Stage Minimum, Percent:		V4 60
Stage Maximum, Percent:		V5 40
Height, Unit:		9 in
Height Minimum, Maximum:		8 10

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	IPOSS W	IPOSS W
Stage Majority, Percent:		2-leaf 70
Stage Minimum, Percent:		cotyl 30
Stage Maximum, Percent:		2-leaf 70
Height, Unit:		1 in
Height Minimum, Maximum:		1 1.5
Density, Unit:		10 m2

Application Equipment

	A	B
Appl. Equipment:	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	10 ft	10 ft
Boom Height, Unit:	18 in	26 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR

Trial Comments

5/22/14: Corn is at 2-collar stage.

6/02/14: Horsenettle shoots are severely injuried in all treatments. They are bleached, shorter and spindlier.

6/08/14: Ratings are based on plants present at time of POST application. Palmer amaranth, common lambsquarters, morningglory species and crabgrass were present in untreated check, but only morningglory is in the treatments. All others were controlled with the treatments.

6/28/14: Palmer amaranth and large crabgrass were in untreated checks but but all treatments provided control > 99% for both.

University of Delaware

Weed Control Programs with Instigate in Field Corn

Trial ID: Corn1-14 Location: Field #14 Trial Year:
Protocol ID: Corn1-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: DuPont

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn stunting % 05/22/14	ZEAMX Corn stunting % 06/02/14	ZEAMX Corn stunting % 06/08/14	AMAPA PalmerAm control % 06/02/14	DIGSA L.crbgrs control % 06/02/14
1	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	8.0 b	9.7 a	10.3 a	100.0 a	99.7 a
	----rimsulfuron	4.15		0.0156								
	----mesotrione	41.65		0.156								
	Cinch ATZ Premix	5.5	L	2.06	lb ai/a	PRE	A					
	----s-metolachlor	2.4		0.9								
	----atrazine	3.1		1.16								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
2	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	8.0 b	8.7 a	9.7 a	100.0 a	97.3 ab
	----rimsulfuron	4.15		0.0156								
	----mesotrione	41.65		0.156								
	Cinch ATZ Premix	5.5	L	2.06	lb ai/a	PRE	A					
	----s-metolachlor	2.4		0.9								
	----atrazine	3.1		1.16								
	Atrazine 4L	4	L	1	lb ai/a	28DAP	B					
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
3	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	8.0 b	8.7 a	9.7 a	100.0 a	99.7 a
	----rimsulfuron	4.15		0.0156								
	----mesotrione	41.65		0.156								
	Cinch ATZ Premix	5.5	L	2.06	lb ai/a	PRE	A					
	----s-metolachlor	2.4		0.9								
	----atrazine	3.1		1.16								
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	B					
	----rimsulfuron	7.5		0.0188								
	----mesotrione	31.2		0.078								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
4	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	9.7 ab	9.0 a	9.7 a	100.0 a	97.7 ab
	----rimsulfuron	4.15		0.0156								
	----mesotrione	41.65		0.156								
	Breakfree ATZ Premix	5.25	SE	1.97	lb ai/a	PRE	A					
	----acetochlor	3		1.13								
	----atrazine	2.25		0.844								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Average=1
Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

University of Delaware

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code					
	Pest Code										AMAPA	DIGSA
	Pest Name										PalmerAm	L.crbgrs
	Crop Code							ZEAMX	ZEAMX	ZEAMX		
	Crop Name							Corn	Corn	Corn		
	Rating Type							stunting	stunting	stunting	control	control
	Rating Unit							%	%	%	%	%
	Rating Date							05/22/14	06/02/14	06/08/14	06/02/14	06/02/14
5	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	10.7 a	9.7 a	10.7 a	100.0 a	100.0 a
	----rimsulfuron	4.15		0.0156								
	----mesotrione	41.65		0.156								
	Breakfree ATZ Premix	5.25	SE	1.97	lb ai/a	PRE	A					
	----acetochlor	3		1.13								
	----atrazine	2.25		0.844								
	Atrazine 4L	4	L	1	lb ai/a	28DAP	B					
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
6	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	10.0 ab	11.3 a	13.0 a	100.0 a	96.7 ab
	----rimsulfuron	4.15		0.0156								
	----mesotrione	41.65		0.156								
	Breakfree ATZ Premix	5.25	SE	1.97	lb ai/a	PRE	A					
	----acetochlor	3		1.13								
	----atrazine	2.25		0.844								
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	B					
	----rimsulfuron	7.5		0.0188								
	----mesotrione	31.2		0.078								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
7	Lumax EZ Premix	3.67	SC	2.75	lb ai/a	PRE	A	1.5 c	4.0 b	0.0 b	100.0 a	95.0 b
	----s-metolachlor	2.49		1.87								
	----mesotrione	0.25		0.187								
	----atrazine	0.93		0.7								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B					
8	Untreated Check							0.0 c	0.0 b	0.0 b	0.0 b	0.0 c
	LSD P=.05							2.52	4.33	5.20	.	4.59
	Standard Deviation							1.40	2.47	2.97	0.00	2.62
	CV							20.12	32.43	37.69	0.0	3.06
	Replicate F							4.095	0.634	0.000	0.000	2.422
	Replicate Prob(F)							0.0469	0.5451	1.0000	1.0000	0.1249
	Treatment F							24.303	6.831	8.453	0.000	526.068
	Treatment Prob(F)							0.0001	0.0012	0.0004	1.0000	0.0001

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	IPOSS mornglry control % 06/02/14	IPOSS mornglry control % 06/08/14	IPOSS mornglry control % 06/28/14	ZEAMX Corn Yield Bu/A 09/24/14
	Pest Code										
	Pest Name										
	Crop Code										
	Crop Name										
	Rating Type										
	Rating Unit										
	Rating Date										
1	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	88.0 a	88.0 c	73.3 bc	231.0 b
	----rimsulfuron	4.15		0.0156							
	----mesotrione	41.65		0.156							
	Cinch ATZ Premix	5.5	L	2.06	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.9							
	----atrazine	3.1		1.16							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
2	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	89.0 a	97.0 a	82.0 b	254.6 a
	----rimsulfuron	4.15		0.0156							
	----mesotrione	41.65		0.156							
	Cinch ATZ Premix	5.5	L	2.06	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.9							
	----atrazine	3.1		1.16							
	Atrazine 4L	4	L	1	lb ai/a	28DAP	B				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
3	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	88.7 a	96.0 a	81.7 b	237.0 ab
	----rimsulfuron	4.15		0.0156							
	----mesotrione	41.65		0.156							
	Cinch ATZ Premix	5.5	L	2.06	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.9							
	----atrazine	3.1		1.16							
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0188							
	----mesotrione	31.2		0.078							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
4	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	89.0 a	94.3 ab	74.3 bc	233.4 b
	----rimsulfuron	4.15		0.0156							
	----mesotrione	41.65		0.156							
	Breakfree ATZ Premix	5.25	SE	1.97	lb ai/a	PRE	A				
	----acetochlor	3		1.13							
	----atrazine	2.25		0.844							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	IPOSS mornglry control % 06/02/14	IPOSS mornglry control % 06/08/14	IPOSS mornglry control % 06/28/14	ZEAMX Corn Yield Bu/A 09/24/14
	Pest Code							IPOSS	IPOSS	IPOSS	
	Pest Name							mornglry	mornglry	mornglry	
	Crop Code										ZEAMX
	Crop Name										Corn
	Rating Type							control	control	control	Yield
	Rating Unit							%	%	%	Bu/A
	Rating Date							06/02/14	06/08/14	06/28/14	09/24/14
5	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	87.0 a	96.3 a	77.7 bc	243.5 ab
	----rimsulfuron	4.15		0.0156							
	----mesotrione	41.65		0.156							
	Breakfree ATZ Premix	5.25	SE	1.97	lb ai/a	PRE	A				
	----acetochlor	3		1.13							
	----atrazine	2.25		0.844							
	Atrazine 4L	4	L	1	lb ai/a	28DAP	B				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
6	Instigate Premix	45.8	WG	0.172	lb ai/a	PRE	A	89.7 a	97.7 a	91.7 a	246.9 ab
	----rimsulfuron	4.15		0.0156							
	----mesotrione	41.65		0.156							
	Breakfree ATZ Premix	5.25	SE	1.97	lb ai/a	PRE	A				
	----acetochlor	3		1.13							
	----atrazine	2.25		0.844							
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0188							
	----mesotrione	31.2		0.078							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
7	Lumax EZ Premix	3.67	SC	2.75	lb ai/a	PRE	A	85.3 a	91.7 bc	70.0 c	247.9 ab
	----s-metolachlor	2.49		1.87							
	----mesotrione	0.25		0.187							
	----atrazine	0.93		0.7							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
8	Untreated Check							0.0 b	0.0 d	0.0 d	171.7 c
	LSD P=.05							5.80	4.18	9.32	20.88
	Standard Deviation							3.31	2.39	5.32	11.92
	CV							4.3	2.89	7.73	5.11
	Replicate F							0.015	0.066	0.443	5.467
	Replicate Prob(F)							0.9849	0.9367	0.6507	0.0176
	Treatment F							265.664	591.190	86.723	14.371
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

University of Delaware

Instigate on Low Organic Matter Soils

Trial ID: Corn2-14 Location: Field #30 Trial Year:
Protocol ID: Corn2-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: DuPont

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: DKC62-58RIB BBCH Scale: BCOR
Description: RR

Planting Date: 05/05/14
Planting Rate, Unit: 19000 S/A Planting Method: PLANTD planted
Depth, Unit: 2 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 30 in Emergence Date: 05/13/14
Harvest Date: 09/24/14
Harvested Width, Unit: 5 FT
Soil Temperature, Unit: 67 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDTRA medium/trashy % Standard Moisture: 15.5

Pest Description

Pest 1 Type: W Code: VIORA Viola bicolor
Common Name: Johnny-jump-up violet

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 10 Tillage Type: NOTILL no-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/21/14	Roundup	4.5	AS	1	QT/A
2.	04/21/14	2,4-D Ester	3.8	SC	1	PT/A

Field Prep./Maintenance:
Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

Soil Description

% Sand: 83 % OM: 1.3 Texture: LS loamy sand
% Silt: 8 pH: 5.4
% Clay: 9 CEC: 3.4 Fert. Level: G good
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

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Application Description

	A	B	C
Application Date:	04/22/14	05/06/14	06/02/14
Appl. Stop Time:	03:40 PM	10:15 AM	10:00 AM
Interval to Prev. Appl., Unit:		14 DAYS	27 DAYS
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	14EPP	PRE	28DAP
Application Placement:	BROADC	BROADC	BROADC
Applied By:	Johnson	Johnson	Johnson
Air Temperature, Unit:	73 F	58 F	70 F
% Relative Humidity:	39	55	49
Wind Velocity, Unit:	5 mph	2 mph	3 mph
Wind Direction:	NW	W	SW
Dew Presence (Y/N):	N no	N no	N no
Soil Temperature, Unit:	60 F	57 F	69 F
Soil Moisture:	NORMAL	NORMAL	NORMAL
% Cloud Cover:	75	55	30

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:			DESC
Stage Majority, Percent:			V5 100
Height, Unit:			9 in

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	VIORA W	VIORA W	VIORA W
Stage Majority, Percent:			Flowr 100
Height, Unit:			4 in
Density, Unit:			5 m2

Application Equipment

	A	B	C
Appl. Equipment:	Backpack	Tractor	Tractor
Equipment Type:	SPRBAC	TRMOSP	TRMOSP
Operation Pressure, Unit:	30 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	18 in	20 in	20 in
Boom Length, Unit:	9 ft	10 ft	10 ft
Boom Height, Unit:	18 in	18 in	26 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	WATER	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size, Unit:	2 Liters	0.7 Gallons	0.7 Gallons
Propellant:	COMCO2	COMAIR	COMAIR

Trial Comments

5/23/14: Field pansy was in the untreated check. All other weeds were controlled. Pansy was stunted by burndown, but not killed.

6/02/14: Virtually no summer annual weeds have emerged.

6/08/14: Only stunting observed. No leaf burn or chlorosis from treatments. Corn has been side-dressed and is green, but corn height is variable from earlier nutrient issues. Weed control is very good in plots. Field pansy is in each untreated check (approximately 10 plants / plot). Large crabgrass and palmer amaranth density is very low in untreated checks.

9/16/14: Good to excellent control of large crabgrass and common lambsquarters weeds (>93%),

University of Delaware

Instigate on Low Organic Matter Soils

Trial ID: Corn2-14 Location: Field #30 Trial Year:
Protocol ID: Corn2-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: DuPont

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn Stunting % 05/23/14	VIORA FldPansy Control % 05/23/14	ZEAMX Corn Stunting % 06/04/14	IPOSS mornglry Control % 06/04/14	VIORA FldPansy Control % 06/04/14
1	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	8.0 d	70.0 b	0.0 e	93.3 ab	66.7 bc
	----rimsulfuron	4.15		0.0136								
	----mesotrione	41.65		0.136								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C					
2	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	13.3 ab	53.3 c	0.0 e	90.0 b	71.7 b
	----rimsulfuron	4.15		0.0136								
	----mesotrione	41.65		0.136								
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C					
	----rimsulfuron	7.5		0.0188								
	----mesotrione	31.2		0.078								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C					
3	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	9.7 bcd	100.0 a	2.3 de	100.0 a	100.0 a
	----rimsulfuron	4.15		0.0136								
	----mesotrione	41.65		0.136								
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	14EPP	A					
	----s-metolachlor	2.4		1.2								
	----atrazine	3.1		1.55								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C					
4	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	12.3 abc	100.0 a	4.0 cd	91.7 ab	100.0 a
	----rimsulfuron	4.15		0.0136								
	----mesotrione	41.65		0.136								
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	14EPP	A					
	----s-metolachlor	2.4		1.2								
	----atrazine	3.1		1.55								
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C					
	----rimsulfuron	7.5		0.0188								
	----mesotrione	31.2		0.078								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C					
5	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	12.3 abc	63.3 bc	8.3 ab	92.7 ab	53.3 c
	----rimsulfuron	4.15		0.0136								
	----mesotrione	41.65		0.136								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=2,4

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code					
Pest Code									VIORA		IPOSS	VIORA
Pest Name									FldPansy		mornglry	FldPansy
Crop Code								ZEAMX		ZEAMX		
Crop Name								Corn		Corn		
Rating Type								Stunting	Control	Stunting	Control	Control
Rating Unit								%	%	%	%	%
Rating Date								05/23/14	05/23/14	06/04/14	06/04/14	06/04/14
6	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	15.0 a	66.7 b	5.7 bc	99.0 a	51.7 c
	----rimsulfuron	4.15		0.0136								
	----mesotrione	41.65		0.136								
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C					
	----rimsulfuron	7.5		0.0188								
	----mesotrione	31.2		0.078								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C					
7	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	9.0 cd	100.0 a	6.3 bc	100.0 a	100.0 a
	----rimsulfuron	4.15		0.0136								
	----mesotrione	41.65		0.136								
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	PRE	B					
	----s-metolachlor	2.4		1.2								
	----atrazine	3.1		1.55								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C					
8	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	13.0 ab	98.3 a	10.0 a	100.0 a	100.0 a
	----rimsulfuron	4.15		0.0136								
	----mesotrione	41.65		0.136								
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	PRE	B					
	----s-metolachlor	2.4		1.2								
	----atrazine	3.1		1.55								
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C					
	----rimsulfuron	7.5		0.0188								
	----mesotrione	31.2		0.078								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C					
9	Lumax EZ Premix	3.67	SC	2.75	lb ai/a	PRE	B	6.7 d	100.0 a	0.0 e	97.7 ab	100.0 a
	----s-metolachlor	2.49		1.87								
	----mesotrione	0.25		0.187								
	----atrazine	0.93		0.7								
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C					
10	Untreated Check							0.0 e	0.0 d	0.0 e	0.0 c	0.0 d
LSD P=.05								3.74	10.06	3.20	8.81	17.69
Standard Deviation								2.18	5.84	1.86	5.11	10.31
CV								21.94	7.77	50.86	5.92	13.88
Replicate F								3.566	1.270	2.597	4.590	0.713
Replicate Prob(F)								0.0496	0.3061	0.1021	0.0255	0.5036
Treatment F								12.087	91.538	12.332	107.494	30.830
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn Stunting % 06/08/14	AMAPA PalmerAm Control % 07/16/14	IPOSS mornglry Control % 07/16/14	DIGSA L.crbgrs Control % 07/16/14
1	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	1.7 bc	95.0 b	76.7 c	100.0 a
	----rimsulfuron	4.15		0.0136							
	----mesotrione	41.65		0.136							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C				
2	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	9.7 a	100.0 a	92.7 ab	100.0 a
	----rimsulfuron	4.15		0.0136							
	----mesotrione	41.65		0.136							
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C				
	----rimsulfuron	7.5		0.0188							
	----mesotrione	31.2		0.078							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C				
3	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	0.0 c	100.0 a	96.0 ab	100.0 a
	----rimsulfuron	4.15		0.0136							
	----mesotrione	41.65		0.136							
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	14EPP	A				
	----s-metolachlor	2.4		1.2							
	----atrazine	3.1		1.55							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C				
4	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	9.7 a	100.0 a	91.3 b	100.0 a
	----rimsulfuron	4.15		0.0136							
	----mesotrione	41.65		0.136							
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	14EPP	A				
	----s-metolachlor	2.4		1.2							
	----atrazine	3.1		1.55							
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C				
	----rimsulfuron	7.5		0.0188							
	----mesotrione	31.2		0.078							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C				
5	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	7.3 ab	100.0 a	95.0 ab	98.7 b
	----rimsulfuron	4.15		0.0136							
	----mesotrione	41.65		0.136							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Pest Code								AMAPA	IPOSS	DIGSA
	Pest Name								PalmerAm	mornglry	L.crbgrs
	Crop Code							ZEAMX			
	Crop Name							Corn			
	Rating Type							Stunting	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/08/14	07/16/14	07/16/14	07/16/14
6	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	5.7 abc	100.0 a	93.3 ab	100.0 a
	----rimsulfuron	4.15		0.0136							
	----mesotrione	41.65		0.136							
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C				
	----rimsulfuron	7.5		0.0188							
	----mesotrione	31.2		0.078							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C				
7	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	5.0 abc	100.0 a	92.7 ab	100.0 a
	----rimsulfuron	4.15		0.0136							
	----mesotrione	41.65		0.136							
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	PRE	B				
	----s-metolachlor	2.4		1.2							
	----atrazine	3.1		1.55							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C				
8	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	11.7 a	100.0 a	98.3 a	100.0 a
	----rimsulfuron	4.15		0.0136							
	----mesotrione	41.65		0.136							
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	PRE	B				
	----s-metolachlor	2.4		1.2							
	----atrazine	3.1		1.55							
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C				
	----rimsulfuron	7.5		0.0188							
	----mesotrione	31.2		0.078							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C				
9	Lumax EZ Premix	3.67	SC	2.75	lb ai/a	PRE	B	1.7 bc	100.0 a	94.3 ab	100.0 a
	----s-metolachlor	2.49		1.87							
	----mesotrione	0.25		0.187							
	----atrazine	0.93		0.7							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C				
10	Untreated Check							0.0 c	0.0 c	0.0 d	0.0 c
	LSD P=.05							7.28	4.70	6.06	0.83
	Standard Deviation							4.24	2.74	3.53	0.48
	CV							81.09	3.06	4.26	0.54
	Replicate F							1.845	1.000	1.356	1.000
	Replicate Prob(F)							0.1867	0.3874	0.2828	0.3874
	Treatment F							3.064	396.556	212.690	12821.335
	Treatment Prob(F)							0.0206	0.0001	0.0001	0.0001

Pest Code	
Pest Name	
Crop Code	ZEAMX
Crop Name	Corn
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	09/24/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
1	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	166.6 a
	----rimsulfuron	4.15		0.0136				
	----mesotrione	41.65		0.136				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C	
2	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	161.5 a
	----rimsulfuron	4.15		0.0136				
	----mesotrione	41.65		0.136				
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C	
	----rimsulfuron	7.5		0.0188				
	----mesotrione	31.2		0.078				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C	
3	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	152.6 a
	----rimsulfuron	4.15		0.0136				
	----mesotrione	41.65		0.136				
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	14EPP	A	
	----s-metolachlor	2.4		1.2				
	----atrazine	3.1		1.55				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C	
4	Instigate Premix	45.8	WG	0.15	lb ai/a	14EPP	A	158.1 a
	----rimsulfuron	4.15		0.0136				
	----mesotrione	41.65		0.136				
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	14EPP	A	
	----s-metolachlor	2.4		1.2				
	----atrazine	3.1		1.55				
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C	
	----rimsulfuron	7.5		0.0188				
	----mesotrione	31.2		0.078				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C	
5	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	149.4 a
	----rimsulfuron	4.15		0.0136				
	----mesotrione	41.65		0.136				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C	

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Pest Code	
Pest Name	
Crop Code	ZEAMX
Crop Name	Corn
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	09/24/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
6	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	157.5 a
	----rimsulfuron	4.15		0.0136				
	----mesotrione	41.65		0.136				
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C	
	----rimsulfuron	7.5		0.0188				
	----mesotrione	31.2		0.078				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C	
7	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	152.1 a
	----rimsulfuron	4.15		0.0136				
	----mesotrione	41.65		0.136				
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	PRE	B	
	----s-metolachlor	2.4		1.2				
	----atrazine	3.1		1.55				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C	
8	Instigate Premix	45.8	WG	0.15	lb ai/a	PRE	B	161.7 a
	----rimsulfuron	4.15		0.0136				
	----mesotrione	41.65		0.136				
	Cinch ATZ Premix	5.5	L	2.75	lb ai/a	PRE	B	
	----s-metolachlor	2.4		1.2				
	----atrazine	3.1		1.55				
	Realm Q Premix	38.7	WG	0.097	lb ai/a	28DAP	C	
	----rimsulfuron	7.5		0.0188				
	----mesotrione	31.2		0.078				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C	
9	Lumax EZ Premix	3.67	SC	2.75	lb ai/a	PRE	B	163.8 a
	----s-metolachlor	2.49		1.87				
	----mesotrione	0.25		0.187				
	----atrazine	0.93		0.7				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	C	
10	Untreated Check							138.6 a

LSD P=.05	16.92
Standard Deviation	9.86
CV	6.32
Replicate F	0.650
Replicate Prob(F)	0.5337
Treatment F	2.104
Treatment Prob(F)	0.0856

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Early Preplant Weed Control in Corn

Trial ID: Corn3-14 Location: Field #30 Trial Year:
Protocol ID: Corn3-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Valent

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: DKC62-58RIB BBCH Scale: BCOR
Description: RR

Planting Date: 05/05/14
Planting Rate, Unit: 19000 S/A Planting Method: PLANTD planted
Depth, Unit: 2 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 30 in Emergence Date: 05/13/14
Harvest Date: 09/24/14
Harvested Width, Unit: 5 FT
Soil Temperature, Unit: 67 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDTRA medium/trashy % Standard Moisture: 15.5

Pest Description

Pest 1 Type: W Code: SCRAN Scleranthus annuus
Common Name: Annual knawel

Pest 2 Type: W Code: OEOLA Oenothera laciniata
Common Name: Cutleaf eveningprimrose

Pest 3 Type: W Code: ARBTH Arabidopsis thaliana
Common Name: Mouse-ear cress

Pest 4 Type: W Code: VIORA Viola bicolor
Common Name: Johnny-jump-up violet

Pest 5 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 6 Tillage Type: NOTILL no-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Field Prep./Maintenance:
Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

Soil Description

% Sand: 83 % OM: 1.3 Texture: LS loamy sand
% Silt: 8 pH: 5.4
% Clay: 9 CEC: 3.4 Fert. Level: G good
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

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Application Description

	A	B
Application Date:	04/28/14	06/17/14
Appl. Stop Time:	12:55 PM	11:30 AM
Interval to Prev. Appl., Unit:		50 DAYS
Application Method:	SPRAY	SPRAY
Application Timing:	7EPP	42DAP
Application Placement:	BROADC	BROADC
Applied By:	Johnson	Johnson
Air Temperature, Unit:	58 F	88 F
% Relative Humidity:	49	54
Wind Velocity, Unit:	2 mph	2 mph
Wind Direction:	SE	S
Dew Presence (Y/N):	N no	N no
Soil Temperature, Unit:	58 F	87 F
Soil Moisture:	NORMAL	NORMAL
% Cloud Cover:	95	30

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:		DESC
Stage Majority, Percent:		V8 100
Height, Unit:		26 in
Height Minimum, Maximum:		24 28

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Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	SCRAN W	SCRAN W
Stage Majority, Percent:	veg 100	
Diameter, Unit:	4 in	
Height Minimum, Maximum:	3 5	
Density, Unit:	40 m2	
Pest 2 Code, Type, Scale:	OEOLA W	OEOLA W
Stage Majority, Percent:	rosett 100	
Diameter, Unit:	6 in	
Height, Unit:	3 9	
Density, Unit:	70 m2	
Pest 3 Code, Type, Scale:	ARBTH W	ARBTH W
Stage Majority, Percent:	flowr 100	
Height, Unit:	5.5 in	
Height Minimum, Maximum:	5 6	
Density, Unit:	10 m2	
Pest 4 Code, Type, Scale:	VIORA W	VIORA W
Stage Majority, Percent:	veg 60	
Stage Minimum, Percent:	veg 60	
Stage Maximum, Percent:	flowr 40	
Height, Unit:	4 in	
Height Minimum, Maximum:	2 5	
Density, Unit:	15 m2	
Pest 5 Code, Type, Scale:	AMAPA W	AMAPA W
Stage Majority, Percent:		veg 100
Height, Unit:		6 in
Height Minimum, Maximum:		5 8
Density, Unit:		1 PLOT

Application Equipment

	A	B
Appl. Equipment:	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	10 ft	10 ft
Boom Height, Unit:	22 in	42 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR

Trial Comments

5/23/14: plots 105,203,304 --> poor mayweed chamomile control.

6/03/14: Chamomille, knawel, speedwell, and Venus looking-glass were present in check plots but not observed in any treatment.
Summer annual weeds are very few, only morningglory was observed in the treatments.

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Early Preplant Weed Control in Corn

Trial ID: Corn3-14 Location: Field #30 Trial Year:
Protocol ID: Corn3-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Valent

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn Stunting % 05/23/14	SCRAN knawel Control % 05/23/14	OEOLA CEprmrse Control % 05/23/14	VIORA FldPansy Control % 05/23/14
1	Untreated Check							0.0 c	0.0 b	0.0 b	0.0 d
2	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	10.3 b	96.7 a	100.0 a	40.0 c
	Clarity.....dicamba	4	L	0.25	lb ai/a	7EPP	A				
	Fierce Premix	76	WG	0.143	lb ai/a	7EPP	A				
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B				
3	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	14.0 a	100.0 a	100.0 a	73.8 b
	Clarity.....dicamba	4	L	0.25	lb ai/a	7EPP	A				
	Fierce Premix	76	WG	0.143	lb ai/a	7EPP	A				
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
	Atrazine 4L	4	L	1	lb ai/a	7EPP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B				
4	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	0.0 c	100.0 a	100.0 a	93.3 a
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A				
	Bicep Lite II Magnum Premix	6	L	2.9	lb ai/a	7EPP	A				
	----s-metolachlor	3.33		1.61							
	----atrazine	2.67		1.29							
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B				
5	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	10.7 ab	96.7 a	96.7 a	63.8 b
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A				
	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	7EPP	A				
	----pyroxasulfone	0.51		0.128							
	----fluthiacet	0.014		0.0035							
	----atrazine	3.976		1							
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=4
Could not calculate LSD (% mean diff) for columns 7,9 because error mean square = 0.

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Pest Code								SCRAN	OEOLA	VIORA
Pest Name								knawel	CEprmrse	FldPansy
Crop Code								ZEAMX		
Crop Name								Corn		
Rating Type								Stunting	Control	Control
Rating Unit								%	%	%
Rating Date								05/23/14	05/23/14	05/23/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
6	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	2.3 c	100.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A				
	Lexar EZ Premix	3.71	SC	2.78	lb ai/a	7EPP	A				
	----s-metolachlor	1.742819		1.3							
	----mesotrione	0.2243629		0.168							
	----atrazine	1.742819		1.3							
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B				
LSD P=.05								3.35	6.36	4.29	10.99
Standard Deviation								1.84	3.50	2.36	5.84
CV								29.59	4.25	2.85	9.45
Replicate F								3.557	0.455	1.000	1.103
Replicate Prob(F)								0.0681	0.6472	0.4019	0.3775
Treatment F								33.587	398.909	889.000	121.365
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn Stunting % 06/03/14	IPOSS mornglry Control % 06/03/14	OEOLA CEprmrse Control % 06/03/14
	Pest Code								IPOSS	OEOLA
	Pest Name								mornglry	CEprmrse
	Crop Code							ZEAMX		
	Crop Name							Corn		
	Rating Type							Stunting	Control	Control
	Rating Unit							%	%	%
	Rating Date							06/03/14	06/03/14	06/03/14
1	Untreated Check								0.0 b	0.0 b
2	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	2.3 a	100.0 a	100.0 a
	Clarity.....dicamba	4	L	0.25	lb ai/a	7EPP	A			
	Fierce Premix	76	WG	0.143	lb ai/a	7EPP	A			
	----flumioxazin	33.5		0.063						
	----pyroxasulfone	42.5		0.08						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			
3	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	6.3 a	94.3 a	100.0 a
	Clarity.....dicamba	4	L	0.25	lb ai/a	7EPP	A			
	Fierce Premix	76	WG	0.143	lb ai/a	7EPP	A			
	----flumioxazin	33.5		0.063						
	----pyroxasulfone	42.5		0.08						
	Atrazine 4L	4	L	1	lb ai/a	7EPP	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			
4	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	0.0 a	91.0 a	100.0 a
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Bicep Lite II Magnum Premix	6	L	2.9	lb ai/a	7EPP	A			
	----s-metolachlor	3.33		1.61						
	----atrazine	2.67		1.29						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			
5	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	2.3 a	95.0 a	100.0 a
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	7EPP	A			
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			

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Pest Code									IPOSS	OEOLA
Pest Name									mornglry	CEprmrse
Crop Code								ZEAMX		
Crop Name								Corn		
Rating Type								Stunting	Control	Control
Rating Unit								%	%	%
Rating Date								06/03/14	06/03/14	06/03/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
6	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	0.0 a	93.3 a	100.0 a
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Lexar EZ Premix	3.71	SC	2.78	lb ai/a	7EPP	A			
	----s-metolachlor	1.742819		1.3						
	----mesotrione	0.2243629		0.168						
	----atrazine	1.742819		1.3						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			
LSD P=.05								5.28	14.13	.
Standard Deviation								2.80	7.77	0.00
CV								127.35	9.84	0.0
Replicate F								0.331	0.100	0.000
Replicate Prob(F)								0.7274	0.9054	1.0000
Treatment F								2.561	74.824	0.000
Treatment Prob(F)								0.1201	0.0001	1.0000

Pest Code								AMAPA	DIGSA	IPOSS
Pest Name								PalmerAm	L.crbgrs	mornglry
Crop Code										
Crop Name										
Rating Type								Control	Control	Control
Rating Unit								%	%	%
Rating Date								07/11/14	07/11/14	07/11/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
1	Untreated Check							0.0 b	0.0 b	0.0 b
2	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	100.0 a	100.0 a	99.0 a
	Clarity.....dicamba	4	L	0.25	lb ai/a	7EPP	A			
	Fierce Premix	76	WG	0.143	lb ai/a	7EPP	A			
	----flumioxazin	33.5		0.063						
	----pyroxasulfone	42.5		0.08						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			
3	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	96.0 a	100.0 a	100.0 a
	Clarity.....dicamba	4	L	0.25	lb ai/a	7EPP	A			
	Fierce Premix	76	WG	0.143	lb ai/a	7EPP	A			
	----flumioxazin	33.5		0.063						
	----pyroxasulfone	42.5		0.08						
	Atrazine 4L	4	L	1	lb ai/a	7EPP	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			
4	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	95.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Bicep Lite II Magnum Premix	6	L	2.9	lb ai/a	7EPP	A			
	----s-metolachlor	3.33		1.61						
	----atrazine	2.67		1.29						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			
5	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	98.0 a	100.0 a	99.7 a
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	7EPP	A			
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	DIGSA L.crbgrs	IPOSS mornglry
	Pest Code							AMAPA	DIGSA	IPOSS
	Pest Name							PalmerAm	L.crbgrs	mornglry
	Crop Code									
	Crop Name									
	Rating Type							Control	Control	Control
	Rating Unit							%	%	%
	Rating Date							07/11/14	07/11/14	07/11/14
6	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	88.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Lexar EZ Premix	3.71	SC	2.78	lb ai/a	7EPP	A			
	----s-metolachlor	1.742819		1.3						
	----mesotrione	0.2243629		0.168						
	----atrazine	1.742819		1.3						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			
	LSD P=.05							14.43	.	1.40
	Standard Deviation							7.93	0.00	0.77
	CV							9.98	0.0	0.92
	Replicate F							0.866	0.000	0.660
	Replicate Prob(F)							0.4498	1.0000	0.5378
	Treatment F							73.140	0.000	8446.114
	Treatment Prob(F)							0.0001	1.0000	0.0001

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Pest Code									VIORA	
Pest Name									FldPansy	
Crop Code										ZEAMX
Crop Name										Corn
Rating Type									Control	Yield
Rating Unit									%	Bu/A
Rating Date									06/03/14	09/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
1	Untreated Check								0.0 e	66.8 c
2	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A		68.3 d	144.0 ab
	Clarity.....dicamba	4	L	0.25	lb ai/a	7EPP	A			
	Fierce Premix	76	WG	0.143	lb ai/a	7EPP	A			
	----flumioxazin	33.5		0.063						
	----pyroxasulfone	42.5		0.08						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			
3	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A		81.0 c	158.4 a
	Clarity.....dicamba	4	L	0.25	lb ai/a	7EPP	A			
	Fierce Premix	76	WG	0.143	lb ai/a	7EPP	A			
	----flumioxazin	33.5		0.063						
	----pyroxasulfone	42.5		0.08						
	Atrazine 4L	4	L	1	lb ai/a	7EPP	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			
4	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A		91.7 b	133.9 b
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Bicep Lite II Magnum Premix	6	L	2.9	lb ai/a	7EPP	A			
	----s-metolachlor	3.33		1.61						
	----atrazine	2.67		1.29						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			
5	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A		81.7 c	148.1 ab
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A			
	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	7EPP	A			
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B			

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Pest Code							VIORA	
Pest Name							FldPansy	
Crop Code								ZEAMX
Crop Name								Corn
Rating Type							Control	Yield
Rating Unit							%	Bu/A
Rating Date							06/03/14	09/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
6	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	A	100.0 a	147.2 ab
	2,4-D ester	3.8	L	0.475	lb ae/a	7EPP	A		
	Lexar EZ Premix	3.71	SC	2.78	lb ai/a	7EPP	A		
	----s-metolachlor	1.742819		1.3					
	----mesotrione	0.2243629		0.168					
	----atrazine	1.742819		1.3					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	7EPP	A		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	42DAP	B		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	42DAP	B		
LSD P=.05								6.98	14.46
Standard Deviation								3.84	7.95
CV								5.45	5.97
Replicate F								1.996	7.468
Replicate Prob(F)								0.1864	0.0104
Treatment F								266.053	52.948
Treatment Prob(F)								0.0001	0.0001

University of Delaware

PRE and POST Weed Control in Field Corn

Trial ID: Corn5-14 Location: Field #30 Trial Year:
Protocol ID: Corn5-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Syngenta

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: H6179RCSS BBCH Scale: BCOR
Description: RR

Planting Date: 05/12/14
Planting Rate, Unit: 19000 S/A Planting Method: PLANTD planted
Depth, Unit: 2 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 30 in Emergence Date: 05/19/14
Harvest Date: 09/24/14
Harvested Width, Unit: 5 FT
Soil Temperature, Unit: 88 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDTRA medium/trashy % Standard Moisture: 15.5

Pest Description

Pest 1 Type: W Code: DIGSA Digitaria sanguinalis
Common Name: large crabgrass

Pest 2 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morning glory

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 12 Tillage Type: NOTILL no-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/21/14	Roundup	4.5	AS	1	QT/A
2.	04/21/14	2,4-D Ester	3.8	SC	1	PT/A

Field Prep./Maintenance:
Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

Soil Description

% Sand: 83 % OM: 1.3 Texture: LS loamy sand
% Silt: 8 pH: 5.4
% Clay: 9 CEC: 3.4 Fert. Level: G good
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 MI

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Application Description

	A	B	C	D
Application Date:	05/13/14	05/28/14	06/02/14	06/06/14
Appl. Stop Time:	10:00 AM	02:00 PM	09:45 AM	10:20 AM
Interval to Prev. Appl., Unit:		15 DAYS	5 DAYS	4 DAYS
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	V2	V4	V6
Application Placement:	BROADC	BROADC	BROADC	BROADC
Applied By:	Johnson	Johnson	Johnson	Johnson
Air Temperature, Unit:	80 F	74 F	70 F	71 F
% Relative Humidity:	56	74	49	53
Wind Velocity, Unit:	1 mph	2 mph	3 mph	2 mph
Wind Direction:	NE	SW	SW	NE
Dew Presence (Y/N):	Y yes	Y yes	N no	N no
Soil Temperature, Unit:	78 F	73 F	69 F	70 F
Soil Moisture:	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover:	20	85	30	50

Crop Stage At Each Application

	A	B	C	D
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:		DESC	DESC	DESC
Stage Majority, Percent:		V2 100	V4 60	V6 55
Stage Minimum, Percent:			V3 40	V5 45
Stage Maximum, Percent:			V4 60	V6 55
Height, Unit:		3 in	8 in	9 in
Height Minimum, Maximum:		3 3	7 9	7 10

Pest Stage At Each Application

	A	B	C	D
Pest 1 Code, Type, Scale:	DIGSA W	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent:		2-leaf 60		
Stage Minimum, Percent:		1-leaf 40		
Stage Maximum, Percent:		2-leaf 60		
Height, Unit:		0.4 in		
Height Minimum, Maximum:		0.3 0.5		
Density, Unit:		10 m2		
Pest 2 Code, Type, Scale:	IPOSS W	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent:			2-leaf 70	
Stage Minimum, Percent:			cotyl 30	
Stage Maximum, Percent:			2-leaf 70	
Height, Unit:			1.5 in	
Height Minimum, Maximum:			1 1.5	
Density, Unit:			10 m2	

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Application Equipment

	A	B	C	D
Appl. Equipment:	Tractor	Tractor	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in	20 in
Boom Length, Unit:	10 ft	10 ft	10 ft	10 ft
Boom Height, Unit:	18 in	18 in	18 in	18 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	WATER	WATER	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR	COMAIR	COMAIR

Trial Comments

6/07/14: Some variability in corn size, there was no treatment effect. Appears to have some problems with starter fertilizer rate and some deer feeding. Weed density very low in untreated check.

University of Delaware

PRE and POST Weed Control in Field Corn

Trial ID: Corn5-14 Location: Field #30 Trial Year:
Protocol ID: Corn5-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Syngenta

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	DIGSA L.crbgrs	IPOSS mornglry	ZEAMX Corn Yield
	Pest Code							AMAPA	DIGSA	IPOSS	
	Pest Name							PalmerAm	L.crbgrs	mornglry	
	Crop Code										ZEAMX
	Crop Name										Corn
	Rating Type							Control	Control	Control	Yield
	Rating Unit							%	%	%	Bu/Acre
	Rating Date							07/11/14	07/11/14	07/11/14	09/24/14
1	Untreated Check							0.0 c	0.0 c	0.0 b	149.0 a
2	Lexar EZ Premix	3.71	SC	2.78	lb ai/a	PRE	A	100.0 a	91.0 ab	90.7 a	169.5 a
	----s-metolachlor	1.742819		1.3							
	----mesotrione	0.2243629		0.168							
	----atrazine	1.742819		1.3							
	Princep.....simazine	4	L	1	lb ai/a	PRE	A				
3	Lexar EZ Premix	3.71	SC	1.39	lb ai/a	PRE	A	100.0 a	99.0 a	90.0 a	166.7 a
	----s-metolachlor	1.742819		0.65							
	----mesotrione	0.2243629		0.084							
	----atrazine	1.742819		0.65							
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V4	C				
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	Atrazine 4L	4	L	0.5	lb ai/a	V4	C				
	Nonionic Surfactant	100	L	0.25	% v/v	V4	C				
4	Lumax EZ Premix	3.67	SC	1.84	lb ai/a	PRE	A	93.3 b	95.0 a	93.3 a	163.9 a
	----s-metolachlor	2.49		1.25							
	----mesotrione	0.25		0.125							
	----atrazine	0.93		0.466							
	Touchdown Total...glyphosate	4.17	SL	0.98	lb ae/a	V6	D				
5	Lumax EZ Premix	3.67	SC	2.98	lb ai/a	PRE	A	96.7 ab	96.0 a	82.7 a	160.4 a
	----s-metolachlor	2.49		2.02							
	----mesotrione	0.25		0.203							
	----atrazine	0.93		0.755							
6	Lumax EZ Premix	3.67	SC	2.52	lb ai/a	PRE	A	100.0 a	95.0 a	77.0 a	163.0 a
	----s-metolachlor	2.49		1.71							
	----mesotrione	0.25		0.172							
	----atrazine	0.93		0.64							
	Princep.....simazine	4	L	1	lb ai/a	PRE	A				
7	Halex GT Premix	4.376	SC	1.97	lb ai/a	V4	C	100.0 a	100.0 a	88.0 a	165.9 a
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	Atrazine 4L	4	L	1	lb ai/a	V4	C				
	Nonionic Surfactant	100	L	0.25	% v/v	V4	C				
8	Lexar EZ Premix	3.71	SC	3.25	lb ai/a	PRE	A	96.7 ab	87.7 ab	87.3 a	154.0 a
	----s-metolachlor	1.742819		1.53							
	----mesotrione	0.2243629		0.197							
	----atrazine	1.742819		1.53							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=6

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	DIGSA L.crbgrs	IPOSS mornglry	ZEAMX Corn Yield
	Pest Code							AMAPA	DIGSA	IPOSS	
	Pest Name							PalmerAm	L.crbgrs	mornglry	
	Crop Code										ZEAMX
	Crop Name										Corn
	Rating Type							Control	Control	Control	Yield
	Rating Unit							%	%	%	Bu/Acre
	Rating Date							07/11/14	07/11/14	07/11/14	09/24/14
9	Keystone LA NXT Premix	6	SE	3.45	lb ai/a	PRE	A	100.0 a	96.7 a	76.3 a	174.4 a
	----acetochlor	4.3		2.47							
	----atrazine	1.7		0.98							
	Prowl H2O.....pendimethalin	3.8	CS	0.95	lb ai/a	PRE	A				
10	Keystone NXT Premix	5.6	SE	3.36	lb ai/a	PRE	A	98.3 ab	93.7 ab	79.0 a	167.7 a
	----acetochlor	3.1		1.86							
	----atrazine	2.5		1.5							
	Prowl H2O.....pendimethalin	3.8	CS	0.95	lb ai/a	PRE	A				
11	SureStart Premix	4.25	SE	1.06	lb ai/a	PRE	A	100.0 a	80.0 b	81.0 a	164.7 a
	----acetochlor	3.75		0.935							
	----clopyralid	0.38		0.095							
	----flumetsulam	0.12		0.03							
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	V4	C				
12	SureStart Premix	4.25	SE	1.06	lb ai/a	V2	B	100.0 a	88.3 ab	79.3 a	177.1 a
	----acetochlor	3.75		0.935							
	----clopyralid	0.38		0.095							
	----flumetsulam	0.12		0.03							
	Atrazine 4L	4	L	1	lb ai/a	V2	B				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	V2	B				
	LSD P=.05							6.30	14.43	24.22	22.86
	Standard Deviation							3.72	8.52	14.30	13.47
	CV							4.11	10.0	18.56	8.18
	Replicate F							4.068	2.113	0.411	21.760
	Replicate Prob(F)							0.0314	0.1448	0.6679	0.0001
	Treatment F							176.890	31.007	9.113	1.004
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.4752

University of Delaware

Tolerance to ALS-Herbicides and Isoxaflutole Applied at Planting at 2X Rates

Trial ID: Corn6-14 Location: Field #14 Trial Year:
Protocol ID: Corn6-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: H5555RC3P, H4744RC2P BBCH Scale: BCOR
Description: H6179RCSS, H4610

Planting Date: 04/23/14
Planting Rate, Unit: 28000 S/A Planting Method: PLANTD planted
Depth, Unit: 2 IN Planting Equipment: PP Plot Planter
Row Spacing, Unit: 30 IN Emergence Date: 05/05/14
Harvest Date: 09/18/14
Harvested Width, Unit: 2.5 FT
Soil Temperature, Unit: 60 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDIUM medium % Standard Moisture: 15.5

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 10 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Field Prep./Maintenance:
Trial kept weed-free - glyphosate applied with 28DAP treatments.

Soil Description

% Sand: 81 % OM: 1.1 Texture: LS loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.7 Fert. Level: G good
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

University of Delaware

Application Description

	A	B
Application Date:	04/25/14	05/28/14
Appl. Stop Time:	08:00 AM	08:45 AM
Interval to Prev. Appl., Unit:		33 DAYS
Application Method:	SPRAY	SPRAY
Application Timing:	PRE	28DAP
Application Placement:	BROADC	BROADC
Applied By:	Johnson	Johnson
Air Temperature, Unit:	53 F	74 F
% Relative Humidity:	42	74
Wind Velocity, Unit:	1 MPH	2 MPH
Wind Direction:	SE	SW
Dew Presence (Y/N):	N no	Y yes
Soil Temperature, Unit:	52 F	73 F
Soil Moisture:	NORMAL	NORMAL
% Cloud Cover:	15	85

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:		DESC
Stage Majority, Percent:		V5 100
Height, Unit:		11 IN
Height Minimum, Maximum:		10 12

Application Equipment

	A	B
Appl. Equipment:	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	10 ft	10 ft
Boom Height, Unit:	18 in	28 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR

Trial Comments

5/02/14: H4610 was just germinating, sprout was less than 0.25 inches while the other three hybrids were about 1.5 inches sprouted. Rain gague was put out immediately after planting in water in rain gauge was at 1.6 inches (from irrigation plus rainfall).

5/14/14: Some chlorosis observed with treatments 3, 4, 5, and 8; chlorosis was most pronounced in H5555 (but chlorosis was at acceptable level).

5/28/14: Treatment 9 was already injured at V5 spray timing and was only 3.5 to 7 inches tall.

University of Delaware

Tolerance to ALS-Herbicides and Isoxaflutole Applied at Planting at 2X Rates

Trial ID: Corn6-14 Location: Field #14 Trial Year:
Protocol ID: Corn6-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
Crop Name							Corn	Corn	Corn	Corn
Rating Type							Stunting	Stunting	Stunting	Stunting
Rating Unit							%	%	%	%
Rating Date							05/14/14	05/14/14	05/14/14	05/14/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							0.0 e	0.0 d	0.0 f	
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	20.0 c	9.0 c	12.3 d	
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	26.7 ab	20.0 b	28.3 ab	
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	25.0 abc	21.7 ab	23.3 c	
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	21.7 bc	25.0 ab	15.7 d	
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	12.3 d	6.7 c	6.3 e	
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	4.7 e	3.3 cd	4.7 ef	
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=37,41,53
Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn Stunting % 05/14/14	ZEAMX Corn Stunting % 05/14/14	ZEAMX Corn Stunting % 05/14/14	ZEAMX Corn Stunting % 05/14/14
	Crop Code										
	Crop Name										
	Rating Type										
	Rating Unit										
	Rating Date										
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	30.0 a	23.3 ab	25.0 bc	
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	26.7 ab	26.7 a	30.0 a	
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	0.0 e	0.0 d	0.0 f	
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							6.33	6.63	4.94	.
	Standard Deviation							3.69	3.87	2.88	.
	CV							22.11	28.5	19.79	.
	Replicate F							2.935	0.678	0.871	
	Replicate Prob(F)							0.0789	0.5202	0.4356	
	Treatment F							29.388	23.325	48.543	
	Treatment Prob(F)							0.0001	0.0001	0.0001	

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Crop Code Crop Name Rating Type Rating Unit Rating Date							ZEAMX Corn Stunting % 05/21/14	ZEAMX Corn Stunting % 05/21/14	ZEAMX Corn Stunting % 05/21/14	ZEAMX Corn Stunting % 05/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							0.0 d	0.0 d	0.0 e	0.0 d
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	40.0 bc	33.3 b	25.7 c	26.7 bc
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	63.3 a	56.7 a	56.7 ab	50.0 a
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	53.3 ab	40.0 b	46.7 b	43.3 ab
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	53.3 ab	53.3 a	53.3 ab	45.0 a
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	31.7 c	18.0 c	15.0 cd	24.0 c
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	9.0 d	0.0 d	8.7 de	9.0 cd
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							Stunting	Stunting	Stunting	Stunting
	Rating Unit							%	%	%	%
	Rating Date							05/21/14	05/21/14	05/21/14	05/21/14
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	60.0 a	56.7 a	53.3 ab	46.7 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	60.0 a	56.7 a	60.0 a	50.0 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	0.0 d	0.0 d	0.0 e	0.0 d
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							14.86	11.03	11.75	17.70
	Standard Deviation							8.66	6.43	6.85	10.32
	CV							23.37	20.43	21.45	35.02
	Replicate F							0.482	0.668	1.079	0.166
	Replicate Prob(F)							0.6255	0.5248	0.3610	0.8487
	Treatment F							25.967	45.249	38.634	11.788
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Crop Code Crop Name Rating Type Rating Unit Rating Date							ZEAMX Corn Stunting % 05/28/14	ZEAMX Corn Stunting % 05/28/14	ZEAMX Corn Stunting % 05/28/14	ZEAMX Corn Stunting % 05/28/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							0.0 c	0.0 e	0.0 e	0.0 d
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	38.3 b	20.7 d	28.3 cd	22.3 c
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	63.3 a	60.0 a	60.0 a	53.3 a
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	53.3 ab	31.7 c	43.3 b	31.7 bc
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	53.3 ab	50.0 b	40.0 bc	45.0 ab
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	43.3 b	31.7 c	21.7 d	15.0 cd
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	10.7 c	8.0 e	7.0 e	1.7 d
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							Stunting	Stunting	Stunting	Stunting
	Rating Unit							%	%	%	%
	Rating Date							05/28/14	05/28/14	05/28/14	05/28/14
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	66.7 a	53.3 ab	60.0 a	56.7 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	63.3 a	53.3 ab	60.0 a	53.3 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	0.0 c	0.0 e	0.0 e	0.0 d
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							16.86	9.91	12.25	20.11
	Standard Deviation							9.83	5.78	7.14	11.72
	CV							25.05	18.72	22.3	42.02
	Replicate F							0.058	0.067	0.800	0.009
	Replicate Prob(F)							0.9435	0.9355	0.4645	0.9906
	Treatment F							21.486	47.512	34.874	11.814
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

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Crop Code Crop Name Rating Type Rating Unit Rating Date							ZEAMX Corn Stunting % 06/04/14	ZEAMX Corn Stunting % 06/04/14	ZEAMX Corn Stunting % 06/04/14	ZEAMX Corn Stunting % 06/04/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							0.0 e	0.0 e	0.0 e	0.0 f
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	30.0 cd	22.3 d	22.3 d	14.7 d
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	56.7 ab	58.3 a	53.3 ab	60.0 a
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	43.3 bc	30.0 c	40.0 c	31.7 c
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	50.0 b	46.7 b	46.7 bc	43.3 b
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	23.3 d	17.3 d	16.7 d	11.3 de
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	4.0 e	2.3 e	5.7 e	3.3 ef
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							Stunting	Stunting	Stunting	Stunting
	Rating Unit							%	%	%	%
	Rating Date							06/04/14	06/04/14	06/04/14	06/04/14
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	68.3 a	63.3 a	60.0 a	53.3 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	53.3 ab	60.0 a	56.7 a	53.3 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	0.0 e	0.0 e	6.3 e	8.3 def
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							15.58	5.80	9.76	8.91
	Standard Deviation							9.08	3.38	5.69	5.19
	CV							27.61	11.25	18.49	18.59
	Replicate F							0.452	1.422	0.029	0.001
	Replicate Prob(F)							0.6433	0.2671	0.9716	0.9988
	Treatment F							23.193	171.544	49.584	59.236
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

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Crop Code Crop Name Rating Type Rating Unit Rating Date							ZEAMX Corn Stunting % 06/10/14	ZEAMX Corn Stunting % 06/10/14	ZEAMX Corn Stunting % 06/10/14	ZEAMX Corn Stunting % 06/10/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							0.0 d	0.0 f	0.0 e	0.0 d
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	23.3 c	15.7 d	11.7 d	16.7 c
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	53.3 ab	50.0 b	46.7 a	43.3 a
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	23.3 c	15.0 d	19.0 c	18.0 c
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	50.0 b	33.3 c	28.3 b	33.3 b
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	8.0 d	5.7 e	5.7 de	4.7 d
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	0.0 d	0.0 f	0.0 e	0.0 d
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							Stunting	Stunting	Stunting	Stunting
	Rating Unit							%	%	%	%
	Rating Date							06/10/14	06/10/14	06/10/14	06/10/14
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	65.0 a	50.0 b	53.3 a	43.3 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	63.3 a	56.7 a	53.3 a	43.3 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	0.0 d	4.0 ef	4.7 e	0.0 d
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							12.70	5.66	6.95	9.13
	Standard Deviation							7.41	3.30	4.05	5.32
	CV							25.87	14.33	18.2	26.26
	Replicate F							1.233	0.847	0.885	0.213
	Replicate Prob(F)							0.3149	0.4451	0.4299	0.8102
	Treatment F							39.709	138.698	86.517	38.365
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Crop Code Crop Name Rating Type Rating Unit Rating Date							ZEAMX Corn Stunting % 06/17/14	ZEAMX Corn Stunting % 06/17/14	ZEAMX Corn Stunting % 06/17/14	ZEAMX Corn Stunting % 06/17/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							0.0 d	0.0 d	0.0 e	0.0 c
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	26.7 abc	16.7 bcd	16.7 cde	11.7 bc
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	31.7 ab	28.3 ab	23.3 abc	18.3 ab
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	15.0 bcd	8.3 cd	10.7 cde	11.7 bc
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	38.3 a	23.3 abc	20.0 bcd	19.0 ab
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	6.7 cd	4.7 cd	4.7 de	2.3 c
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	0.0 d	0.0 d	0.0 e	0.0 c
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							Stunting	Stunting	Stunting	Stunting
	Rating Unit							%	%	%	%
	Rating Date							06/17/14	06/17/14	06/17/14	06/17/14
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	43.3 a	38.3 a	38.3 a	26.7 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	41.7 a	36.7 a	35.0 ab	26.7 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	0.0 d	0.0 d	0.0 e	0.0 c
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							23.33	18.91	17.65	13.29
	Standard Deviation							13.60	11.02	10.29	7.75
	CV							66.88	70.51	69.2	66.61
	Replicate F							1.546	1.832	1.231	1.593
	Replicate Prob(F)							0.2401	0.1887	0.3155	0.2307
	Treatment F							5.286	5.722	5.802	5.794
	Treatment Prob(F)							0.0013	0.0008	0.0008	0.0008

Crop Code Crop Name Rating Type Rating Unit Rating Date							ZEAMX Corn Stunting % 06/26/14	ZEAMX Corn Stunting % 06/26/14	ZEAMX Corn Stunting % 06/26/14	ZEAMX Corn Stunting % 06/26/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							0.0 d	0.0 d	0.0 e	0.0 c
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	17.3 cd	15.0 c	14.0 cd	10.7 bc
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	27.3 bc	31.7 ab	25.0 ab	30.0 a
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	17.3 cd	15.7 c	13.0 cd	11.7 b
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	30.0 abc	28.3 b	20.0 bc	25.0 a
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	0.0 d	7.0 cd	9.7 de	5.7 bc
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	0.0 d	0.0 d	0.0 e	0.0 c
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							Stunting	Stunting	Stunting	Stunting
	Rating Unit							%	%	%	%
	Rating Date							06/26/14	06/26/14	06/26/14	06/26/14
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	46.7 a	38.3 ab	28.3 ab	28.3 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	38.3 ab	40.0 a	33.3 a	30.0 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	0.0 d	0.0 d	0.0 e	0.0 c
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							18.41	10.31	10.14	11.12
	Standard Deviation							10.73	6.01	5.91	6.48
	CV							60.64	34.15	41.23	45.87
	Replicate F							3.938	6.681	3.854	1.333
	Replicate Prob(F)							0.0381	0.0068	0.0404	0.2885
	Treatment F							7.992	21.199	12.815	11.993
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Crop Code Crop Name Rating Type Rating Unit Rating Date							ZEAMX Corn Stunting % 07/02/14	ZEAMX Corn Stunting % 07/02/14	ZEAMX Corn Stunting % 07/02/14	ZEAMX Corn Stunting % 07/02/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							0.0 c	0.0 e	0.0 d	0.0 c
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	14.0 b	16.7 cd	2.3 cd	0.0 c
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	20.7 ab	18.3 bc	10.0 b	6.3 b
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	9.0 bc	13.0 d	0.0 d	2.3 bc
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	14.0 b	18.3 bc	5.7 bc	0.0 c
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	0.0 c	2.3 e	2.3 cd	0.0 c
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	0.0 c	0.0 e	0.0 d	0.0 c
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn Stunting % 07/02/14	ZEAMX Corn Stunting % 07/02/14	ZEAMX Corn Stunting % 07/02/14	ZEAMX Corn Stunting % 07/02/14
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	30.0 a	23.3 ab	17.3 a	13.3 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	30.0 a	26.7 a	21.7 a	15.0 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	0.0 c	0.0 e	0.0 d	0.0 c
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
LSD P=.05								11.80	5.04	5.53	5.29
Standard Deviation								6.88	2.94	3.22	3.08
CV								58.46	24.77	54.33	83.35
Replicate F								1.890	0.953	1.937	0.042
Replicate Prob(F)								0.1799	0.4043	0.1730	0.9589
Treatment F								9.267	37.490	17.989	10.915
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Crop Code Crop Name Rating Type Rating Unit Rating Date							ZEAMX Corn Count #/25'row 06/12/14	ZEAMX Corn Count #/25'row 06/12/14	ZEAMX Corn Count #/25'row 06/12/14	ZEAMX Corn Count #/25'row 06/12/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							46.3 a	46.3 a	47.7 a	28.3 a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	46.3 a	45.0 a	48.7 a	26.0 a
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	49.0 a	47.0 a	48.3 a	23.7 a
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	47.3 a	46.7 a	48.3 a	27.7 a
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	47.7 a	47.7 a	49.3 a	25.0 a
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	48.3 a	43.7 a	49.7 a	28.7 a
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	45.7 a	43.3 a	48.3 a	28.7 a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							Count	Count	Count	Count
	Rating Unit							#/25'row	#/25'row	#/25'row	#/25'row
	Rating Date							06/12/14	06/12/14	06/12/14	06/12/14
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	46.7 a	45.0 a	47.7 a	26.7 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	48.3 a	43.0 a	48.7 a	28.7 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	47.0 a	48.3 a	49.7 a	26.7 a
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							4.41	4.31	3.92	6.10
	Standard Deviation							2.57	2.51	2.29	3.56
	CV							5.44	5.5	4.7	13.17
	Replicate F							1.834	3.063	0.427	1.100
	Replicate Prob(F)							0.1884	0.0716	0.6591	0.3544
	Treatment F							0.513	1.679	0.304	0.709
	Treatment Prob(F)							0.8465	0.1670	0.9638	0.6940

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn Count #/25'row 09/18/14	ZEAMX Corn Count #/25'row 09/18/14	ZEAMX Corn Count #/25'row 09/18/14	ZEAMX Corn Count #/25'row 09/18/14
1	Untreated Check							48.0 a	47.0 a	47.7 a	29.0 a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	46.9 a	45.3 a	47.3 a	26.7 a
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	46.7 a	47.3 a	47.7 a	24.0 a
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	46.7 a	45.7 a	47.7 a	28.0 a
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	47.3 a	47.0 a	47.0 a	26.3 a
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	48.3 a	47.3 a	48.3 a	29.7 a
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	48.0 a	45.0 a	46.7 a	27.3 a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							Count	Count	Count	Count
	Rating Unit							#/25'row	#/25'row	#/25'row	#/25'row
	Rating Date							09/18/14	09/18/14	09/18/14	09/18/14
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	48.0 a	45.0 a	47.0 a	26.7 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	48.7 a	45.7 a	48.3 a	29.3 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	48.7 a	47.7 a	48.3 a	27.7 a
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							2.46	3.60	2.58	6.69
	Standard Deviation							1.43	2.10	1.50	3.90
	CV							2.99	4.54	3.16	14.19
	Replicate F							0.358	0.295	0.133	0.561
	Replicate Prob(F)							0.7044	0.7483	0.8767	0.5801
	Treatment F							0.899	0.763	0.484	0.561
	Treatment Prob(F)							0.5470	0.6506	0.8663	0.8107

Crop Code Crop Name Rating Type Rating Unit Rating Date							ZEAMX Corn ScrwnyPl #/25'row 09/18/14	ZEAMX Corn ScrwnyPl #/25'row 09/18/14	ZEAMX Corn ScrwnyPl #/25'row 09/18/14	ZEAMX Corn ScrwnyPl #/25'row 09/18/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							0.0 b	0.0 a	0.7 a	0.0 a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	0.1 b	0.0 a	1.0 a	0.0 a
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	3.3 a	1.0 a	0.0 a	0.0 a
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	0.0 b	0.0 a	0.0 a	0.0 a
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	0.3 b	0.7 a	0.0 a	0.0 a
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	0.0 b	0.3 a	0.7 a	0.3 a
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	1.0 ab	0.7 a	1.0 a	0.7 a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							ScrwnyPl	ScrwnyPl	ScrwnyPl	ScrwnyPl
	Rating Unit							#/25'row	#/25'row	#/25'row	#/25'row
	Rating Date							09/18/14	09/18/14	09/18/14	09/18/14
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	1.0 ab	0.3 a	1.0 a	0.0 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	3.3 a	0.3 a	0.0 a	0.0 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	0.7 b	1.3 a	0.7 a	0.3 a
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							2.41	1.40	1.38	0.76
	Standard Deviation							1.40	0.81	0.80	0.44
	CV							143.83	174.48	160.55	332.29
	Replicate F							1.357	1.559	1.862	1.189
	Replicate Prob(F)							0.2838	0.2375	0.1841	0.3274
	Treatment F							2.597	0.916	0.948	0.830
	Treatment Prob(F)							0.0431	0.5331	0.5100	0.5979

Crop Code Crop Name Rating Type Rating Unit Rating Date							ZEAMX Corn Yield Bu/A 09/18/14	ZEAMX Corn Yield Bu/A 09/18/14	ZEAMX Corn Yield Bu/A 09/18/14	ZEAMX Corn Yield Bu/A 09/18/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							245.3 a-d	291.5 a	215.0 a	165.3 a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
2	Hornet WDG Premix	78.5	WG	0.393	lb ai/a	PRE	A	206.5 b-e	280.6 a	196.4 a	133.4 a
	----flumetsulam	18.5		0.093							
	----clopyralid	60		0.3							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
3	Basis Blend Premix	30	SG	0.047	lb ai/a	PRE	A	251.8 abc	284.0 a	202.1 a	121.6 a
	----rimsulfuron	20		0.0313							
	----thifensulfuron	10		0.0157							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
4	Capreno Premix	3.45	SC	0.162	lb ai/a	PRE	A	204.3 b-e	290.5 a	206.6 a	161.0 a
	----thiencarbazone	0.57		0.0268							
	----tembotrione	2.88		0.135							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
5	Prequel Premix	45	DF	0.09	lb ai/a	PRE	A	183.8 de	277.5 a	207.6 a	138.0 a
	----rimsulfuron	15		0.03							
	----isoxaflutole	30		0.06							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
6	Corvus Premix	2.63	SC	0.136	lb ai/a	PRE	A	227.7 a-e	287.8 a	215.7 a	160.3 a
	----thiencarbazone	0.75		0.0388							
	----isoxaflutole	1.88		0.097							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
7	Balance Flexx...isoxaflutole	2	L	0.094	lb ai/a	PRE	A	256.9 ab	273.2 a	202.6 a	147.7 a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							Yield	Yield	Yield	Yield
	Rating Unit							Bu/A	Bu/A	Bu/A	Bu/A
	Rating Date							09/18/14	09/18/14	09/18/14	09/18/14
8	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	190.5 cde	273.2 a	193.4 a	141.2 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
9	Instigate Premix	45.8	WG	0.344	lb ai/a	PRE	A	174.4 e	284.7 a	207.1 a	152.7 a
	----rimsulfuron	4.15		0.0312							
	----mesotrione	41.65		0.313							
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B				
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
10	Realm Q Premix	38.7	WG	0.194	lb ai/a	28DAP	B	275.0 a	310.6 a	215.6 a	151.8 a
	----rimsulfuron	7.5		0.0376							
	----mesotrione	31.2		0.156							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	LSD P=.05							63.15	44.98	16.46	34.95
	Standard Deviation							36.66	26.22	9.59	20.38
	CV							16.54	9.19	4.65	13.83
	Replicate F							2.191	6.616	19.336	0.620
	Replicate Prob(F)							0.1424	0.0070	0.0001	0.5490
	Treatment F							2.669	0.527	1.988	1.369
	Treatment Prob(F)							0.0389	0.8361	0.1026	0.2718

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Isoxaflutole in Field Corn

Trial ID: Corn7-14 Location: Field #30 Trial Year:
Protocol ID: Corn7-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Bayer

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: H6179RCSS BBCH Scale: BCOR
Planting Date: 05/12/14
Planting Rate, Unit: 19000 S/A Planting Method: PLANTD planted
Depth, Unit: 2 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 30 in Emergence Date: 05/19/14
Harvest Date: 09/24/14
Harvested Width, Unit: 5 FT
Soil Temperature, Unit: 88 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDTRA medium/trashy % Standard Moisture: 15.5

Pest Description

Pest 1 Type: W Code: SOLCA Solanum carolinense
Common Name: Horsenettle

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 14 Tillage Type: NOTILL no-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/21/14	Roundup	4.5	AS	1	QT/A
2.	04/21/14	2,4-D Ester	3.8	SC	1	PT/A

Field Prep./Maintenance:
Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

Soil Description

% Sand: 83 % OM: 1.3 Texture: LS loamy sand
% Silt: 8 pH: 5.4
% Clay: 9 CEC: 3.4 Fert. Level: G good
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

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Application Description

	A	B	C
Application Date:	05/13/14	06/02/14	06/06/14
Appl. Stop Time:	10:30 AM	10:40 AM	10:10 AM
Interval to Prev. Appl., Unit:		20 DAYS	4 DAYS
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	V3	V6
Application Placement:	BROADC	BROADC	BROADC
Applied By:	Johnson	Johnson	Johnson
Air Temperature, Unit:	80 F	72 F	71 F
% Relative Humidity:	56	45	53
Wind Velocity, Unit:	0 mph	4 mph	2 mph
Wind Direction:	N/A	SW	NE
Dew Presence (Y/N):	Y yes	N no	N no
Soil Temperature, Unit:	78 F	71 F	70 F
Soil Moisture:	NORMAL	NORMAL	NORMAL
% Cloud Cover:	20	10	50

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:		DESC	DESC
Stage Majority, Percent:		V3 70	V6 55
Stage Minimum, Percent:		V3 70	V5 45
Stage Maximum, Percent:		V4 30	V6 55
Height, Unit:		6.5 in	8 in
Height Minimum, Maximum:		4 7	6 9

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	SOLCA W	SOLCA W	SOLCA W
Stage Majority, Percent:		veg 65	
Stage Minimum, Percent:		veg 65	
Stage Maximum, Percent:		flowr 35	
Height, Unit:		4 in	
Height Minimum, Maximum:		2.5 6.5	
Density, Unit:		4 m2	

Application Equipment

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	10 ft	10 ft	10 ft
Boom Height, Unit:	18 in	22 in	26 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	WATER	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR	COMAIR

Trial Comments

6/02/14: Corn appears to be nutrient stressed.

6/06/14: Treatment 11 has no weeds at V6 application timing. Corn is still showing some slight stress.

6/03/14: Very low weed density in untreated checks, a few morningglory plants, palmer amaranth and annual grasses (not enough to rate).
Corn is V3 to V4 stage.

6/08/14: Chlorosis or leaf discoloration. For treatment 2, this includes leaf burn as well.

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Isoxaflutole in Field Corn

Trial ID: Corn7-14 Location: Field #30 Trial Year:
Protocol ID: Corn7-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Bayer

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Pest Code										
	Pest Name										
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							Stunting	Stunting	Chlorosis	Twisting
	Rating Unit							%	%	%	%
	Rating Date							06/03/14	06/08/14	06/08/14	06/08/14
1	Untreated Check							0.0 d	0.0 c	0.0 c	0.0 c
2	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	11.3 a	14.7 a	0.0 c	0.0 c
	----thiencarbazone	0.75		0.0194							
	----isoxaflutole	1.88		0.0486							
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
3	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	6.3 c	8.7 abc	0.0 c	0.0 c
	----thiencarbazone	0.75		0.0194							
	----isoxaflutole	1.88		0.0486							
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
	Princep.....simazine	4	L	1	lb ai/a	PRE	A				
4	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	9.0 abc	8.0 abc	0.0 c	0.0 c
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
	Princep.....simazine	4	L	1	lb ai/a	PRE	A				
5	Balance Flexx...isoxaflutole	2	L	0.0625	lb ai/a	PRE	A	8.0 abc	7.3 abc	0.0 c	0.0 c
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
	Princep.....simazine	4	L	1	lb ai/a	PRE	A				
6	Balance Flexx...isoxaflutole	2	L	0.0625	lb ai/a	PRE	A	10.7 ab	7.3 abc	0.0 c	0.0 c
	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A				
	----s-metolachlor	2.4		1.27							
	----atrazine	3.1		1.63							
7	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	7.3 bc	10.3 ab	0.0 c	0.0 c
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A				
8	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	7.6 bc	9.7 ab	0.0 c	0.0 c
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A				
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A				
9	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	7.0 c	8.3 abc	7.3 b	0.0 c
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A				
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B				
	----thiencarbazone	0.57		0.0134							
	----tembotrione	2.88		0.0676							
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B				
10	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	0.0 d	6.3 abc	5.7 b	0.0 c
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B				
	----thiencarbazone	0.57		0.0134							
	----tembotrione	2.88		0.0676							
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,6,7,8
Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Pest Code										
	Pest Name										
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Crop Name							Corn	Corn	Corn	Corn
	Rating Type							Stunting	Stunting	Chlorosis	Twisting
	Rating Unit							%	%	%	%
	Rating Date							06/03/14	06/08/14	06/08/14	06/08/14
11	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	0.0 d	9.0 ab	19.0 a	0.0 c
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Capreno Premix	3.45	SC	0.081	lb ai/a	V6	C				
	----thiencarbazone	0.57		0.0134							
	----tembotrione	2.88		0.0676							
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V6	C				
	Atrazine 4L	4	L	0.5	lb ai/a	V6	C				
12	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	0.0 d	0.0 c	0.0 c	5.7 b
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	DiFlexx.....dicamba	4	L	0.25	lb ai/a	V3	B				
13	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	0.0 d	1.7 bc	0.0 c	15.3 a
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	DiFlexx.....dicamba	4	L	0.5	lb ai/a	V3	B				
14	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	0.0 d	0.0 c	5.0 b	9.0 b
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	DiFlexx.....dicamba	4	L	0.25	lb ai/a	V3	B				
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	LSD P=.05							3.42	8.92	4.07	4.67
	Standard Deviation							2.03	5.32	2.43	2.78
	CV							42.28	81.47	91.76	129.91
	Replicate F							0.760	0.132	1.567	0.894
	Replicate Prob(F)							0.4787	0.8766	0.2278	0.4212
	Treatment F							14.806	2.120	14.680	8.456
	Treatment Prob(F)							0.0001	0.0499	0.0001	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	AMAPA PalmerAm	DIGSA L.crbgrs	IPOSS mornglry
	Pest Code							AMAPA	AMAPA	DIGSA	IPOSS
	Pest Name							PalmerAm	PalmerAm	L.crbgrs	mornglry
	Crop Code										
	Crop Name										
	Rating Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/08/14	07/11/14	07/11/14	07/11/14
1	Untreated Check							0.0 b	0.0 c	0.0 e	0.0 c
2	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	100.0 a	100.0 a	76.0 d	93.3 b
	----thiencarbazone	0.75		0.0194							
	----isoxaflutole	1.88		0.0486							
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
3	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	100.0 a	100.0 a	76.7 d	99.0 ab
	----thiencarbazone	0.75		0.0194							
	----isoxaflutole	1.88		0.0486							
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
	Princep.....simazine	4	L	1	lb ai/a	PRE	A				
4	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	100.0 a	99.7 a	94.0 abc	99.0 ab
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
	Princep.....simazine	4	L	1	lb ai/a	PRE	A				
5	Balance Flexx...isoxaflutole	2	L	0.0625	lb ai/a	PRE	A	100.0 a	93.3 ab	81.7 bcd	99.0 ab
	Atrazine 4L	4	L	1	lb ai/a	PRE	A				
	Princep.....simazine	4	L	1	lb ai/a	PRE	A				
6	Balance Flexx...isoxaflutole	2	L	0.0625	lb ai/a	PRE	A	100.0 a	100.0 a	97.7 a	99.7 a
	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A				
	----s-metolachlor	2.4		1.27							
	----atrazine	3.1		1.63							
7	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	100.0 a	95.0 ab	93.3 abc	98.7 ab
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A				
8	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	100.0 a	100.0 a	97.5 a	99.6 a
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A				
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A				
9	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	100.0 a	100.0 a	99.0 a	100.0 a
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A				
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B				
	----thiencarbazone	0.57		0.0134							
	----tembotrione	2.88		0.0676							
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B				
10	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a	100.0 a	90.0 a-d	100.0 a
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B				
	----thiencarbazone	0.57		0.0134							
	----tembotrione	2.88		0.0676							
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	AMAPA PalmerAm	DIGSA L.crbgrs	IPOSS mornglry
	Pest Code							AMAPA	AMAPA	DIGSA	IPOSS
	Pest Name							PalmerAm	PalmerAm	L.crbgrs	mornglry
	Crop Code										
	Crop Name										
	Rating Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/08/14	07/11/14	07/11/14	07/11/14
11	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a	100.0 a	100.0 a	100.0 a
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Capreno Premix	3.45	SC	0.081	lb ai/a	V6	C				
	----thiencarbazone	0.57		0.0134							
	----tembotrione	2.88		0.0676							
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V6	C				
	Atrazine 4L	4	L	0.5	lb ai/a	V6	C				
12	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a	88.3 b	79.3 cd	98.0 ab
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	DiFlexx.....dicamba	4	L	0.25	lb ai/a	V3	B				
13	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a	99.0 a	87.3 a-d	98.7 ab
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	DiFlexx.....dicamba	4	L	0.5	lb ai/a	V3	B				
14	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	100.0 a	100.0 a	95.0 ab	100.0 a
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	DiFlexx.....dicamba	4	L	0.25	lb ai/a	V3	B				
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	LSD P=.05							.	7.33	15.44	5.71
	Standard Deviation							0.00	4.36	9.18	3.40
	CV							0.0	4.79	11.01	3.7
	Replicate F							0.000	3.224	0.306	0.577
	Replicate Prob(F)							1.0000	0.0568	0.7388	0.5690
	Treatment F							0.000	110.396	22.986	182.287
	Treatment Prob(F)							1.0000	0.0001	0.0001	0.0001

Pest Code	
Pest Name	
Crop Code	ZEAMX
Crop Name	Corn
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	09/24/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
1	Untreated Check							114.4 c
2	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	160.3 ab
	----thiencarbazone	0.75		0.0194				
	----isoxaflutole	1.88		0.0486				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
3	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	A	179.2 a
	----thiencarbazone	0.75		0.0194				
	----isoxaflutole	1.88		0.0486				
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
	Princep.....simazine	4	L	1	lb ai/a	PRE	A	
4	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	186.8 a
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
	Princep.....simazine	4	L	1	lb ai/a	PRE	A	
5	Balance Flexx...isoxaflutole	2	L	0.0625	lb ai/a	PRE	A	156.1 ab
	Atrazine 4L	4	L	1	lb ai/a	PRE	A	
	Princep.....simazine	4	L	1	lb ai/a	PRE	A	
6	Balance Flexx...isoxaflutole	2	L	0.0625	lb ai/a	PRE	A	164.0 ab
	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	
	----s-metolachlor	2.4		1.27				
	----atrazine	3.1		1.63				
7	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	165.7 ab
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	
8	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	139.9 bc
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A	
9	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	PRE	A	171.8 ab
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A	
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B	
	----thiencarbazone	0.57		0.0134				
	----tembotrione	2.88		0.0676				
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B	
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B	
10	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	166.2 ab
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	Capreno Premix	3.45	SC	0.081	lb ai/a	V3	B	
	----thiencarbazone	0.57		0.0134				
	----tembotrione	2.88		0.0676				
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B	
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B	

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Pest Code	
Pest Name	
Crop Code	ZEAMX
Crop Name	Corn
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	09/24/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
11	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	176.0 a
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	Capreno Premix	3.45	SC	0.081	lb ai/a	V6	C	
	----thiencarbazone	0.57		0.0134				
	----tembotrione	2.88		0.0676				
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V6	C	
	Atrazine 4L	4	L	0.5	lb ai/a	V6	C	
12	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	166.0 ab
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	DiFlexx.....dicamba	4	L	0.25	lb ai/a	V3	B	
13	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	155.9 ab
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	DiFlexx.....dicamba	4	L	0.5	lb ai/a	V3	B	
14	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	A	170.2 ab
	----s-metolachlor	2.4		0.6				
	----atrazine	3.1		0.78				
	DiFlexx.....dicamba	4	L	0.25	lb ai/a	V3	B	
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B	

LSD P=.05	34.85
Standard Deviation	20.77
CV	12.79
Replicate F	5.372
Replicate Prob(F)	0.0112
Treatment F	2.222
Treatment Prob(F)	0.0403

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Evaluating Residual Broadleaf Herbicides with Glyphosate for RR corn

Trial ID: Corn8-14 Cooperator:
Location: Field #14 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.

Crop 1: Field Corn ZEAMX Variety: DKC62-58RIB
Planting Date: 05/07/14 Planting Method: Row- Unit Planter Depth: 2 in
Rate: 28000 Sd/A Row Spacing: 30 in Seed Bed: Medium
Soil Temperature: 65 F Soil Moisture: Moist Emergence Date: 05/13/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/08/14	Dual II Magnum	7.64	E	1	pt/A

SOIL DESCRIPTION

% Sand: 81 % OM: 1.1 Texture: loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.7 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	05/22/14
Time of Day:	12:20 pm
Application Method:	Spray
Application Timing:	V2
Applic. Placement:	Brdcst
Air Temp., Unit:	78 F
% Relative Humidity:	68
Wind Velocity, Unit:	4 mph
Wind Direction:	North
Dew Presence (Y/N):	N
Soil Temp., Unit:	77 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	60

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	ZEAMX
Growth Stage:	V2
Height, Unit:	3.5 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	IPOSS
Growth Stage:	cot-2 leaf
Height, Unit:	1.5 in
Density,Unit:	8-15 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

6/21/14: plot 111 = ~10% stunting.

9/16/14: Morningglory control: Fair to good: trts 10, 13. Fair: trt 7. Poor to fair: trts 4, 5. Poor: trts 2, 3, 6, 8, 9, 11, 12, 14.

University of Delaware

Evaluating Residual Broadleaf Herbicides with Glyphosate for RR corn

Trial ID: Corn8-14 Cooperator:
Location: Field #14 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	ZEAMX Field Corn Stunting % 06/04/14	AMAPA Palmer Amaranth Control % 06/21/14	IPOSS Mornglry Species Control % 06/21/14	ZEAMX Field Corn Yield Bu/A 09/24/14
1	Untreated Check						0.0 e	0.0 c	0.0 d	179.6 b
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	0.0 e	99.0 a	56.7 c	231.6 a
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	5.7 bc	100.0 a	75.0 ab	237.2 a
	Atrazine 4L	4	L	1	lb ai/a	V2				
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	1.7 cde	100.0 a	75.0 ab	232.2 a
	Atrazine 4L	4	L	1.5	lb ai/a	V2				
5	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	1.0 de	100.0 a	86.3 a	246.8 a
	Banvel.....dicamba	4	EC	0.25	lb ai/a	V2				
6	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	4.7 bcd	100.0 a	79.3 a	229.8 a
	Sandea.....halosulfuron	75	DF	0.031	lb ai/a	V2				
7	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	1.7 cde	100.0 a	77.7 a	238.1 a
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V2				
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	1.7 cde	100.0 a	64.3 bc	243.1 a
	Impact.....topramezone	2.8	SC	0.0164	lb ai/a	V2				
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	0.0 e	100.0 a	61.7 c	238.6 a
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	V2				
10	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	1.7 cde	100.0 a	77.7 a	245.5 a
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V2				
	Atrazine 4L	4	L	0.5	lb ai/a	V2				
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	11.7 a	100.0 a	78.3 a	238.0 a
	Resolve Q Multi-Pak	22.4	DF	0.0175	lb ai/a	V2				
	----rimsulfuron	18.4		0.0144						
	----thifensulfuron	4		.00313						
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	4.7 bcd	64.3 b	86.0 a	245.4 a
	Status Premix	56	WG	0.175	lb ai/a	V2				
	----diflufenzopyr	16		0.05						
	----dicamba	40		0.125						
13	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	5.7 bc	100.0 a	81.0 a	245.8 a
	Realm Q Premix	38.7	WG	0.097	lb ai/a	V2				
	----rimsulfuron	7.5		0.0188						
	----mesotrione	31.2		0.078						
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V2	8.3 ab	100.0 a	77.7 a	238.2 a
	Capreno Premix	3.45	SC	0.081	lb ai/a	V2				
	----thiencarbazone	0.57		0.0134						
	----tembotrione	2.88		0.0676						
LSD P=.05							4.00	24.99	12.36	21.20
Standard Deviation							2.39	14.89	7.37	12.63
CV							69.12	16.5	10.56	5.38
Replicate F							2.513	1.067	1.390	6.358
Replicate Prob(F)							0.1005	0.3586	0.2669	0.0057
Treatment F							6.427	10.343	26.385	5.362
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

Soil-Applied Herbicide Evaluation in Corn

Trial ID: Corn9a-14 Cooperator:
Location: REC Field #14 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Field Corn ZEAMX Variety: DKC62-58RIB
Planting Date: 05/05/14 Planting Method: Row- Unit Planter Depth: 2 in
Rate: 28000 Sd/A Row Spacing: 30 in Seed Bed: Medium
Soil Temperature: 67 F Soil Moisture: Moist Emergence Date: 05/12/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.1 Texture: loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.7 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	05/06/14
Time of Day:	8:30 am
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	55 F
% Relative Humidity:	74
Wind Velocity, Unit:	2 mph
Wind Direction:	West
Dew Presence (Y/N):	N
Soil Temp., Unit:	53 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	N/A
% Cloud Cover:	95

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	ZEAMX

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

6/30/14: Annual grasses consist predominately of fall panicum, but has some large crabgrass.
9/16/14: Morningglory control:
Fair to good: trt 14.
Fair: trts 4, 13.
Poor to fair: trts 5, 8.
Poor: trts 2, 3, 6, 7, 9, 10, 11, 12.

University of Delaware

Soil-Applied Herbicide Evaluation in Corn

Trial ID: Corn9a-14 Cooperator:
Location: REC Field #14 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	ZEAMX Field Corn Stunting % 05/22/14	ZEAMX Field Corn Stunting % 06/04/14	AMAPA Palmer amaranth Control % 06/30/14	IPOSS Morngly Species Control % 06/30/14	GGGAN Annual grasses Control % 06/30/14
1	Untreated Check						0.0 c		0.0 b	0.0 f	0.0 e
2	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	0.0 c		100.0 a	66.7 bc	74.3 bcd
	----s-metolachlor	2.49		1.68							
	----mesotrione	0.25		0.168							
	----atrazine	0.93		0.626							
3	Lexar EZ Premix	3.7	SC	2.77	lb ai/a	PRE	0.0 c		100.0 a	68.3 abc	73.7 cd
	----s-metolachlor	1.738		1.3							
	----mesotrione	.2238		0.168							
	----atrazine	1.738		1.3							
4	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	0.0 c		100.0 a	74.3 ab	82.7 abc
	----s-metolachlor	2.49		1.68							
	----mesotrione	0.25		0.168							
	----atrazine	0.93		0.626							
	Atrazine 4L	4	L	0.75	lb ai/a	PRE					
5	Lexar EZ Premix	3.7	SC	2.77	lb ai/a	PRE	1.7 c		100.0 a	71.0 abc	83.3 ab
	----s-metolachlor	1.738		1.3							
	----mesotrione	.2238		0.168							
	----atrazine	1.738		1.3							
	Simazine.....simazine	4	L	1.5	lb ai/a	PRE					
6	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	0.0 c		100.0 a	53.3 de	78.3 a-d
	----s-metolachlor	2.4		1.27							
	----atrazine	3.1		1.63							
7	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	0.0 c		100.0 a	50.0 de	71.7 d
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
8	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	2.3 c	8.0 a	100.0 a	66.7 bc	83.7 a
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Resolve.....rimsulfuron	25	WG	0.0156	lb ai/a	PRE					
9	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	5.7 ab		100.0 a	53.3 de	81.7 abc
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	PRE					
10	Harness Xtra 5.6L Premix	5.6	L	2.38	lb ai/a	PRE	1.0 c		100.0 a	43.3 e	78.3 a-d
	----acetochlor	3.1		1.32							
	----atrazine	2.5		1.06							
11	Harness Xtra 5.6L Premix	5.6	L	4.2	lb ai/a	PRE	2.7 bc		100.0 a	60.0 cd	77.7 a-d
	----acetochlor	3.1		2.32							
	----atrazine	2.5		1.88							
12	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	PRE	1.7 c	7.0 a	100.0 a	58.3 cd	83.3 ab
	Atrazine 4L	4	L	1.25	lb ai/a	PRE					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

Weed Code									AMAPA	IPOSS	GGGAN
Crop Code							ZEAMX	ZEAMX			
Weed or Crop Name							Field	Field	Palmer	Morngly	Annual
Weed or Crop Name							Corn	Corn	amaranth	Species	grasses
Rating Data Type							Stunting	Stunting	Control	Control	Control
Rating Unit							%	%	%	%	%
Rating Date							05/22/14	06/04/14	06/30/14	06/30/14	06/30/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg					
13	Prequel Premix	45	DF	0.045	lb ai/a	PRE	5.7 ab		96.7 a	69.3 abc	86.0 a
	----rimsulfuron	15		0.015							
	----isoxaflutole	30		0.03							
	Atrazine 4L	4	L	1.5	lb ai/a	PRE					
14	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	6.3 a	11.7 a	96.7 a	80.0 a	86.7 a
	----thiencarbazone	0.75		0.0194							
	----isoxaflutole	1.88		0.0486							
	Atrazine 4L	4	L	1.5	lb ai/a	PRE					
LSD P=.05							3.05	4.87	3.73	12.91	9.20
Standard Deviation							1.82	2.15	2.22	7.69	5.48
CV							94.12	24.16	2.41	13.22	7.37
Replicate F							1.062	0.458	0.481	0.582	0.586
Replicate Prob(F)							0.3602	0.6621	0.6233	0.5659	0.5638
Treatment F							4.999	3.928	429.778	19.474	47.924
Treatment Prob(F)							0.0002	0.1138	0.0001	0.0001	0.0001

Weed Code	
Crop Code	ZEAMX
Weed or Crop Name	Field
Weed or Crop Name	Corn
Rating Data Type	Yield
Rating Unit	Bu/A
Rating Date	09/24/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	
1	Untreated Check						147.3 d
2	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	229.6 abc
	----s-metolachlor	2.49		1.68			
	----mesotrione	0.25		0.168			
	----atrazine	0.93		0.626			
3	Lexar EZ Premix	3.7	SC	2.77	lb ai/a	PRE	244.8 a
	----s-metolachlor	1.738		1.3			
	----mesotrione	.2238		0.168			
	----atrazine	1.738		1.3			
4	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	225.3 abc
	----s-metolachlor	2.49		1.68			
	----mesotrione	0.25		0.168			
	----atrazine	0.93		0.626			
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	
5	Lexar EZ Premix	3.7	SC	2.77	lb ai/a	PRE	224.3 abc
	----s-metolachlor	1.738		1.3			
	----mesotrione	.2238		0.168			
	----atrazine	1.738		1.3			
	Simazine.....simazine	4	L	1.5	lb ai/a	PRE	
6	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	213.3 abc
	----s-metolachlor	2.4		1.27			
	----atrazine	3.1		1.63			
7	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	209.7 bc
	----s-metolachlor	2.4		0.96			
	----atrazine	3.1		1.24			
8	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	233.7 abc
	----s-metolachlor	2.4		0.96			
	----atrazine	3.1		1.24			
	Resolve.....rimsulfuron	25	WG	0.0156	lb ai/a	PRE	
9	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	214.0 abc
	----s-metolachlor	2.4		0.96			
	----atrazine	3.1		1.24			
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	PRE	
10	Harness Xtra 5.6L Premix	5.6	L	2.38	lb ai/a	PRE	204.5 c
	----acetochlor	3.1		1.32			
	----atrazine	2.5		1.06			
11	Harness Xtra 5.6L Premix	5.6	L	4.2	lb ai/a	PRE	216.1 abc
	----acetochlor	3.1		2.32			
	----atrazine	2.5		1.88			
12	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	PRE	225.2 abc
	Atrazine 4L	4	L	1.25	lb ai/a	PRE	

University of Delaware

Weed Code	
Crop Code	ZEAMX
Weed or Crop Name	Field
Weed or Crop Name	Corn
Rating Data Type	Yield
Rating Unit	Bu/A
Rating Date	09/24/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	
13	Prequel Premix	45	DF	0.045	lb ai/a	PRE	234.9 abc
	----rimsulfuron	15		0.015			
	----isoxaflutole	30		0.03			
	Atrazine 4L	4	L	1.5	lb ai/a	PRE	
14	Corvus Premix	2.63	SC	0.068	lb ai/a	PRE	239.2 ab
	----thiencarbazone	0.75		0.0194			
	----isoxaflutole	1.88		0.0486			
	Atrazine 4L	4	L	1.5	lb ai/a	PRE	

LSD P=.05	31.59
Standard Deviation	18.82
CV	8.61
Replicate F	3.432
Replicate Prob(F)	0.0476
Treatment F	4.726
Treatment Prob(F)	0.0004

University of Delaware

Soil-Applied Herbicide Evaluation in Corn

Trial ID: Corn9b-14 Cooperator:
Location: Newark Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Field Corn ZEAMX
Planting Date: 06/05/14 Planting Method: Row- Unit Planter Depth: 2 in
Rate: 30000 Sd/A Row Spacing: 30 in Seed Bed: Medium
Soil Temperature: 75 F Soil Moisture: Moist Emergence Date: 06/11/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION

	A
Application Date:	06/09/14
Time of Day:	11:00 am
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	80 F
% Relative Humidity:	58
Wind Velocity, Unit:	5 mph
Wind Direction:	South
Dew Presence (Y/N):	N
Soil Temp., Unit:	79 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	50

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	ZEAMX

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trt No	Treatment Application Comment
3	Plot 306 double-sprayed
8	Plot 313 ran out

Trial Comments

6/09/14: Corn was planted conventional tillage but lots of weeds are present (not killed by tillage).

7/08/14: Buggy-whipping more noticeable. POST treatments did a very good job of controlling weeds. Corn stand is poor due to crusting; injury ratings are variable as a result.

University of Delaware

Soil-Applied Herbicide Evaluation in Corn

Trial ID: Corn9b-14 Cooperator:
Location: Newark Investigator: Mark VanGessel

Crop Code	ZEAMX
Weed or Crop Name	Field
Weed or Crop Name	Corn
Rating Data Type	Stunting
Rating Unit	%
Rating Date	07/08/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Untreated Check							0.0 c
2	Lumax EZ Premix	3.67	SC	2.98	lb ai/a	PRE	A	0.0 c
	----s-metolachlor	2.49		2.02				
	----mesotrione	0.25		0.203				
	----atrazine	0.93		0.755				
3	Lexar EZ Premix	3.7	SC	3.24	lb ai/a	PRE	A	0.0 c
	----s-metolachlor	1.738		1.52				
	----mesotrione	.2238		0.196				
	----atrazine	1.738		1.52				
4	Lumax EZ Premix	3.67	SC	2.98	lb ai/a	PRE	A	8.0 b
	----s-metolachlor	2.49		2.02				
	----mesotrione	0.25		0.203				
	----atrazine	0.93		0.755				
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A	
5	Lexar EZ Premix	3.7	SC	3.24	lb ai/a	PRE	A	0.0 c
	----s-metolachlor	1.738		1.52				
	----mesotrione	.2238		0.196				
	----atrazine	1.738		1.52				
	Simazine.....simazine	4	L	1.5	lb ai/a	PRE	A	
6	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	0.0 c
	----s-metolachlor	2.4		1.27				
	----atrazine	3.1		1.63				
7	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	0.0 c
	----s-metolachlor	2.4		0.96				
	----atrazine	3.1		1.24				
8	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	22.4 a
	----s-metolachlor	2.4		0.96				
	----atrazine	3.1		1.24				
	Resolve.....rimsulfuron	25	WG	0.0156	lb ai/a	PRE	A	
9	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	PRE	A	2.3 c
	----s-metolachlor	2.4		0.96				
	----atrazine	3.1		1.24				
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	PRE	A	
10	Harness Xtra 5.6L Premix	5.6	L	2.38	lb ai/a	PRE	A	0.0 c
	----acetochlor	3.1		1.32				
	----atrazine	2.5		1.06				
11	Harness Xtra 5.6L Premix	5.6	L	4.2	lb ai/a	PRE	A	0.0 c
	----acetochlor	3.1		2.32				
	----atrazine	2.5		1.88				
12	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	8.0 b
	Atrazine 4L	4	L	1.25	lb ai/a	PRE	A	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1

University of Delaware

Crop Code	ZEAMX
Weed or Crop Name	Field
Weed or Crop Name	Corn
Rating Data Type	Stunting
Rating Unit	%
Rating Date	07/08/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
13	Prequel Premix	45	DF	0.056	lb ai/a	PRE		19.0 a
	----rimsulfuron	15		0.0187				
	----isoxaflutole	30		0.0373				
	_Resolve SG.....rimsulfuron	25	SG	0.0187	lb ai/a	PRE	A	
	_Balance.....isoxaflutole	75	WG	0.0375	lb ai/a	PRE	A	
	Atrazine 4L	4	L	1.5	lb ai/a	PRE	A	
14	Corvus Premix	2.63	SC	0.115	lb ai/a	PRE	A	0.0 c
	----thiencarbazone	0.75		0.0328				
	----isoxaflutole	1.88		0.082				
	Atrazine 4L	4	L	1.5	lb ai/a	PRE	A	

LSD P=.05	3.59
Standard Deviation	2.13
CV	49.98
Replicate F	0.472
Replicate Prob(F)	0.6292
Treatment F	37.600
Treatment Prob(F)	0.0001

University of Delaware

Comparison of Approaches to Weed Control in Field Corn

Trial ID: CRN10a-14 Cooperator:
Location: REC Field #14 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.
2.	Morningglory Species	IPOSS	Ipomoea sp.
3.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

Crop 1: Field Corn ZEAMX Variety: H6179RCSS
Planting Date: 04/23/14 Planting Method: Row- Unit Planter Depth: 2 in
Rate: 28000 Sd/A Row Spacing: 30 in Seed Bed: Medium
Soil Temperature: 60 F Soil Moisture: Moist Emergence Date: 05/05/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.1 Texture: loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.7 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	04/25/14	05/13/14	05/20/14	06/02/14
Time of Day:	9:00 am	9:40 am	10:00 am	9:30 am
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	V1-2	V3	V5
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	54 F	80 F	66 F	70 F
% Relative Humidity:	40	56	54	49
Wind Velocity, Unit:	1 mph	0 mph	1 mph	3 mph
Wind Direction:	Southeast	N/A	Northwest	Southwest
Dew Presence (Y/N):	N	Y	N	N
Soil Temp., Unit:	53 F	78 F	65 F	69 F
Soil Surf. Moisture:	Dry	Moist	Dry	Dry
Root Zone Moisture:	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	N/A	Moist	Dry	Dry
% Cloud Cover:	15	20	45	30

CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:		V2	V3	V6
Height, Unit:		3 in	6 in	16 in
Crop Health:		Good	Good	Good

WEED STAGE AT EACH APPLICATION

	A	B	C	D
Weed 1 Code:	DIGSA	DIGSA	DIGSA	DIGSA
Growth Stage:		cot-2 leaf		3 lf-2 til
Height, Unit:		0.3 in		3.5 in
Density,Unit:		200 m2		0-20 m2
Weed 2 Code:	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:		cotyledon	cot-3 leaf	2-7 leaf
Height, Unit:		1 in	1.5 in	2.5 in
Density,Unit:		0-8 m2	5-20 m2	5-15 m2
Weed 3 Code:	AMAPA	AMAPA	AMAPA	AMAPA
Growth Stage:				vegetative
Height, Unit:				1 in
Density,Unit:				0-20 m2

APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	Tractor	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	22 in	32 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air	Comp. Air

Trt No	Treatment Application Comment
4	Plot 104 double-sprayed

Trial Comments

5/14/14: No other stunting was observed.

5/21/14: Treatment 3 showing stunting from PRE trts. Lots of purpling on leaves.

6/04/14: Weed control is good to excellent for all treatments. Treatments 4 and 5 have some morningglory with 6 to 8 leaves beginning to run.

6/18/14: Treatments 2,7,8 had 85% control of fall panicum, all other treatments > 99% control. Rep. 3 trt 8 was 75% control. Common ragweed observed in untreated checks, but all treatments provided > 99% control.

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Comparison of Approaches to Weed Control in Field Corn

Trial ID: CRN10a-14 Cooperator:
Location: REC Field #14 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
	Weed Code										
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Weed or Crop Name							Field	Field	Field	Field
	Weed or Crop Name							Corn	Corn	Corn	Corn
	Rating Data Type							Stunting	Stunting	LeafBurn	Stunting
	Rating Unit							%	%	%	%
	Rating Date							05/14/14	05/21/14	05/21/14	06/04/14
1	Untreated Check										0.0 d
2	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	A				2.3 cd
	----s-metolachlor	2.49		1.68							
	----mesotrione	0.25		0.168							
	----atrazine	0.93		0.626							
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A				
3	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	9.0	28.3		26.7 a
	----s-metolachlor	2.4		1.27							
	----atrazine	3.1		1.63							
	Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A				
4	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A				0.0 d
	----s-metolachlor	2.4		1.27							
	----atrazine	3.1		1.63							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D				
5	Harness Xtra 5.6L Premix	5.6	L	3.36	lb ai/a	PRE	A				5.7 bc
	----acetochlor	3.1		1.86							
	----atrazine	2.5		1.5							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D				
6	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A				2.3 cd
	----s-metolachlor	2.4		0.78							
	----atrazine	3.1		1.01							
	Halex GT Premix	4.38	SC	1.97	lb ai/a	V3	C				
	----s-metolachlor	2.086		0.94							
	----glyphosate	2.086		0.94							
	----mesotrione	.2086		0.094							
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C				
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C				
7	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A				4.7 bcd
	----s-metolachlor	2.4		0.78							
	----atrazine	3.1		1.01							
	Realm Q Premix	38.7	WG	0.097	lb ai/a	V3	C				
	----rimsulfuron	7.5		0.0188							
	----mesotrione	31.2		0.078							
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C				
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C				
8	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A				1.7 cd
	----s-metolachlor	2.4		0.78							
	----atrazine	3.1		1.01							
	Atrazine 4L	4	L	1.25	lb ai/a	V3	C				
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	V3	C				
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=4,5,6,7,8,9,12
Could not calculate LSD (% mean diff) for columns 1,2,6,7 because error mean square = 0.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
	Weed Code										
	Crop Code							ZEAMX	ZEAMX	ZEAMX	ZEAMX
	Weed or Crop Name							Field	Field	Field	Field
	Weed or Crop Name							Corn	Corn	Corn	Corn
	Rating Data Type							Stunting	Stunting	LeafBurn	Stunting
	Rating Unit							%	%	%	%
	Rating Date							05/14/14	05/21/14	05/21/14	06/04/14
9	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A				0.0 d
	----s-metolachlor	2.4		0.78							
	----atrazine	3.1		1.01							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	C				
10	Atrazine 4L	4	L	1.25	lb ai/a	PRE	A				0.0 d
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	PRE	A				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	C				
11	Halex GT Premix	4.38	SC	1.97	lb ai/a	V1-2	B			5.0 b	0.0 d
	----s-metolachlor	2.086		0.94							
	----glyphosate	2.086		0.94							
	----mesotrione	.2086		0.094							
	Atrazine 4L	4	L	1	lb ai/a	V1-2	B				
	Nonionic Surfactant	100	L	0.25	% v/v	V1-2	B				
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V1-2	B			18.0 a	9.7 b
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	V1-2	B				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	V1-2	B				
	LSD P=.05							.	.	8.96	5.13
	Standard Deviation							.	.	2.55	3.02
	CV							.	.	22.17	68.46
	Replicate F									0.077	0.255
	Replicate Prob(F)									0.9286	0.7771
	Treatment F									39.000	19.032
	Treatment Prob(F)									0.0247	0.0001

Weed Code								AMAPA	CHEAL	IPOSS
Crop Code							ZEAMX			
Weed or Crop Name							Field	Palmer	Common	Morngly
Weed or Crop Name							Corn	Amaranth	Lambqtrs	Species
Rating Data Type							Stunting	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							06/18/14	06/18/14	06/18/14	06/18/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Untreated Check							0.0 b	0.0 b	0.0 b	0.0 g
2	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	A	0.0 b	100.0 a	100.0 a	60.0 f
	----s-metolachlor	2.49		1.68							
	----mesotrione	0.25		0.168							
	----atrazine	0.93		0.626							
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A				
3	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	16.3 a	100.0 a	100.0 a	76.7 cde
	----s-metolachlor	2.4		1.27							
	----atrazine	3.1		1.63							
	Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A				
4	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	0.0 b	100.0 a	100.0 a	80.3 bc
	----s-metolachlor	2.4		1.27							
	----atrazine	3.1		1.63							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D				
5	Harness Xtra 5.6L Premix	5.6	L	3.36	lb ai/a	PRE	A	0.0 b	100.0 a	100.0 a	77.7 cd
	----acetochlor	3.1		1.86							
	----atrazine	2.5		1.5							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D				
6	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0 b	100.0 a	100.0 a	87.7 ab
	----s-metolachlor	2.4		0.78							
	----atrazine	3.1		1.01							
	Halex GT Premix	4.38	SC	1.97	lb ai/a	V3	C				
	----s-metolachlor	2.086		0.94							
	----glyphosate	2.086		0.94							
	----mesotrione	.2086		0.094							
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C				
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C				
7	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0 b	100.0 a	100.0 a	90.7 a
	----s-metolachlor	2.4		0.78							
	----atrazine	3.1		1.01							
	Realm Q Premix	38.7	WG	0.097	lb ai/a	V3	C				
	----rimsulfuron	7.5		0.0188							
	----mesotrione	31.2		0.078							
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C				
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C				
8	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0 b	100.0 a	100.0 a	80.3 bc
	----s-metolachlor	2.4		0.78							
	----atrazine	3.1		1.01							
	Atrazine 4L	4	L	1.25	lb ai/a	V3	C				
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	V3	C				
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	ZEAMX Field Corn Stunting % 06/18/14	AMAPA Palmer Amaranth Control % 06/18/14	CHEAL Common Lambqtrs Control % 06/18/14	IPOSS Mornglry Species Control % 06/18/14
9	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	0.0 b	100.0 a	100.0 a	70.3 de
	----s-metolachlor	2.4		0.78							
	----atrazine	3.1		1.01							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	C				
10	Atrazine 4L	4	L	1.25	lb ai/a	PRE	A	0.0 b	100.0 a	100.0 a	69.3 e
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	PRE	A				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	C				
11	Halex GT Premix	4.38	SC	1.97	lb ai/a	V1-2	B	0.0 b	100.0 a	100.0 a	75.0 cde
	----s-metolachlor	2.086		0.94							
	----glyphosate	2.086		0.94							
	----mesotrione	.2086		0.094							
	Atrazine 4L	4	L	1	lb ai/a	V1-2	B				
	Nonionic Surfactant	100	L	0.25	% v/v	V1-2	B				
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V1-2	B	0.0 b	100.0 a	100.0 a	71.7 de
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	V1-2	B				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	V1-2	B				
LSD P=.05								2.03	.	.	8.05
Standard Deviation								1.19	0.00	0.00	4.74
CV								87.56	0.0	0.0	6.78
Replicate F								0.958	0.000	0.000	6.350
Replicate Prob(F)								0.3997	1.0000	1.0000	0.0070
Treatment F								46.765	0.000	0.000	73.718
Treatment Prob(F)								0.0001	1.0000	1.0000	0.0001

Weed Code								DIGSA	
Crop Code									ZEAMX
Weed or Crop Name								Large	Field
Weed or Crop Name								Crabgras	Corn
Rating Data Type								Control	Yield
Rating Unit								%	Bu/A
Rating Date								06/18/14	09/15/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
1	Untreated Check							0.0 b	156.5 d
2	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	A	95.7 a	210.3 abc
	----s-metolachlor	2.49		1.68					
	----mesotrione	0.25		0.168					
	----atrazine	0.93		0.626					
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A		
3	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	96.7 a	197.4 c
	----s-metolachlor	2.4		1.27					
	----atrazine	3.1		1.63					
	Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A		
4	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	98.7 a	213.1 abc
	----s-metolachlor	2.4		1.27					
	----atrazine	3.1		1.63					
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D		
5	Harness Xtra 5.6L Premix	5.6	L	3.36	lb ai/a	PRE	A	98.0 a	227.4 a
	----acetochlor	3.1		1.86					
	----atrazine	2.5		1.5					
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D		
6	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	98.3 a	205.2 bc
	----s-metolachlor	2.4		0.78					
	----atrazine	3.1		1.01					
	Halex GT Premix	4.38	SC	1.97	lb ai/a	V3	C		
	----s-metolachlor	2.086		0.94					
	----glyphosate	2.086		0.94					
	----mesotrione	.2086		0.094					
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C		
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C		
7	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	96.7 a	204.3 bc
	----s-metolachlor	2.4		0.78					
	----atrazine	3.1		1.01					
	Realm Q Premix	38.7	WG	0.097	lb ai/a	V3	C		
	----rimsulfuron	7.5		0.0188					
	----mesotrione	31.2		0.078					
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C		
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C		
8	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	96.3 a	219.0 ab
	----s-metolachlor	2.4		0.78					
	----atrazine	3.1		1.01					
	Atrazine 4L	4	L	1.25	lb ai/a	V3	C		
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	V3	C		
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C		

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Weed Code								DIGSA	
Crop Code									ZEAMX
Weed or Crop Name								Large	Field
Weed or Crop Name								Crabgras	Corn
Rating Data Type								Control	Yield
Rating Unit								%	Bu/A
Rating Date								06/18/14	09/15/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
9	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	98.7 a	206.3 bc
	----s-metolachlor	2.4		0.78					
	----atrazine	3.1		1.01					
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	C		
10	Atrazine 4L	4	L	1.25	lb ai/a	PRE	A	98.3 a	210.7 abc
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	PRE	A		
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	C		
11	Halex GT Premix	4.38	SC	1.97	lb ai/a	V1-2	B	98.7 a	209.0 abc
	----s-metolachlor	2.086		0.94					
	----glyphosate	2.086		0.94					
	----mesotrione	.2086		0.094					
	Atrazine 4L	4	L	1	lb ai/a	V1-2	B		
	Nonionic Surfactant	100	L	0.25	% v/v	V1-2	B		
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V1-2	B	98.3 a	210.5 abc
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	V1-2	B		
	----s-metolachlor	2.4		0.96					
	----atrazine	3.1		1.24					
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	V1-2	B		
LSD P=.05								3.20	19.56
Standard Deviation								1.88	11.52
CV								2.1	5.6
Replicate F								1.144	4.919
Replicate Prob(F)								0.3376	0.0177
Treatment F								673.726	6.731
Treatment Prob(F)								0.0001	0.0001

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Comparison of Approaches to Weed Control in Field Corn

Trial ID: CRN10b-14 Cooperator:
Location: Newark Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Field Corn ZEAMX
Planting Date: 06/05/14 Planting Method: Row- Unit Planter Depth: 2 in
Rate: 30000 Sd/A Row Spacing: 30 in Seed Bed: Medium
Soil Temperature: 75 F Soil Moisture: Moist Emergence Date: 06/11/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	06/09/14	06/18/14	06/25/14	06/25/14
Time of Day:	11:00 am	11:30 am	1:00 pm	1:00 pm
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	V1-2	V3	V5
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	80 F	92 F	85 F	85 F
% Relative Humidity:	58	40	60	60
Wind Velocity, Unit:	5 mph	4 mph	7 mph	7 mph
Wind Direction:	South	West	South	South
Dew Presence (Y/N):	N	N	N	N
Soil Temp., Unit:	79 F	90 F	84 F	84 F
Soil Surf. Moisture:	Moist	Dry	Dry	Dry
Root Zone Moisture:	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry	Dry
% Cloud Cover:	50	35	30	30

CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:		V2	V5	V5
Height, Unit:		3 in	12 in	12 in
Crop Health:		Good	Good	Good

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APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	Backpack	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	32 in	32 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2	CO2

Trial Comments

7/08/14: Fall panicum was emerged at time of PRE applications. Ratings are based on overall control (burndown and residual control). Field was weedy before tillage and no glyphosate was used either before or after tillage and fall panicum was emerged at time of planting.

Treatment 3 averaged 10% stunting.

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Comparison of Approaches to Weed Control in Field Corn

Trial ID: CRN10b-14 Cooperator:
Location: Newark Investigator: Mark VanGessel

Weed Code	PANDI
Weed or Crop Name	Fall
Weed or Crop Name	Panicum
Rating Data Type	Control
Rating Unit	%
Rating Date	07/08/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Untreated Check							0.0 e
2	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	A	66.7 b
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.168				
	----atrazine	0.93		0.626				
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	A	
3	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	91.7 a
	----s-metolachlor	2.4		1.27				
	----atrazine	3.1		1.63				
	Resolve SG.....rimsulfuron	25	SG	0.0156	lb ai/a	PRE	A	
4	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	PRE	A	98.3 a
	----s-metolachlor	2.4		1.27				
	----atrazine	3.1		1.63				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D	
5	Harness Xtra 5.6L Premix	5.6	L	3.36	lb ai/a	PRE	A	99.3 a
	----acetochlor	3.1		1.86				
	----atrazine	2.5		1.5				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V5	D	
6	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	98.3 a
	----s-metolachlor	2.4		0.78				
	----atrazine	3.1		1.01				
	Halex GT Premix	4.38	SC	1.97	lb ai/a	V3	C	
	----s-metolachlor	2.086		0.94				
	----glyphosate	2.086		0.94				
	----mesotrione	.2086		0.094				
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C	
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C	
7	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	60.0 b
	----s-metolachlor	2.4		0.78				
	----atrazine	3.1		1.01				
	Realm Q Premix	38.7	WG	0.097	lb ai/a	V3	C	
	----rimsulfuron	7.5		0.0188				
	----mesotrione	31.2		0.078				
	Atrazine 4L	4	L	0.5	lb ai/a	V3	C	
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C	
8	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	43.3 c
	----s-metolachlor	2.4		0.78				
	----atrazine	3.1		1.01				
	Atrazine 4L	4	L	1.25	lb ai/a	V3	C	
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	V3	C	
	Nonionic Surfactant	100	L	0.25	% v/v	V3	C	
9	Bicep II Magnum Premix	5.5	L	1.79	lb ai/a	PRE	A	99.0 a
	----s-metolachlor	2.4		0.78				
	----atrazine	3.1		1.01				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	C	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Weed Code	PANDI
Weed or Crop Name	Fall
Weed or Crop Name	Panicum
Rating Data Type	Control
Rating Unit	%
Rating Date	07/08/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
10	Atrazine 4L	4	L	1.25	lb ai/a	PRE	A	95.7 a
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	PRE	A	
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	C	
11	Halex GT Premix	4.38	SC	1.97	lb ai/a	V1-2	B	92.3 a
	----s-metolachlor	2.086		0.94				
	----glyphosate	2.086		0.94				
	----mesotrione	.2086		0.094				
	Atrazine 4L	4	L	1	lb ai/a	V1-2	B	
	Nonionic Surfactant	100	L	0.25	% v/v	V1-2	B	
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V1-2	B	94.3 a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	V1-2	B	
	----s-metolachlor	2.4		0.96				
	----atrazine	3.1		1.24				
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	V1-2	B	
13	Realm Q Premix	38.7	WG	0.097	lb ai/a	V1-2	B	60.0 b
	----rimsulfuron	7.5		0.0188				
	----mesotrione	31.2		0.078				
	Atrazine 4L	4	L	0.5	lb ai/a	V1-2	B	
	Nonionic Surfactant	100	L	0.25	% v/v	V1-2	B	
14	Atrazine 4L	4	L	1.25	lb ai/a	PRE	A	33.3 d
	Realm Q Premix	38.7	WG	0.097	lb ai/a	V5	D	
	----rimsulfuron	7.5		0.0188				
	----mesotrione	31.2		0.078				
	Atrazine 4L	4	L	0.5	lb ai/a	V5	D	
	Nonionic Surfactant	100	L	0.25	% v/v	V5	D	

LSD P=.05	8.77
Standard Deviation	5.22
CV	7.08
Replicate F	3.980
Replicate Prob(F)	0.0311
Treatment F	105.688
Treatment Prob(F)	0.0001

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Overlapping Residual Programs in Field Corn

Trial ID: Crn11-14 Location: Field #14 Trial Year:
Protocol ID: Crn11-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: BASF

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: DKC62-58RIB BBCH Scale: BCOR
Description: RR

Planting Date: 05/05/14
Planting Rate, Unit: 28000 S/A Planting Method: PLANTD planted
Depth, Unit: 2 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 30 in Emergence Date: 05/12/14
Harvest Date: 09/24/14
Harvested Width, Unit: 5 FT
Soil Temperature, Unit: 67 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDIUM medium % Standard Moisture: 15.5

Pest Description

Pest 1 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth

Pest 2 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morning glory

Pest 3 Type: W Code: SOLCA Solanum carolinense
Common Name: Horsenettle

Pest 4 Type: W Code: DIGSA Digitaria sanguinalis
Common Name: large crabgrass

Pest 5 Type: W Code: CYPES Cyperus esculentus
Common Name: Yellow nutsedge

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 12 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Field Prep./Maintenance:
Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

Soil Description

% Sand: 81 % OM: 1.1 Texture: LS loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.7 Fert. Level: G good
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.3 mi

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Application Description

	A	B
Application Date:	05/06/14	05/28/14
Appl. Stop Time:	08:00 AM	09:30 AM
Interval to Prev. Appl., Unit:		22 DAYS
Application Method:	SPRAY	SPRAY
Application Timing:	PRE	V3
Application Placement:	BROADC	BROADC
Applied By:	Johnson	Johnson
Air Temperature, Unit:	55 F	74 F
% Relative Humidity:	74	74
Wind Velocity, Unit:	2 mph	2 mph
Wind Direction:	W	SW
Dew Presence (Y/N):	N no	Y yes
Soil Temperature, Unit:	53 F	73 F
Soil Moisture:	NORMAL	NORMAL
% Cloud Cover:	95	85

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:		DESC
Stage Majority, Percent:		V4 100
Height, Unit:		9 in
Height Minimum, Maximum:		8 10

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Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	AMAPA W	AMAPA W
Stage Majority, Percent:		veg 100
Height, Unit:		1.5 in
Height Minimum, Maximum:		1 2
Density, Unit:		15 m2
Pest 2 Code, Type, Scale:	IPOSS W	IPOSS W
Stage Majority, Percent:		cot 60
Stage Minimum, Percent:		cot 60
Stage Maximum, Percent:		2-leaf 40
Height, Unit:		1.5 in
Height Minimum, Maximum:		1 1.5
Density, Unit:		8 m2
Pest 3 Code, Type, Scale:	SOLCA W	SOLCA W
Stage Majority, Percent:		veg 100
Height, Unit:		3 in
Height Minimum, Maximum:		2 3.5
Density, Unit:		3 m2
Pest 4 Code, Type, Scale:	DIGSA W	DIGSA W
Stage Majority, Percent:		2-leaf 70
Stage Minimum, Percent:		2-leaf 70
Stage Maximum, Percent:		3-leaf 30
Height, Unit:		1.5 in
Height Minimum, Maximum:		1 2
Density, Unit:		30 m2
Pest 5 Code, Type, Scale:	CYPES W	CYPES W
Stage Majority, Percent:		5-leaf 50
Stage Minimum, Percent:		3-leaf 20
Stage Maximum, Percent:		6-leaf 30
Height, Unit:		3 in
Height Minimum, Maximum:		2 5
Density, Unit:		4 m2

Application Equipment

	A	B
Appl. Equipment:	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	10 ft	10 ft
Boom Height, Unit:	18 in	24 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR

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Overlapping Residual Programs in Field Corn

Trial ID: Crn11-14 Location: Field #14 Trial Year:
Protocol ID: Crn11-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: BASF

Trial Comments

5/28/14: 1,5 mouse-ear chickweed powerflex.

6/02/14: Leaf burn is speckled leaves from POST sprays.

6/08/14: 97-100% control of Palmer amaranth, lambsquarters and crabgrass in all treatments.

6/28/14: AMAPA, CHEAL, and DIGSA all in untreated checks but excellent control in all treated plots. Only those listed below were any weeds observed.

Treatment	Rep1	Rep2	Rep3	
DIGSA Trt. 6		85	93	95
DIGSA Trt. 9		100	95	100
AMAPA Trt. 6		100	99	100
AMAPA Trt. 3		100	99	100

9/16/14: Palmer amaranth and large crabgrass control >97% in all treatments. Treatment 7 was poor to fair for morningglory control. Treatment 9 was poor for morningglory control. All other treatments had excellent morningglory control.

Overlapping Residual Programs in Field Corn

Trial ID: Crn11-14 Location: Field #14 Trial Year:
Protocol ID: Crn11-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: BASF

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn Stunting % 05/22/14	ZEAMX Corn Stunting % 05/28/14	AMAPA PalmerAm Control % 05/28/14	IPOSS mornglry Control % 05/28/14
1	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	6.3 abc	7.0 ab	100.0 a	81.7 abc
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Armezon.....topramezone	2.8	SL	0.0109	lb ai/a	V3	B				
	AAtrex 4L.....atrazine	4	L	0.5	lb ai/a	V3	B				
	Outlook.....dimethenamid-p	6	L	0.56	lb ai/a	V3	B				
	Crop Oil Concentrate	100	L	1	% v/v	V3	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
2	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	1.7 de	7.3 ab	100.0 a	76.0 a-d
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Armezon.....topramezone	2.8	SL	0.0109	lb ai/a	V3	B				
	AAtrex 4L.....atrazine	4	L	0.5	lb ai/a	V3	B				
	Outlook.....dimethenamid-p	6	L	0.56	lb ai/a	V3	B				
	Crop Oil Concentrate	100	L	1	% v/v	V3	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
3	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	5.0 bc	7.3 ab	100.0 a	82.7 ab
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	V3	B				
	Status Premix	56	WG	0.175	lb ai/a	V3	B				
	----diflufenzopyr	16		0.05							
	----dicamba	40		0.125							
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
4	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	3.3 cd	7.0 ab	100.0 a	81.0 abc
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Prowl H2O.....pendimethalin	3.8	CS	0.95	lb ai/a	V3	B				
	Status Premix	56	WG	0.175	lb ai/a	V3	B				
	----diflufenzopyr	16		0.05							
	----dicamba	40		0.125							
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
5	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	6.3 abc	8.0 ab	100.0 a	87.7 a
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A				
	AAtrex 4L.....atrazine	4	L	1	lb ai/a	PRE	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Status Premix	56	WG	0.175	lb ai/a	V3	B				
	----diflufenzopyr	16		0.05							
	----dicamba	40		0.125							
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=10

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn Stunting % 05/22/14	ZEAMX Corn Stunting % 05/28/14	AMAPA PalmerAm Control % 05/28/14	IPOSS mornglry Control % 05/28/14
6	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	0.0 e	5.7 ab	96.7 b	61.7 d
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
7	Anthem ATZ Premix	4.5	SE	1.12	lb ai/a	PRE	A	1.7 de	8.0 ab	100.0 a	60.0 d
	----pyroxasulfone	0.51		0.127							
	----fluthiacet	0.014		0.0035							
	----atrazine	3.976		0.99							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
8	Lumax EZ Premix	3.67	SC	1.38	lb ai/a	PRE	A	7.0 ab	0.0 c	100.0 a	81.7 abc
	----s-metolachlor	2.49		0.94							
	----mesotrione	0.25		0.094							
	----atrazine	0.93		0.35							
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	B				
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
9	SureStart Premix	4.25	SE	1.06	lb ai/a	PRE	A	8.3 a	9.0 a	100.0 a	63.3 cd
	----acetochlor	3.75		0.935							
	----clopyralid	0.38		0.095							
	----flumetsulam	0.12		0.03							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
10	Corvus Premix	2.63	SC	0.0684	lb ai/a	PRE	A	9.0 a	5.0 b	100.0 a	82.7 ab
	----thiencarbazone	0.75		0.0195							
	----isoxaflutole	1.88		0.049							
	AAtrex 4L.....atrazine	4	L	1	lb ai/a	PRE	A				
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	V3	B				
	AAtrex 4L.....atrazine	4	L	0.5	lb ai/a	V3	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Methylated Seed Oil	100	L	1	% v/v	V3	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
11	Untreated Check							0.0 e	0.0 c	0.0 c	0.0 e
12	AAtrex 4L.....atrazine	4	L	1.25	lb ai/a	PRE	A	0.0 e	0.0 c	100.0 a	68.3 bcd
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	B				
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	AAtrex 4L.....atrazine	4	L	1	lb ai/a	V3	B				
LSD P=.05								3.17	3.65	2.82	19.04
Standard Deviation								1.87	2.16	1.67	11.25
CV								46.21	40.25	1.82	16.33
Replicate F								0.103	0.167	1.000	0.319
Replicate Prob(F)								0.9027	0.8472	0.3840	0.7301
Treatment F								9.625	7.425	895.546	13.291
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Pest Code							DIGSA			
Pest Name							L.crbgrs			
Crop Code								ZEAMX	ZEAMX	ZEAMX
Crop Name								Corn	Corn	Corn
Rating Type							Control	LeafBrn	Stunting	Stunting
Rating Unit							%	%	%	%
Rating Date							05/28/14	06/02/14	06/02/14	06/08/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
1	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	94.0 ab	2.7 bcd	9.0 b	10.0 a
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Armezon.....topramezone	2.8	SL	0.0109	lb ai/a	V3	B				
	AAtrex 4L.....atrazine	4	L	0.5	lb ai/a	V3	B				
	Outlook.....dimethenamid-p	6	L	0.56	lb ai/a	V3	B				
	Crop Oil Concentrate	100	L	1	% v/v	V3	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
2	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	75.0 c	1.7 b-e	8.0 bc	10.7 a
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Armezon.....topramezone	2.8	SL	0.0109	lb ai/a	V3	B				
	AAtrex 4L.....atrazine	4	L	0.5	lb ai/a	V3	B				
	Outlook.....dimethenamid-p	6	L	0.56	lb ai/a	V3	B				
	Crop Oil Concentrate	100	L	1	% v/v	V3	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
3	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	83.3 abc	0.7 de	6.3 bcd	8.0 ab
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	V3	B				
	Status Premix	56	WG	0.175	lb ai/a	V3	B				
	----diflufenzopyr	16		0.05							
	----dicamba	40		0.125							
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
4	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	81.7 abc	1.3 cde	5.7 cd	9.0 ab
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Prowl H2O.....pendimethalin	3.8	CS	0.95	lb ai/a	V3	B				
	Status Premix	56	WG	0.175	lb ai/a	V3	B				
	----diflufenzopyr	16		0.05							
	----dicamba	40		0.125							
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
5	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	96.3 a	1.0 cde	12.3 a	9.7 ab
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A				
	AAtrex 4L.....atrazine	4	L	1	lb ai/a	PRE	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Status Premix	56	WG	0.175	lb ai/a	V3	B				
	----diflufenzopyr	16		0.05							
	----dicamba	40		0.125							
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				

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Pest Code							DIGSA			
Pest Name							L.crbgrs			
Crop Code								ZEAMX	ZEAMX	ZEAMX
Crop Name								Corn	Corn	Corn
Rating Type							Control	LeafBrn	Stunting	Stunting
Rating Unit							%	%	%	%
Rating Date							05/28/14	06/02/14	06/02/14	06/08/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
6	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	80.0 bc	3.0 bc	1.0 ef	7.3 ab
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
7	Anthem ATZ Premix	4.5	SE	1.12	lb ai/a	PRE	A	94.0 ab	7.3 a	9.0 b	7.0 ab
	----pyroxasulfone	0.51		0.127							
	----fluthiacet	0.014		0.0035							
	----atrazine	3.976		0.99							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
8	Lumax EZ Premix	3.67	SC	1.38	lb ai/a	PRE	A	92.7 ab	0.7 de	6.3 bcd	0.0 c
	----s-metolachlor	2.49		0.94							
	----mesotrione	0.25		0.094							
	----atrazine	0.93		0.35							
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	B				
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
9	SureStart Premix	4.25	SE	1.06	lb ai/a	PRE	A	90.0 abc	3.7 b	4.0 de	4.7 bc
	----acetochlor	3.75		0.935							
	----clopyralid	0.38		0.095							
	----flumetsulam	0.12		0.03							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
10	Corvus Premix	2.63	SC	0.0684	lb ai/a	PRE	A	94.3 ab	9.0 a	9.0 b	8.0 ab
	----thiencarbazone	0.75		0.0195							
	----isoxaflutole	1.88		0.049							
	AAtrex 4L.....atrazine	4	L	1	lb ai/a	PRE	A				
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	V3	B				
	AAtrex 4L.....atrazine	4	L	0.5	lb ai/a	V3	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Methylated Seed Oil	100	L	1	% v/v	V3	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
11	Untreated Check							0.0 e	0.0 e	0.0 f	0.0 c
12	AAtrex 4L.....atrazine	4	L	1.25	lb ai/a	PRE	A	36.7 d	0.3 e	0.0 f	0.0 c
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	B				
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	AAtrex 4L.....atrazine	4	L	1	lb ai/a	V3	B				
LSD P=.05								16.28	2.32	3.09	5.03
Standard Deviation								9.61	1.37	1.83	2.97
CV								12.57	52.46	30.99	47.99
Replicate F								1.277	1.614	0.509	0.239
Replicate Prob(F)								0.2987	0.2218	0.6082	0.7895
Treatment F								27.419	12.948	14.108	5.564
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0003

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn LeafBrn % 06/08/14	IPOSS mornglry Control % 06/08/14	IPOSS mornglry Control % 06/28/14	ZEAMX Corn Yield Bu/A 09/24/14
1	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	2.0 cd	98.7 ab	88.0 c	229.3 ab
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Armezon.....topramezone	2.8	SL	0.0109	lb ai/a	V3	B				
	AAtrex 4L.....atrazine	4	L	0.5	lb ai/a	V3	B				
	Outlook.....dimethenamid-p	6	L	0.56	lb ai/a	V3	B				
	Crop Oil Concentrate	100	L	1	% v/v	V3	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
2	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	2.0 cd	99.7 a	88.3 c	228.7 b
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Armezon.....topramezone	2.8	SL	0.0109	lb ai/a	V3	B				
	AAtrex 4L.....atrazine	4	L	0.5	lb ai/a	V3	B				
	Outlook.....dimethenamid-p	6	L	0.56	lb ai/a	V3	B				
	Crop Oil Concentrate	100	L	1	% v/v	V3	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
3	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	0.0 d	99.3 a	98.3 a	247.5 ab
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	V3	B				
	Status Premix	56	WG	0.175	lb ai/a	V3	B				
	----diflufenzopyr	16		0.05							
	----dicamba	40		0.125							
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
4	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	3.3 cd	99.7 a	89.7 bc	230.2 ab
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Prowl H2O.....pendimethalin	3.8	CS	0.95	lb ai/a	V3	B				
	Status Premix	56	WG	0.175	lb ai/a	V3	B				
	----diflufenzopyr	16		0.05							
	----dicamba	40		0.125							
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
5	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	2.3 cd	100.0 a	95.3 ab	249.4 a
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A				
	AAtrex 4L.....atrazine	4	L	1	lb ai/a	PRE	A				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Status Premix	56	WG	0.175	lb ai/a	V3	B				
	----diflufenzopyr	16		0.05							
	----dicamba	40		0.125							
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				

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Pest Code								IPOSS	IPOSS	
Pest Name								mornglry	mornglry	
Crop Code							ZEAMX			ZEAMX
Crop Name							Corn			Corn
Rating Type							LeafBrn	Control	Control	Yield
Rating Unit							%	%	%	Bu/A
Rating Date							06/08/14	06/08/14	06/28/14	09/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
6	Verdict Premix	5.57	EC	0.52	lb ai/a	PRE	A	6.0 bc	96.3 abc	79.7 d	237.4 ab
	----saflufenacil	0.57		0.053							
	----dimethenamid	5		0.467							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
7	Anthem ATZ Premix	4.5	SE	1.12	lb ai/a	PRE	A	8.0 b	94.7 bc	66.0 e	242.2 ab
	----pyroxasulfone	0.51		0.127							
	----fluthiacet	0.014		0.0035							
	----atrazine	3.976		0.99							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
8	Lumax EZ Premix	3.67	SC	1.38	lb ai/a	PRE	A	0.3 d	99.5 a	85.3 cd	240.0 ab
	----s-metolachlor	2.49		0.94							
	----mesotrione	0.25		0.094							
	----atrazine	0.93		0.35							
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	B				
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
9	SureStart Premix	4.25	SE	1.06	lb ai/a	PRE	A	4.0 bcd	89.3 d	61.7 e	249.1 ab
	----acetochlor	3.75		0.935							
	----clopyralid	0.38		0.095							
	----flumetsulam	0.12		0.03							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
10	Corvus Premix	2.63	SC	0.0684	lb ai/a	PRE	A	13.0 a	94.0 c	84.7 cd	235.6 ab
	----thiencarbazone	0.75		0.0195							
	----isoxaflutole	1.88		0.049							
	AAtrex 4L.....atrazine	4	L	1	lb ai/a	PRE	A				
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	V3	B				
	AAtrex 4L.....atrazine	4	L	0.5	lb ai/a	V3	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V3	B				
	Methylated Seed Oil	100	L	1	% v/v	V3	B				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	V3	B				
11	Untreated Check							0.0 d	0.0 e	0.0 f	178.5 c
12	AAtrex 4L.....atrazine	4	L	1.25	lb ai/a	PRE	A	0.0 d	98.3 abc	80.0 d	246.7 ab
	Halex GT Premix	4.376	SC	1.97	lb ai/a	V3	B				
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	AAtrex 4L.....atrazine	4	L	1	lb ai/a	V3	B				
LSD P=.05								4.02	4.37	6.16	20.51
Standard Deviation								2.37	2.57	3.64	12.11
CV								69.44	2.89	4.76	5.16
Replicate F								0.192	0.817	0.611	10.136
Replicate Prob(F)								0.8263	0.4554	0.5519	0.0008
Treatment F								8.217	361.642	157.157	7.562
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

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Anthem and other FMC Products in Field Corn

Trial ID: Crn12-14 Location: Field #28 Trial Year:
Protocol ID: Crn12-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: FMC

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: H6179RCSS BBCH Scale: BCOR
Description: RR

Planting Date: 05/12/14
Planting Rate, Unit: 19000 S/A Planting Method: PLANTD planted
Depth, Unit: 2 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 30 in Emergence Date: 05/19/14
Harvest Date: 09/22/14
Harvested Width, Unit: 5 FT
Soil Temperature, Unit: 88 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDTRA medium/trashy % Standard Moisture: 15.5

Pest Description

Pest 1 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morningglory

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 10 Tillage Type: NOTILL no-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/21/14	Roundup	4.5	AS	1	QT/A
2.	04/21/14	2,4-D Ester	3.8	SC	1	PT/A

Field Prep./Maintenance:
Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

Soil Description

% Sand: 83 % OM: 1.3 Texture: LS loamy sand
% Silt: 8 pH: 5.4
% Clay: 9 CEC: 3.4 Fert. Level: G good
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

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Application Description

	A	B
Application Date:	05/13/14	06/02/14
Appl. Stop Time:	08:40 AM	10:20 AM
Interval to Prev. Appl., Unit:		20 DAYS
Application Method:	SPRAY	SPRAY
Application Timing:	PRE	V3
Application Placement:	BROADC	BROADC
Applied By:	Johnson	Johnson
Air Temperature, Unit:	72 F	72 F
% Relative Humidity:	81	45
Wind Velocity, Unit:	0 mph	4 mph
Wind Direction:	N/A	SW
Dew Presence (Y/N):	Y yes	N no
Soil Temperature, Unit:	72 F	71 F
Soil Moisture:	NORMAL	NORMAL
% Cloud Cover:	30	10

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	ZEAMX BCOR	ZEAMX BCOR
Stage Scale Used:		DESC
Stage Majority, Percent:		V3 65
Stage Minimum, Percent:		V3 65
Stage Maximum, Percent:		V4 35
Height, Unit:		6.5 in
Height Minimum, Maximum:		4 7

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	IPOSS W	IPOSS W
Stage Majority, Percent:		cotyl 70
Stage Minimum, Percent:		cotyl 70
Stage Maximum, Percent:		2-leaf 30
Height, Unit:		1 in
Height Minimum, Maximum:		1 1.5
Density, Unit:		2 m2

Application Equipment

	A	B
Appl. Equipment:	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	10 ft	10 ft
Boom Height, Unit:	18 in	23 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR

Trial Comments

6/02/14: Corn appears to be somewhat nutrient-stresed.

6/07/14: New tissue (emerged since application) not showing any signs of injury. Weed control is good to excellent - weed density in untreated check is very low. Corn growth is variable, so difficult to rate stunting.

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Anthem and other FMC Products in Field Corn

Trial ID: Crn12-14 Location: Field #28 Trial Year:
Protocol ID: Crn12-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: FMC

Pest Code										AMAPA
Pest Name										PalmerAm
Crop Code								ZEAMX	ZEAMX	
Crop Name								Corn	Corn	
Rating Type								Stunting	LeafBrn	Control
Rating Unit								%	%	%
Rating Date								06/03/14	06/03/14	06/03/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
1	Anthem Premix	2.153	SE	0.135	lb ai/a	PRE	A	0.0 c	17.3 a	100.0 a
	----pyroxasulfone	2.09		0.131						
	----fluthiacet	0.06300001		0.00395						
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
2	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	5.4 ab	18.6 a	100.0 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
3	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	10.0 a	17.3 a	100.0 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A			
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
4	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	8.0 ab	18.0 a	100.0 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B			
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
5	Anthem Premix	2.153	SE	0.135	lb ai/a	PRE	A	3.3 bc	7.3 b	100.0 a
	----pyroxasulfone	2.09		0.131						
	----fluthiacet	0.06300001		0.00395						
	F9387-1	4	SC	0.094	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,2,4,6,8
Could not calculate LSD (% mean diff) for columns 3,5 because error mean square = 0.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
	Pest Code									AMAPA
	Pest Name									PalmerAm
	Crop Code							ZEAMX	ZEAMX	
	Crop Name							Corn	Corn	
	Rating Type							Stunting	LeafBrn	Control
	Rating Unit							%	%	%
	Rating Date							06/03/14	06/03/14	06/03/14
6	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	10.0 a	8.0 b	100.0 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	F9387-1	4	SC	0.094	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
7	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	9.0 a	0.0 c	100.0 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A			
	Methylated Seed Oil	100	L	0.313	% v/v	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
8	Bicep II Magnum Premix	5.5	L	2.48	lb ai/a	PRE	A	6.2 ab	0.0 c	100.0 a
	----s-metolachlor	2.4		1.08						
	----atrazine	3.1		1.4						
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
9	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	0.0 c	0.0 c	100.0 a
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.169						
	----atrazine	0.93		0.63						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
10	Untreated Check							0.0 c	0.0 c	0.0 b
	LSD P=.05							5.41	4.73	.
	Standard Deviation							3.12	2.75	0.00
	CV							60.09	31.72	0.0
	Replicate F							1.327	1.087	0.000
	Replicate Prob(F)							0.2928	0.3596	1.0000
	Treatment F							5.264	28.206	0.000
	Treatment Prob(F)							0.0020	0.0001	1.0000

Pest Code								IPOSS	DIGSA	
Pest Name								morngIry	L.crbgrs	
Crop Code										ZEAMX
Crop Name										Corn
Rating Type								Control	Control	Stunting
Rating Unit								%	%	%
Rating Date								06/03/14	06/03/14	06/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
1	Anthem Premix	2.153	SE	0.135	lb ai/a	PRE	A	65.3 b	100.0 a	10.7 ab
	----pyroxasulfone	2.09		0.131						
	----fluthiacet	0.06300001		0.00395						
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
2	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	100.0 a	100.0 a	11.5 ab
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
3	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	100.0 a	100.0 a	10.3 ab
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A			
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
4	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	100.0 a	100.0 a	7.0 b
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B			
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
5	Anthem Premix	2.153	SE	0.135	lb ai/a	PRE	A	60.0 b	100.0 a	11.3 ab
	----pyroxasulfone	2.09		0.131						
	----fluthiacet	0.06300001		0.00395						
	F9387-1	4	SC	0.094	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	IPOSS mornglry	DIGSA L.crbgrs	ZEAMX Corn Stunting %
	Crop Code									ZEAMX
	Crop Name									Corn
	Rating Type							Control	Control	Stunting
	Rating Unit							%	%	%
	Rating Date							06/03/14	06/03/14	06/07/14
6	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	100.0 a	100.0 a	14.0 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	F9387-1	4	SC	0.094	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
7	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	98.3 a	100.0 a	15.7 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A			
	Methylated Seed Oil	100	L	0.313	% v/v	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
8	Bicep II Magnum Premix	5.5	L	2.48	lb ai/a	PRE	A	93.3 a	100.0 a	13.3 ab
	----s-metolachlor	2.4		1.08						
	----atrazine	3.1		1.4						
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
9	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	97.3 a	100.0 a	11.3 ab
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.169						
	----atrazine	0.93		0.63						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
10	Untreated Check							0.0 c	0.0 b	0.0 c
	LSD P=.05							9.32	.	6.70
	Standard Deviation							5.41	0.00	3.89
	CV							6.65	0.0	37.0
	Replicate F							1.347	0.000	0.533
	Replicate Prob(F)							0.2865	1.0000	0.5966
	Treatment F							107.105	0.000	3.784
	Treatment Prob(F)							0.0001	1.0000	0.0088

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	IPOSS mornglry	DIGSA L.crbgrs
	Pest Code							AMAPA	IPOSS	DIGSA
	Pest Name							PalmerAm	mornglry	L.crbgrs
	Crop Code									
	Crop Name									
	Rating Type							Control	Control	Control
	Rating Unit							%	%	%
	Rating Date							07/11/14	07/11/14	07/11/14
1	Anthem Premix	2.153	SE	0.135	lb ai/a	PRE	A	100.0 a	65.0 b	95.0 b
	----pyroxasulfone	2.09		0.131						
	----fluthiacet	0.06300001		0.00395						
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
2	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	100.0 a	73.3 ab	100.0 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
3	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	100.0 a	78.3 a	100.0 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A			
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
4	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	100.0 a	65.0 b	100.0 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B			
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
5	Anthem Premix	2.153	SE	0.135	lb ai/a	PRE	A	100.0 a	76.7 ab	100.0 a
	----pyroxasulfone	2.09		0.131						
	----fluthiacet	0.06300001		0.00395						
	F9387-1	4	SC	0.094	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	IPOSS mornglry	DIGSA L.crbgrs
	Pest Code							AMAPA	IPOSS	DIGSA
	Pest Name							PalmerAm	mornglry	L.crbgrs
	Crop Code									
	Crop Name									
	Rating Type							Control	Control	Control
	Rating Unit							%	%	%
	Rating Date							07/11/14	07/11/14	07/11/14
6	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	100.0 a	77.0 ab	100.0 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	F9387-1	4	SC	0.094	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
7	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	100.0 a	71.7 ab	100.0 a
	----pyroxasulfone	0.51		0.128						
	----fluthiacet	0.014		0.0035						
	----atrazine	3.976		1						
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A			
	Methylated Seed Oil	100	L	0.313	% v/v	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
8	Bicep II Magnum Premix	5.5	L	2.48	lb ai/a	PRE	A	100.0 a	73.3 ab	100.0 a
	----s-metolachlor	2.4		1.08						
	----atrazine	3.1		1.4						
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V3	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
9	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	99.0 b	78.9 a	100.0 a
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.169						
	----atrazine	0.93		0.63						
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B			
10	Untreated Check							0.0 c	0.0 c	0.0 c
	LSD P=.05							0.94	12.69	4.70
	Standard Deviation							0.55	7.37	2.74
	CV							0.61	11.17	3.06
	Replicate F							1.000	0.176	1.000
	Replicate Prob(F)							0.3874	0.8404	0.3874
	Treatment F							9978.779	31.026	396.556
	Treatment Prob(F)							0.0001	0.0001	0.0001

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Pest Code	
Pest Name	
Crop Code	ZEAMX
Crop Name	Corn
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	09/22/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
1	Anthem Premix	2.153	SE	0.135	lb ai/a	PRE	A	158.0 a
	----pyroxasulfone	2.09		0.131				
	----fluthiacet	0.06300001		0.00395				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B	
2	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	97.9 a
	----pyroxasulfone	0.51		0.128				
	----fluthiacet	0.014		0.0035				
	----atrazine	3.976		1				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B	
3	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	155.1 a
	----pyroxasulfone	0.51		0.128				
	----fluthiacet	0.014		0.0035				
	----atrazine	3.976		1				
	Atrazine 4L	4	L	0.5	lb ai/a	PRE	A	
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B	
4	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	165.0 a
	----pyroxasulfone	0.51		0.128				
	----fluthiacet	0.014		0.0035				
	----atrazine	3.976		1				
	Atrazine 4L	4	L	0.5	lb ai/a	V3	B	
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	V3	B	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B	
5	Anthem Premix	2.153	SE	0.135	lb ai/a	PRE	A	138.0 a
	----pyroxasulfone	2.09		0.131				
	----fluthiacet	0.06300001		0.00395				
	F9387-1	4	SC	0.094	lb ai/a	V3	B	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B	

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Pest Code	
Pest Name	
Crop Code	ZEAMX
Crop Name	Corn
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	09/22/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
6	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	152.6 a
	----pyroxasulfone	0.51		0.128				
	----fluthiacet	0.014		0.0035				
	----atrazine	3.976		1				
	F9387-1	4	SC	0.094	lb ai/a	V3	B	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B	
7	Anthem ATZ Premix	4.5	SE	1.13	lb ai/a	PRE	A	151.8 a
	----pyroxasulfone	0.51		0.128				
	----fluthiacet	0.014		0.0035				
	----atrazine	3.976		1				
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A	
	Methylated Seed Oil	100	L	0.313	% v/v	PRE	A	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B	
8	Bicep II Magnum Premix	5.5	L	2.48	lb ai/a	PRE	A	149.4 a
	----s-metolachlor	2.4		1.08				
	----atrazine	3.1		1.4				
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V3	B	
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B	
9	Lumax EZ Premix	3.67	SC	2.48	lb ai/a	PRE	A	153.0 a
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.169				
	----atrazine	0.93		0.63				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	V3	B	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V3	B	
10	Untreated Check							118.1 a

LSD P=.05	51.56
Standard Deviation	30.06
CV	20.89
Replicate F	5.719
Replicate Prob(F)	0.0119
Treatment F	1.416
Treatment Prob(F)	0.2529

University of Delaware

Comparison of Approaches to Weed Control in No-Tillage Field Corn

Trial ID: CRN13-14 Cooperator:
Location: Field #30 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
2.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
3.	Henbit	LAMAM	Lamium amplexicaule L.
4.	Mouseear Cress	ARBTH	Arabidopsis thaliana (L.) Heynh.
5.	Whitlowgrass	ERPVE	Draba verna L.
6.	Venus lookingglass	TJDPE	Triodanis perfoliata (L.) Nieuwl.
7.	Knawel	SCRAN	Scleranthus annuus L.
8.	Field Pansy	VIORA	Viola rafinesquii Greene
9.	Corn Speedwell	VERAR	Veronica arvensis L.
10.	Horsenettle	SOLCA	Solanum carolinense L.
11.	Morningglory Species	IPOSS	Ipomoea sp.
12.	Horseweed	ERICA	Erigeron canadensis L.
13.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.

Crop 1: Field Corn ZEAMX Variety: H6179RCSS
Planting Date: 05/12/14 Planting Method: Row- Unit Planter Depth: 2 in
Rate: 19000 Sd/A Row Spacing: 30 in Seed Bed: Medium/Trashy
Soil Temperature: 88 F Soil Moisture: Normal Emergence Date: 05/19/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

SOIL DESCRIPTION

% Sand: 83 % OM: 1.3 Texture: loamy sand
% Silt: 8 pH: 5.4
% Clay: 9 CEC: 3.4 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	04/22/14	05/06/14	05/13/14	06/02/14	06/06/14
Time of Day:	3:20 PM	10:30 AM	10:50 AM	11:00 AM	10:00 AM
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	21DPP	7DPP	PRE	V3	V5
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	73 F	58 F	80 F	72 F	71 F
% Relative Humidity:	39	55	56	45	53
Wind Velocity, Unit:	5 mph	2 mph	0 mph	4 mph	2 mph
Wind Direction:	NW	W		SW	NE
Dew Presence (Y/N):	N	N	Y	N	N
Soil Temp., Unit:	60 F	57 F	78 F	71 F	70 F
Soil Surf. Moisture:	Dry	Dry	Moist	Dry	Dry
Root Zone Moisture:	Moist	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry	Dry	Dry
% Cloud Cover:	75	55	20	10	50

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:				V4	V5
Height, Unit:				8.5 in	10 in
Crop Health:				Fair	Fair

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code:	OEOLA	OEOLA	OEOLA	OEOLA	OEOLA
Growth Stage:	rosette	bolt	flwr		
Height, Unit:	5 in	7 in	8 in		
Density,Unit:	40-200 m2	40-80 m2	0-40 m2		
Weed 2 Code:	HLOUM	HLOUM	HLOUM	HLOUM	HLOUM
Growth Stage:	seed				
Height, Unit:	8 in				
Density,Unit:	40-160 m2				
Weed 3 Code:	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM
Growth Stage:	flwr	flwr			
Height, Unit:	7 in	8 in			
Density,Unit:	10-80 m2	0-40 m2			
Weed 4 Code:	ARBTH	ARBTH	ARBTH	ARBTH	ARBTH
Growth Stage:	seed				
Height, Unit:	8 in				
Density,Unit:	0-20 m2				
Weed 5 Code:	ERPVE	ERPVE	ERPVE	ERPVE	ERPVE
Growth Stage:	seed				
Height, Unit:	4 in				
Density,Unit:	0-80 m2				
Weed 6 Code:	TJDPE	TJDPE	TJDPE	TJDPE	TJDPE
Growth Stage:		flwr	flwr		
Height, Unit:		4 in	9 in		
Density,Unit:		0-24 m2	0-12 m2		
Weed 7 Code:	SCRAN	SCRAN	SCRAN	SCRAN	SCRAN
Growth Stage:	veg	veg	veg		

Height, Unit:	3 in	3 in	5 in		
Density,Unit:	0-40 m2	0-24 m2	0-40 m2		
Weed 8 Code:	VIORA	VIORA	VIORA	VIORA	VIORA
Growth Stage:			flwr		
Height, Unit:			8 in		
Density,Unit:			0-12 m2		
Weed 9 Code:	VERAR	VERAR	VERAR	VERAR	VERAR
Growth Stage:			seed		
Height, Unit:			6 in		
Density,Unit:			0-40 m2		
Weed10 Code:	SOLCA	SOLCA	SOLCA	SOLCA	SOLCA
Growth Stage:				Ea flwr	
Height, Unit:				8 in	
Density,Unit:				0-12 m2	
Weed11 Code:	IPOSS	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:					coty-2 lf
Height, Unit:					1.5 in
Density,Unit:					0-20 m2
Weed12 Code:	ERICA	ERICA	ERICA	ERICA	ERICA
Growth Stage:	rosette		bolt		
Height, Unit:	3 in		5 in		
Density,Unit:	0-20 m2		0-12 m2		
Weed13 Code:	CERVU	CERVU	CERVU	CERVU	CERVU
Growth Stage:		seed			
Height, Unit:		8 in			
Density,Unit:		0-40 m2			

APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	Backpack	Tractor	Tractor	Tractor	Tractor
Operating Pressure:	31 psi	40 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	20 in	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	24 in	24 in	24 in	24 in	26 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO2	Comp. Air	Comp. Air	Comp. Air	Comp. Air

Trial Comments

5/14/14: Knawel, henbit and other winter annual weeds were controlled (>95%) in all treatments. Treatment 1 did not control vetch.

6/02/14: Some nutrient stress observed.

6/07/14: Injury is much less to rate in Rep 1 compared to Reps 2 & 3 - possible carryover from Lima bean trial last year. Burndown control of winter annuals was excellent for all treatments. Untreated check (trt. 1) had lots of primrose plants (1 to 3 /square ft) - enough to stress the corn plants. Morningglory species is the only species to rate for annual control.

9/19/14: Excellent control of all annual weeds except morningglory. Good morningglory was observed with treatments 6 and 13; and slightly less control with treatment 10. Fair control with treatments 4, 7, 9, 11 12, and14; and poor control with all other treatments.

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Comparison of Approaches to Weed Control in No-Tillage Field Corn

Trial ID: CRN13-14 Cooperator:
Location: Field #30 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	OEOLA	ZEAMX	IPOSS	AMAPA
	Weed Code							OEOLA		IPOSS	AMAPA
	Crop Code								ZEAMX		
	Weed or Crop Name							Cutleaf	Field	Morngly	Palmer
	Weed or Crop Name							EPrimrse	Corn	Species	Amaranth
	Rating Data Type							Control	Stunting	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/14/14	06/07/14	06/07/14	07/16/14
1	Untreated Check							46.7 f	0.0 a	0.0 e	0.0 c
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ai/a	7 DPP	B				
2	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	96.7 ab	15.0 a	94.3 ab	100.0 a
	Simazine.....simazine	4	L	1.5	lb ai/a	21 DPP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A				
	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	C				
	----s-metolachlor	2.49		1.68							
	----mesotrione	0.25		0.168							
	----atrazine	0.93		0.626							
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	C				
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	C				
3	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	86.7 c	11.7 a	90.3 a-d	100.0 a
	Bicep II Magnum Premix	5.5	L	1.72	lb ai/a	21 DPP	A				
	----s-metolachlor	2.4		0.75							
	----atrazine	3.1		0.97							
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A				
	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	C				
	----s-metolachlor	2.4		0.6							
	----atrazine	3.1		0.78							
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	PRE	C				
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	C				
4	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	100.0 a	16.7 a	83.3 cd	100.0 a
	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	21 DPP	A				
	----s-metolachlor	2.4		1.27							
	----atrazine	3.1		1.63							
	Simazine.....simazine	4	L	1.5	lb ai/a	21 DPP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E				
5	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	99.0 a	15.0 a	85.0 bcd	100.0 a
	Bicep II Magnum Premix	5.5	L	1.72	lb ai/a	21 DPP	A				
	----s-metolachlor	2.4		0.75							
	----atrazine	3.1		0.97							
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A				
	Lexar EZ Premix	3.7	SC	1.57	lb ai/a	PRE	C				
	----s-metolachlor	1.738		0.74							
	----mesotrione	.2238		0.095							
	----atrazine	1.738		0.74							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	C				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=5

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Weed Code								OEOLA		IPOSS	AMAPA
Crop Code									ZEAMX		
Weed or Crop Name								Cutleaf	Field	Morngly	Palmer
Weed or Crop Name								EPrimrse	Corn	Species	Amaranth
Rating Data Type								Control	Stunting	Control	Control
Rating Unit								%	%	%	%
Rating Date								05/14/14	06/07/14	06/07/14	07/16/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
6	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	90.7 bc	20.0 a	98.3 a	100.0 a
	Simazine.....simazine	4	L	1.5	lb ai/a	21 DPP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A				
	Halex GT Premix	4.38	SC	1.97	lb ai/a	V-3	D				
	----s-metolachlor	2.086		0.94							
	----glyphosate	2.086		0.94							
	----mesotrione	.2086		0.094							
	Atrazine 4L	4	L	0.5	lb ai/a	V-3	D				
	Nonionic Surfactant	100	L	0.25	% v/v	V-3	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V-3	D				
7	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	86.0 c	16.7 a	95.0 a	100.0 a
	Lexar EZ Premix	3.7	SC	3.24	lb ai/a	7 DPP	B				
	----s-metolachlor	1.738		1.52							
	----mesotrione	.2238		0.196							
	----atrazine	1.738		1.52							
	Simazine.....simazine	4	L	1.5	lb ai/a	7 DPP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B				
8	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	70.0 e	16.7 a	95.0 a	100.0 a
	Simazine.....simazine	4	L	1.5	lb ai/a	7 DPP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B				
	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	C				
	----s-metolachlor	2.49		1.68							
	----mesotrione	0.25		0.168							
	----atrazine	0.93		0.626							
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	C				
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	C				
9	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	86.0 c	8.3 a	90.0 a-d	96.0 a
	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	7 DPP	B				
	----s-metolachlor	2.49		1.68							
	----mesotrione	0.25		0.168							
	----atrazine	0.93		0.626							
	Atrazine 4L	4	L	0.75	lb ai/a	7 DPP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E				
10	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	68.3 e	16.7 a	99.0 a	100.0 a
	Simazine.....simazine	4	L	1	lb ai/a	7 DPP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B				
	Halex GT Premix	4.38	SC	1.97	lb ai/a	V-3	D				
	----s-metolachlor	2.086		0.94							
	----glyphosate	2.086		0.94							
	----mesotrione	.2086		0.094							
	Atrazine 4L	4	L	0.5	lb ai/a	V-3	D				
	Nonionic Surfactant	100	L	0.25	% v/v	V-3	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V-3	D				
11	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	86.0 c	20.0 a	95.3 a	100.0 a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	7 DPP	B				
	----s-metolachlor	2.4		0.96							
	----atrazine	3.1		1.24							
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-3	D				
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V-3	D				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	OEOLA	ZEAMX	IPOSS	AMAPA
	Weed Code							OEOLA		IPOSS	AMAPA
	Crop Code								ZEAMX		
	Weed or Crop Name							Cutleaf	Field	Mornglry	Palmer
	Weed or Crop Name							EPrimrse	Corn	Species	Amaranth
	Rating Data Type							Control	Stunting	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/14/14	06/07/14	06/07/14	07/16/14
12	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	73.3 de	10.0 a	92.3 abc	86.7 b
	Atrazine 4L	4	L	1.5	lb ai/a	7 DPP	B				
	Simazine.....simazine	4	L	1.5	lb ai/a	7 DPP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E				
13	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	77.7 d	5.0 a	93.3 ab	100.0 a
	Atrazine 4L	4	L	1.5	lb ai/a	7 DPP	B				
	Simazine.....simazine	4	L	1.5	lb ai/a	7 DPP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E				
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V-5	E				
14	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	95.7 ab	16.7 a	81.0 d	100.0 a
	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	21 DPP	A				
	----s-metolachlor	2.4		1.27							
	----atrazine	3.1		1.63							
	Simazine.....simazine	4	L	1.5	lb ai/a	21 DPP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E				
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V-5	E				
	LSD P=.05							7.30	21.60	9.74	6.42
	Standard Deviation							4.35	12.87	5.81	3.82
	CV							5.24	95.69	6.82	4.17
	Replicate F							0.303	11.642	3.773	1.105
	Replicate Prob(F)							0.7409	0.0002	0.0364	0.3462
	Treatment F							34.370	0.607	56.059	145.300
	Treatment Prob(F)							0.0001	0.8263	0.0001	0.0001

Weed Code							IPOSS	DIGSA	
Crop Code									ZEAMX
Weed or Crop Name							Mornglry	Large	Field
Weed or Crop Name							Species	Crabgras	Corn
Rating Data Type							Control	Control	Yield
Rating Unit							%	%	Bu/A
Rating Date							07/16/14	07/16/14	09/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Untreated Check							0.0 e	0.0 c	66.4 b
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ai/a	7 DPP	B			
2	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	56.8 d	100.0 a	145.0 a
	Simazine.....simazine	4	L	1.5	lb ai/a	21 DPP	A			
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A			
	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	C			
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.168						
	----atrazine	0.93		0.626						
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	C			
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	C			
3	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	71.7 bc	100.0 a	137.4 a
	Bicep II Magnum Premix	5.5	L	1.72	lb ai/a	21 DPP	A			
	----s-metolachlor	2.4		0.75						
	----atrazine	3.1		0.97						
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A			
	Bicep II Magnum Premix	5.5	L	1.38	lb ai/a	PRE	C			
	----s-metolachlor	2.4		0.6						
	----atrazine	3.1		0.78						
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	PRE	C			
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	C			
4	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	72.7 abc	100.0 a	147.7 a
	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	21 DPP	A			
	----s-metolachlor	2.4		1.27						
	----atrazine	3.1		1.63						
	Simazine.....simazine	4	L	1.5	lb ai/a	21 DPP	A			
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E			
5	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	75.0 abc	95.0 ab	154.4 a
	Bicep II Magnum Premix	5.5	L	1.72	lb ai/a	21 DPP	A			
	----s-metolachlor	2.4		0.75						
	----atrazine	3.1		0.97						
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A			
	Lexar EZ Premix	3.7	SC	1.57	lb ai/a	PRE	C			
	----s-metolachlor	1.738		0.74						
	----mesotrione	.2238		0.095						
	----atrazine	1.738		0.74						
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	C			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E			

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Weed Code							IPOSS	DIGSA	
Crop Code									ZEAMX
Weed or Crop Name							Mornglry	Large	Field
Weed or Crop Name							Species	Crabgras	Corn
Rating Data Type							Control	Control	Yield
Rating Unit							%	%	Bu/A
Rating Date							07/16/14	07/16/14	09/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
6	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	84.3 a	100.0 a	144.0 a
	Simazine.....simazine	4	L	1.5	lb ai/a	21 DPP	A			
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A			
	Halex GT Premix	4.38	SC	1.97	lb ai/a	V-3	D			
	----s-metolachlor	2.086		0.94						
	----glyphosate	2.086		0.94						
	----mesotrione	.2086		0.094						
	Atrazine 4L	4	L	0.5	lb ai/a	V-3	D			
	Nonionic Surfactant	100	L	0.25	% v/v	V-3	D			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V-3	D			
7	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	78.3 abc	100.0 a	150.2 a
	Lexar EZ Premix	3.7	SC	3.24	lb ai/a	7 DPP	B			
	----s-metolachlor	1.738		1.52						
	----mesotrione	.2238		0.196						
	----atrazine	1.738		1.52						
	Simazine.....simazine	4	L	1.5	lb ai/a	7 DPP	B			
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B			
8	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	72.7 abc	100.0 a	146.4 a
	Simazine.....simazine	4	L	1.5	lb ai/a	7 DPP	B			
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B			
	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	C			
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.168						
	----atrazine	0.93		0.626						
	Atrazine 4L	4	L	0.75	lb ai/a	PRE	C			
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	C			
9	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	68.3 cd	100.0 a	145.7 a
	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	7 DPP	B			
	----s-metolachlor	2.49		1.68						
	----mesotrione	0.25		0.168						
	----atrazine	0.93		0.626						
	Atrazine 4L	4	L	0.75	lb ai/a	7 DPP	B			
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E			
10	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	80.3 abc	100.0 a	145.4 a
	Simazine.....simazine	4	L	1	lb ai/a	7 DPP	B			
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B			
	Halex GT Premix	4.38	SC	1.97	lb ai/a	V-3	D			
	----s-metolachlor	2.086		0.94						
	----glyphosate	2.086		0.94						
	----mesotrione	.2086		0.094						
	Atrazine 4L	4	L	0.5	lb ai/a	V-3	D			
	Nonionic Surfactant	100	L	0.25	% v/v	V-3	D			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	V-3	D			
11	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	76.7 abc	100.0 a	139.2 a
	Bicep II Magnum Premix	5.5	L	2.2	lb ai/a	7 DPP	B			
	----s-metolachlor	2.4		0.96						
	----atrazine	3.1		1.24						
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-3	D			
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V-3	D			

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	IPOSS Morngly Species Control % 07/16/14	DIGSA Large Crabgras Control % 07/16/14	ZEAMX Field Corn Yield Bu/A 09/24/14
12	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	68.3 cd	94.0 b	136.5 a
	Atrazine 4L	4	L	1.5	lb ai/a	7 DPP	B			
	Simazine.....simazine	4	L	1.5	lb ai/a	7 DPP	B			
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E			
13	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	7 DPP	B	81.0 ab	100.0 a	152.9 a
	Atrazine 4L	4	L	1.5	lb ai/a	7 DPP	B			
	Simazine.....simazine	4	L	1.5	lb ai/a	7 DPP	B			
	Nonionic Surfactant	100	L	0.25	% v/v	7 DPP	B			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E			
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V-5	E			
14	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	21 DPP	A	71.7 bc	96.7 ab	140.9 a
	Bicep II Magnum Premix	5.5	L	2.9	lb ai/a	21 DPP	A			
	----s-metolachlor	2.4		1.27						
	----atrazine	3.1		1.63						
	Simazine.....simazine	4	L	1.5	lb ai/a	21 DPP	A			
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPP	A			
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	V-5	E			
	Callisto.....mesotrione	4	SC	0.094	lb ai/a	V-5	E			
LSD P=.05								12.19	5.84	22.38
Standard Deviation								7.25	3.48	13.33
CV								10.59	3.79	9.56
Replicate F								4.792	1.159	14.593
Replicate Prob(F)								0.0173	0.3295	0.0001
Treatment F								24.752	174.275	7.933
Treatment Prob(F)								0.0001	0.0001	0.0001

University of Delaware

PRE Weed Control in No-Tillage Field Corn Without Atrazine

Trial ID: CRN15-14 Cooperator:
Location: Field #30 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Field Corn ZEAMX Variety: DKC62-58RIB
Planting Date: 05/05/14 Planting Method: Row- Unit Planter Depth: 2 in
Rate: 19000 Sd/A Row Spacing: 30 in Seed Bed: Medium/Trashy
Soil Temperature: 67 F Soil Moisture: Normal Emergence Date: 05/13/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: FACTORIAL
Tillage Type: No Tillage

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/21/14	Roundup PowerMax	4.5	AS	1	qt/A
2.	04/21/14	2,4-D ester	3.8	L	1	pt/A
3.	06/06/14	Roundup PowerMax	4.5	AS	1	qt/A

SOIL DESCRIPTION

% Sand: 83 % OM: 1.3 Texture: loamy sand
% Silt: 8 pH: 5.4
% Clay: 9 CEC: 3.4 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	04/28/14
Time of Day:	1:25 pm
Application Method:	Spray
Application Timing:	7DPP
Applic. Placement:	Brdcst
Air Temp., Unit:	58 F
% Relative Humidity:	49
Wind Velocity, Unit:	2 mph
Wind Direction:	Southeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	58 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	95

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	ZEAMX

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

6/08/14: Large crabgrass density was variable so it was not rated.

09/19/14: Only treatments 7 and 8 provided full-season control of Palmer amaranth.

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PRE Weed Control in No-Tillage Field Corn Without Atrazine

Trial ID: CRN15-14 Cooperator:
Location: Field #30 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	ZEAMX Field Corn Stunting % 05/23/14	ZEAMX Field Corn Stunting % 06/08/14	AMAPA Palmer Amaranth Control % 06/08/14	AMAPA Palmer Amaranth Control % 07/11/14
	Weed Code										
	Crop Code										
	Weed or Crop Name										
	Weed or Crop Name										
	Rating Data Type										
	Rating Unit										
	Rating Date										
1	Untreated Check							0.0 a	0.0 d	0.0 f	56.7 f
	Atrazine 4L	4	L	0	lb ai/a	7 DPP					
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
2	Untreated Check							0.0 a	0.0 d	53.3 e	65.0 ef
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
3	Verdict Premix	5.57	EC	0.566	lb ai/a	7 DPP	A	5.7 a	6.3 bc	60.0 de	66.7 def
	----saflufenacil	0.57		0.058							
	----dimethenamid	5		0.51							
	Atrazine 4L	4	L	0	lb ai/a	7 DPP					
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
4	Verdict Premix	5.57	EC	0.566	lb ai/a	7 DPP	A	9.7 a	5.0 cd	63.3 cde	70.0 c-f
	----saflufenacil	0.57		0.058							
	----dimethenamid	5		0.51							
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
5	Zemax Premix	3.67	SC	1.84	lb ai/a	7 DPP	A	0.0 a	0.0 d	85.7 ab	85.7 abc
	----s-metolachlor	3.34		1.67							
	----mesotrione	.33		0.165							
	Atrazine 4L	4	L	0	lb ai/a	7 DPP					
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
6	Zemax Premix	3.67	SC	1.84	lb ai/a	7 DPP	A	4.7 a	0.0 d	93.0 a	83.7 a-d
	----s-metolachlor	3.34		1.67							
	----mesotrione	.33		0.165							
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
7	Fierce Premix	76	WG	0.178	lb ai/a	7 DPP	A	9.7 a	10.3 ab	98.3 a	91.7 ab
	----flumioxazin	33.5		0.0785							
	----pyroxasulfone	42.5		0.1							
	Atrazine 4L	4	L	0	lb ai/a	7 DPP					
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
8	Fierce Premix	76	WG	0.178	lb ai/a	7 DPP	A	10.7 a	8.7 abc	100.0 a	87.7 ab
	----flumioxazin	33.5		0.0785							
	----pyroxasulfone	42.5		0.1							
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
9	Corvus Premix	2.63	SC	0.068	lb ai/a	7 DPP	A	10.7 a	7.0 abc	76.7 bc	88.7 ab
	----thiencarbazone	0.75		0.0194							
	----isoxaflutole	1.88		0.0486							
	Atrazine 4L	4	L	0	lb ai/a	7 DPP					
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1; Average=2

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Weed Code										AMAPA	AMAPA
Crop Code								ZEAMX	ZEAMX		
Weed or Crop Name								Field	Field	Palmer	Palmer
Weed or Crop Name								Corn	Corn	Amaranth	Amaranth
Rating Data Type								Stunting	Stunting	Control	Control
Rating Unit								%	%	%	%
Rating Date								05/23/14	06/08/14	06/08/14	07/11/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
10	Corvus Premix	2.63	SC	0.068	lb ai/a	7 DPP	A	21.3 a	0.0 d	75.0 bcd	90.0 ab
	----thiencarbazone	0.75		0.0194							
	----isoxaflutole	1.88		0.0486							
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
11	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	7 DPP	A	1.7 a	3.5 cd	68.3 cde	78.3 b-e
	Atrazine 4L	4	L	0	lb ai/a	7 DPP					
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
12	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	7 DPP	A	4.7 a	5.0 cd	77.7 bc	80.0 b-e
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
13	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	7 DPP	A	0.0 a	0.0 d	85.0 ab	63.3 ef
	----s-metolachlor	2.4		1.08							
	----atrazine	3.1		1.39							
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
14	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	7 DPP	A	9.0 a	11.7 a	94.3 a	100.0 a
	Atrazine 4L	4	L	0.75	lb ai/a	7 DPP	A				
	Dual II Magnum..s-metolachlor	7.64	E	1.72	lb ai/a	7 DPP	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
LSD P=.05								12.34	5.21	15.11	17.54
Standard Deviation								7.34	3.05	9.00	10.45
CV								117.16	74.21	12.23	13.21
Replicate F								1.006	0.037	0.716	0.038
Replicate Prob(F)								0.3799	0.9642	0.4981	0.9626
Treatment F								2.058	5.794	24.385	4.504
Treatment Prob(F)								0.0588	0.0003	0.0001	0.0005

Weed Code	
Crop Code	ZEAMX
Weed or Crop Name	Field
Weed or Crop Name	Corn
Rating Data Type	Yield
Rating Unit	Bu/A
Rating Date	09/24/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Untreated Check							150.8 a
	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
2	Untreated Check							154.7 a
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
3	Verdict Premix	5.57	EC	0.566	lb ai/a	7 DPP	A	153.4 a
	----saflufenacil	0.57		0.058				
	----dimethenamid	5		0.51				
	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
4	Verdict Premix	5.57	EC	0.566	lb ai/a	7 DPP	A	171.4 a
	----saflufenacil	0.57		0.058				
	----dimethenamid	5		0.51				
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
5	Zemax Premix	3.67	SC	1.84	lb ai/a	7 DPP	A	152.1 a
	----s-metolachlor	3.34		1.67				
	----mesotrione	.33		0.165				
	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
6	Zemax Premix	3.67	SC	1.84	lb ai/a	7 DPP	A	153.5 a
	----s-metolachlor	3.34		1.67				
	----mesotrione	.33		0.165				
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
7	Fierce Premix	76	WG	0.178	lb ai/a	7 DPP	A	152.2 a
	----flumioxazin	33.5		0.0785				
	----pyroxasulfone	42.5		0.1				
	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
8	Fierce Premix	76	WG	0.178	lb ai/a	7 DPP	A	167.8 a
	----flumioxazin	33.5		0.0785				
	----pyroxasulfone	42.5		0.1				
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
9	Corvus Premix	2.63	SC	0.068	lb ai/a	7 DPP	A	150.2 a
	----thiencarbazone	0.75		0.0194				
	----isoxaflutole	1.88		0.0486				
	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	

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Weed Code	
Crop Code	ZEAMX
Weed or Crop Name	Field
Weed or Crop Name	Corn
Rating Data Type	Yield
Rating Unit	Bu/A
Rating Date	09/24/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
10	Corvus Premix	2.63	SC	0.068	lb ai/a	7 DPP	A	152.2 a
	----thiencarbazone	0.75		0.0194				
	----isoxaflutole	1.88		0.0486				
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
11	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	7 DPP	A	151.2 a
	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
12	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	7 DPP	A	149.4 a
	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
13	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	7 DPP	A	158.9 a
	----s-metolachlor	2.4		1.08				
	----atrazine	3.1		1.39				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
14	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	7 DPP	A	147.0 a
	Atrazine 4L	4	L	0.75	lb ai/a	7 DPP	A	
	Dual II Magnum..s-metolachlor	7.64	E	1.72	lb ai/a	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	

LSD P=.05	17.06
Standard Deviation	10.16
CV	6.57
Replicate F	10.493
Replicate Prob(F)	0.0005
Treatment F	1.401
Treatment Prob(F)	0.2244

University of Delaware

PRE Weed Control in No-Tillage Field Corn Without Atrazine

Trial ID: CRN15-14 Cooperator:
Location: Field #30 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
	Weed Code									AMAPA	AMAPA
	Crop Code							ZEAMX	ZEAMX		
	Weed or Crop Name							Field	Field	Palmer	Palmer
	Weed or Crop Name							Corn	Corn	Amaranth	Amaranth
	Rating Data Type							Stunting	Stunting	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/23/14	06/08/14	06/08/14	07/11/14
	TABLE OF R MEANS										
	Replicate 1							4.3	3.4	71.0	79.1
	Replicate 2							9.1	4.2	73.2	78.7
	Replicate 3							6.3	3.9	68.7	78.3
	TABLE OF A (Herbicide) MEANS										
1	Untreated Check							0.0 c	0.0 c	26.7 d	60.8 c
2	Verdict Premix	5.57	EC	0.566	lb ai/a	7 DPP	A	7.7 abc	5.7 b	61.7 c	68.3 bc
2	----saflufenacil	0.57		0.058							
2	----dimethenamid	5		0.51							
3	Zemax Premix	3.67	SC	1.84	lb ai/a	7 DPP	A	2.3 bc	0.0 c	89.3 a	84.7 a
3	----s-metolachlor	3.34		1.67							
3	----mesotrione	.33		0.165							
4	Fierce Premix	76	WG	0.178	lb ai/a	7 DPP	A	10.2 ab	9.5 a	99.2 a	89.7 a
4	----flumioxazin	33.5		0.0785							
4	----pyroxasulfone	42.5		0.1							
5	Corvus Premix	2.63	SC	0.068	lb ai/a	7 DPP	A	16.0 a	3.5 bc	75.8 b	89.3 a
5	----thiencarbazone	0.75		0.0194							
5	----isoxaflutole	1.88		0.0486							
6	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	7 DPP	A	3.2 bc	4.3 b	73.0 bc	79.2 ab
	LSD P=.05							9.23	3.70	11.62	13.45
	Standard Deviation							7.71	3.04	9.71	11.24
	CV							117.57	79.58	13.68	14.28
	TABLE OF B (Atrazine) MEANS										
1	Atrazine 4L	4	L	0	lb ai/a	7 DPP		4.6 a	4.5 a	64.8 b	77.9 a
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
2	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	8.5 a	3.1 a	77.1 a	79.4 a
2	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
	LSD P=.05							5.33	2.14	6.71	7.77
	Standard Deviation							7.71	3.04	9.71	11.24
	CV							117.57	79.58	13.68	14.28
	TABLE OF A (Herbicide) B (Atrazine) MEANS										
1	Untreated Check							0.0 a	0.0 a	0.0 g	56.7 a
1	Atrazine 4L	4	L	0	lb ai/a	7 DPP					
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
2	Verdict Premix	5.57	EC	0.566	lb ai/a	7 DPP	A	5.7 a	6.3 a	60.0 ef	66.7 a
2	----saflufenacil	0.57		0.058							
2	----dimethenamid	5		0.51							
1	Atrazine 4L	4	L	0	lb ai/a	7 DPP					
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				
3	Zemax Premix	3.67	SC	1.84	lb ai/a	7 DPP	A	0.0 a	0.0 a	85.7 abc	85.7 a
3	----s-metolachlor	3.34		1.67							
3	----mesotrione	.33		0.165							
1	Atrazine 4L	4	L	0	lb ai/a	7 DPP					
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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| Weed Code | | |

Weed Code							
Crop Code							ZEAMX
Weed or Crop Name							Field
Weed or Crop Name							Corn
Rating Data Type							Yield
Rating Unit							Bu/A
Rating Date							09/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
TABLE OF R MEANS								
Replicate 1								151.4
Replicate 2								148.2
Replicate 3								165.2
TABLE OF A (Herbicide) MEANS								
1	Untreated Check							152.7 a
2	Verdict Premix	5.57	EC	0.566	lb ai/a	7 DPP	A	162.4 a
2	----saflufenacil	0.57		0.058				
2	----dimethenamid	5		0.51				
3	Zemax Premix	3.67	SC	1.84	lb ai/a	7 DPP	A	152.8 a
3	----s-metolachlor	3.34		1.67				
3	----mesotrione	.33		0.165				
4	Fierce Premix	76	WG	0.178	lb ai/a	7 DPP	A	160.0 a
4	----flumioxazin	33.5		0.0785				
4	----pyroxasulfone	42.5		0.1				
5	Corvus Premix	2.63	SC	0.068	lb ai/a	7 DPP	A	151.2 a
5	----thiencarbazone	0.75		0.0194				
5	----isoxaflutole	1.88		0.0486				
6	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	7 DPP	A	150.3 a
LSD P=.05								12.90
Standard Deviation								10.77
CV								6.95
TABLE OF B (Atrazine) MEANS								
1	Atrazine 4L	4	L	0	lb ai/a	7 DPP		151.6 a
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
2	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	158.2 a
2	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
LSD P=.05								7.45
Standard Deviation								10.77
CV								6.95
TABLE OF A (Herbicide) B (Atrazine) MEANS								
1	Untreated Check							150.8 a
1	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
2	Verdict Premix	5.57	EC	0.566	lb ai/a	7 DPP	A	153.4 a
2	----saflufenacil	0.57		0.058				
2	----dimethenamid	5		0.51				
1	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
3	Zemax Premix	3.67	SC	1.84	lb ai/a	7 DPP	A	152.1 a
3	----s-metolachlor	3.34		1.67				
3	----mesotrione	.33		0.165				
1	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	

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Weed Code	
Crop Code	ZEAMX
Weed or Crop Name	Field
Weed or Crop Name	Corn
Rating Data Type	Yield
Rating Unit	Bu/A
Rating Date	09/24/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
4	Fierce Premix	76	WG	0.178	lb ai/a	7 DPP	A	152.2 a
4	----flumioxazin	33.5		0.0785				
4	----pyroxasulfone	42.5		0.1				
1	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
5	Corvus Premix	2.63	SC	0.068	lb ai/a	7 DPP	A	150.2 a
5	----thiencarbazone	0.75		0.0194				
5	----isoxaflutole	1.88		0.0486				
1	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
6	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	7 DPP	A	151.2 a
1	Atrazine 4L	4	L	0	lb ai/a	7 DPP		
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
1	Untreated Check							154.7 a
2	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
2	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
2	Verdict Premix	5.57	EC	0.566	lb ai/a	7 DPP	A	171.4 a
2	----saflufenacil	0.57		0.058				
2	----dimethenamid	5		0.51				
2	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
2	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
3	Zemax Premix	3.67	SC	1.84	lb ai/a	7 DPP	A	153.5 a
3	----s-metolachlor	3.34		1.67				
3	----mesotrione	.33		0.165				
2	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
2	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
4	Fierce Premix	76	WG	0.178	lb ai/a	7 DPP	A	167.8 a
4	----flumioxazin	33.5		0.0785				
4	----pyroxasulfone	42.5		0.1				
2	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
2	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
5	Corvus Premix	2.63	SC	0.068	lb ai/a	7 DPP	A	152.2 a
5	----thiencarbazone	0.75		0.0194				
5	----isoxaflutole	1.88		0.0486				
2	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
2	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	
6	Balance Flexx...isoxaflutole	2	L	0.047	lb ai/a	7 DPP	A	149.4 a
2	Atrazine 4L	4	L	1.25	lb ai/a	7 DPP	A	
2	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	7 DPP	A	

LSD P=.05	18.24
Standard Deviation	10.77
CV	6.95

FACTORIAL/POOLED ERROR AOV For ZEAMX Field Corn Stunting % 05/23/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	2744.888889				
R	2	141.055556	70.527778	1.187	0.3239	
A	5	1054.555556	210.911111	3.550	0.0167	9.2
B	1	136.111111	136.111111	2.291	0.1443	5.3
AB	5	106.222222	21.244444	0.358	0.8718	13.1
ERROR	22	1306.944444	59.406566			

FACTORIAL/POOLED ERROR AOV For ZEAMX Field Corn Stunting % 06/08/14 Missing values in column 2 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	30	635.076389				
R	2	3.430556	1.715278	0.186	0.8322	
A	5	390.868056	78.173611	8.461	0.0004	3.7
B	1	18.062500	18.062500	1.955	0.1800	2.1
AB	5	65.645833	13.129167	1.421	0.2667	5.2
ERROR	17	157.069444	9.239379			

FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 06/08/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	25953.888889				
R	2	121.555556	60.777778	0.645	0.5343	
A	5	19256.222222	3851.244444	40.870	0.0001	11.6
B	1	1344.444444	1344.444444	14.267	0.0010	6.7
AB	5	3158.555556	631.711111	6.704	0.0006	16.4
ERROR	22	2073.111111	94.232323			

FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 07/11/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	7114.000000				
R	2	4.166667	2.083333	0.017	0.9836	
A	5	4175.000000	835.000000	6.615	0.0007	13.5
B	1	18.777778	18.777778	0.149	0.7034	7.8
AB	5	138.888889	27.777778	0.220	0.9501	19.0
ERROR	22	2777.166667	126.234848			

FACTORIAL/POOLED ERROR AOV For ZEAMX Field Corn Yield Bu/A 09/24/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	6157.826438				
R	2	1955.265682	977.632841	8.425	0.0019	
A	5	758.106633	151.621327	1.307	0.2973	12.9
B	1	385.543505	385.543505	3.322	0.0820	7.4
AB	5	505.947670	101.189534	0.872	0.5157	18.2
ERROR	22	2552.962948	116.043770			

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Impact Programs in Field Corn

Trial ID: Crn18-14 Location: Field #14 Trial Year:
Protocol ID: Crn18-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: AMVAC

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: H6179RCSS BBCH Scale: BCOR
Description: RR

Planting Date: 04/23/14
Planting Rate, Unit: 28000 S/A Planting Method: PLANTD planted
Depth, Unit: 2 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 30 in Emergence Date: 05/05/14
Harvest Date: 09/15/14
Harvested Width, Unit: 5 FT
Soil Temperature, Unit: 60 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDIUM medium % Standard Moisture: 15.5

Pest Description

Pest 1 Type: W Code: DIGSA Digitaria sanguinalis
Common Name: large crabgrass

Pest 2 Type: W Code: CHEAL Chenopodium album
Common Name: Common lambsquarters

Pest 3 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth

Pest 4 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morningglory

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 8 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Field Prep./Maintenance:
Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 60 gal/A 30% UAN solution (195 lb N) at layby. Total N applied was 227 lb/A.

Soil Description

% Sand: 81 % OM: 1.1 Texture: LS loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.7 Fert. Level: G good
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.3 mi

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Application Description

	A
Application Date:	05/23/14
Appl. Stop Time:	09:30 AM
Application Method:	SPRAY
Application Timing:	3-4"wds
Application Placement:	BROADC
Applied By:	Johnson
Air Temperature, Unit:	65 F
% Relative Humidity:	55
Wind Velocity, Unit:	8 mph
Wind Direction:	N
Dew Presence (Y/N):	N no
Soil Temperature, Unit:	63 F
Soil Moisture:	NORMAL
% Cloud Cover:	20

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	ZEAMX BCOR
Stage Scale Used:	DESC
Stage Majority, Percent:	V4 100
Height, Unit:	10 in
Height Minimum, Maximum:	9 11

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	DIGSA W
Stage Majority, Percent:	1-tilr 60
Stage Minimum, Percent:	2-leaf 10
Stage Maximum, Percent:	2-tilr 30
Height, Unit:	3 in
Height Minimum, Maximum:	2 4
Density, Unit:	150 m2
Pest 2 Code, Type, Scale:	CHEAL W
Stage Majority, Percent:	veg 100
Height, Unit:	2 in
Height Minimum, Maximum:	1 2.5
Density, Unit:	10 m2
Pest 3 Code, Type, Scale:	AMAPA W
Stage Majority, Percent:	veg 100
Height, Unit:	2.5 in
Height Minimum, Maximum:	1 3
Density, Unit:	8 m2
Pest 4 Code, Type, Scale:	IPOSS W
Stage Majority, Percent:	2-leaf 60
Stage Minimum, Percent:	cotyl 15
Stage Maximum, Percent:	4-leaf 25
Height, Unit:	2 in
Height Minimum, Maximum:	1 2.5
Density, Unit:	6 m2

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Application Equipment

	A
Appl. Equipment:	Tractor
Equipment Type:	TRMOSP
Operation Pressure, Unit:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	10 ft
Boom Height, Unit:	26 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/ac
Mix Size, Unit:	0.7 Gallons
Propellant:	COMAIR

Trial Comments

6/02/14: Ratings based on weeds present at time of application. IPOSS cotyledons are present now (emerged after application).

6/18/14: Most of the morningglory plants emerged after herbicide application. POST treatment provided >97% control of emerged morninggory.

University of Delaware

Impact Programs in Field Corn

Trial ID: Crn18-14 Location: Field #14 Trial Year:
Protocol ID: Crn18-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: AMVAC

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ZEAMX Corn Stunting % 06/02/14	ZEAMX Corn LeafBrn % 06/02/14	AMAPA PalmerAm Control % 06/02/14	AMBEL C.ragwd Control % 06/02/14
1	Untreated Check							0.0 c	0.0 e	0.0 b	0.0 b
2	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	1.3 c	2.3 de	100.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
3	Impact.....topramezone	2.81	SC	0.022	lb ai/a	3-4"wds	A	0.0 c	9.0 c	100.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
4	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	7.0 b	2.7 de	100.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
5	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	7.7 b	21.3 a	100.0 a	100.0 a
	Sequence Premix	5.25	EW	1.64	lb ai/a	3-4"wds	A				
	----glyphosate	2.25		0.7							
	----s-metolachlor	3		0.94							
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Nonionic Surfactant	100	L	0.25	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
6	Halex GT Premix	4.376	SC	1.97	lb ai/a	3-4"wds	A	0.0 c	3.0 d	100.0 a	100.0 a
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Nonionic Surfactant	100	L	0.25	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
7	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	5.7 b	2.3 de	100.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=15
Could not calculate LSD (% mean diff) for columns 3,4,5,8,9,10 because error mean square = 0.

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Pest Code									AMAPA	AMBEL
Pest Name									PalmerAm	C.ragwd
Crop Code							ZEAMX	ZEAMX		
Crop Name							Corn	Corn		
Rating Type							Stunting	LeafBrn	Control	Control
Rating Unit							%	%	%	%
Rating Date							06/02/14	06/02/14	06/02/14	06/02/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
8	Capreno Premix	3.45	SC	0.081	lb ai/a	3-4"wds	A	12.3 a	17.3 b	100.0 a	100.0 a
	----thiencarbazone	0.57		0.0134							
	----tembotrione	2.88		0.0676							
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
LSD P=.05								4.25	2.77	.	.
Standard Deviation								2.43	1.58	0.00	0.00
CV								57.09	21.83	0.0	0.0
Replicate F								0.531	4.838	0.000	0.000
Replicate Prob(F)								0.5995	0.0253	1.0000	1.0000
Treatment F								10.868	75.772	0.000	0.000
Treatment Prob(F)								0.0001	0.0001	1.0000	1.0000

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	CHEAL C.lmsqtr	IPOSS mornglry	DIGSA L.crbgrs	AMAPA PalmerAm
	Pest Code							CHEAL	IPOSS	DIGSA	AMAPA
	Pest Name							C.lmsqtr	mornglry	L.crbgrs	PalmerAm
	Crop Code										
	Crop Name										
	Rating Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/02/14	06/02/14	06/02/14	06/18/14
1	Untreated Check							0.0 b	0.0 b	0.0 b	0.0 b
2	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	100.0 a	99.7 a	98.3 a	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
3	Impact.....topramezone	2.81	SC	0.022	lb ai/a	3-4"wds	A	100.0 a	100.0 a	97.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
4	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	100.0 a	100.0 a	98.3 a	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
5	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	100.0 a	99.0 a	97.0 a	100.0 a
	Sequence Premix	5.25	EW	1.64	lb ai/a	3-4"wds	A				
	----glyphosate	2.25		0.7							
	----s-metolachlor	3		0.94							
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Nonionic Surfactant	100	L	0.25	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
6	Halex GT Premix	4.376	SC	1.97	lb ai/a	3-4"wds	A	100.0 a	100.0 a	98.3 a	100.0 a
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Nonionic Surfactant	100	L	0.25	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
7	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	100.0 a	100.0 a	99.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	CHEAL C.lmsqtr	IPOSS mornglry	DIGSA L.crbgrs	AMAPA PalmerAm
	Pest Code							CHEAL	IPOSS	DIGSA	AMAPA
	Pest Name							C.lmsqtr	mornglry	L.crbgrs	PalmerAm
	Crop Code										
	Crop Name										
	Rating Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/02/14	06/02/14	06/02/14	06/18/14
8	Capreno Premix	3.45	SC	0.081	lb ai/a	3-4"wds	A	100.0 a	99.0 a	98.3 a	100.0 a
	----thiencarbazone	0.57		0.0134							
	----tembotrione	2.88		0.0676							
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
	LSD P=.05							.	1.37	2.36	.
	Standard Deviation							0.00	0.78	1.35	0.00
	CV							0.0	0.9	1.57	0.0
	Replicate F							0.000	3.330	0.368	0.000
	Replicate Prob(F)							1.0000	0.0656	0.6983	1.0000
	Treatment F							0.000	6076.729	1993.050	0.000
	Treatment Prob(F)							1.0000	0.0001	0.0001	1.0000

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMBEL C.ragwd	CHEAL C.lmsqtr	IPOSS mornglry	DIGSA L.crbgrs
	Pest Code							AMBEL	CHEAL	IPOSS	DIGSA
	Pest Name							C.ragwd	C.lmsqtr	mornglry	L.crbgrs
	Crop Code										
	Crop Name										
	Rating Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/18/14	06/18/14	06/18/14	06/18/14
1	Untreated Check							0.0 b	0.0 b	0.0 d	0.0 b
2	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	100.0 a	100.0 a	89.0 bc	97.7 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
3	Impact.....topramezone	2.81	SC	0.022	lb ai/a	3-4"wds	A	100.0 a	100.0 a	90.7 abc	97.7 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
4	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	100.0 a	100.0 a	88.7 bc	98.3 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
5	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	100.0 a	100.0 a	87.7 c	97.0 a
	Sequence Premix	5.25	EW	1.64	lb ai/a	3-4"wds	A				
	----glyphosate	2.25		0.7							
	----s-metolachlor	3		0.94							
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Nonionic Surfactant	100	L	0.25	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
6	Halex GT Premix	4.376	SC	1.97	lb ai/a	3-4"wds	A	100.0 a	100.0 a	95.0 a	98.3 a
	----s-metolachlor	2.084		0.94							
	----glyphosate	2.084		0.94							
	----mesotrione	0.208		0.094							
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Nonionic Surfactant	100	L	0.25	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
7	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	100.0 a	100.0 a	92.7 abc	99.0 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMBEL	CHEAL	IPOSS	DIGSA
	Pest Code							AMBEL	CHEAL	IPOSS	DIGSA
	Pest Name							C.ragwd	C.lmsqtr	mornglry	L.crbgrs
	Crop Code										
	Crop Name										
	Rating Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/18/14	06/18/14	06/18/14	06/18/14
8	Capreno Premix	3.45	SC	0.081	lb ai/a	3-4"wds	A	100.0 a	100.0 a	93.7 ab	98.3 a
	----thiencarbazone	0.57		0.0134							
	----tembotrione	2.88		0.0676							
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A				
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A				
	LSD P=.05							.	.	5.97	2.14
	Standard Deviation							0.00	0.00	3.41	1.22
	CV							0.0	0.0	4.28	1.43
	Replicate F							0.000	0.000	0.369	0.111
	Replicate Prob(F)							1.0000	1.0000	0.6978	0.8956
	Treatment F							0.000	0.000	269.124	2404.060
	Treatment Prob(F)							1.0000	1.0000	0.0001	0.0001

Pest Code	
Pest Name	
Crop Code	ZEAMX
Crop Name	Corn
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	09/15/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
1	Untreated Check							165.4 a
2	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	169.7 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A	
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A	
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A	
3	Impact.....topramezone	2.81	SC	0.022	lb ai/a	3-4"wds	A	178.1 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A	
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A	
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A	
4	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	180.3 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A	
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A	
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	3-4"wds	A	
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A	
5	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	174.9 a
	Sequence Premix	5.25	EW	1.64	lb ai/a	3-4"wds	A	
	----glyphosate	2.25		0.7				
	----s-metolachlor	3		0.94				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A	
	Nonionic Surfactant	100	L	0.25	% v/v	3-4"wds	A	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A	
6	Halex GT Premix	4.376	SC	1.97	lb ai/a	3-4"wds	A	177.0 a
	----s-metolachlor	2.084		0.94				
	----glyphosate	2.084		0.94				
	----mesotrione	0.208		0.094				
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A	
	Nonionic Surfactant	100	L	0.25	% v/v	3-4"wds	A	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A	
7	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	3-4"wds	A	213.7 a
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A	
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A	
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	3-4"wds	A	
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A	

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Pest Code	
Pest Name	
Crop Code	ZEAMX
Crop Name	Corn
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	09/15/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
8	Capreno Premix	3.45	SC	0.081	lb ai/a	3-4"wds	A	209.5 a
	----thiencarbazone	0.57		0.0134				
	----tembotrione	2.88		0.0676				
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	3-4"wds	A	
	Atrazine 4L	4	L	1	lb ai/a	3-4"wds	A	
	Methylated Seed Oil	100	L	0.5	% v/v	3-4"wds	A	
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3-4"wds	A	

LSD P=.05	100.39
Standard Deviation	56.91
CV	31.0
Replicate F	0.291
Replicate Prob(F)	0.7525
Treatment F	0.299
Treatment Prob(F)	0.9418

University of Delaware

Sweet Corn Weed Control to Allow Rotational Flexibility

Trial ID: SCRN1-14 Cooperator:
Location: Field #14 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.

Crop 1: Sweet Corn ZEAMS Variety: BC0805 (LL)
Planting Date: 04/23/14 Planting Method: Row- Unit Planter Depth: 0.75 in
Rate: 24000 Sd/A Row Spacing: 30 in Seed Bed: Medium
Soil Temperature: 60 F Soil Moisture: Moist Emergence Date: 05/04/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Disked Twice

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.1 Texture: loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.7 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	04/25/14	05/08/14	05/14/14	05/23/14	05/28/14
Time of Day:	9:30 am	10:25 am	3:15 pm	9:30 am	1:20 pm
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	PRE	DPRE	21DAP	28DAP	35DAP
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	53 F	71 F	63 F	65 F	76 F
% Relative Humidity:	42	80	90	55	74
Wind Velocity, Unit:	1 mph	2 mph	2 mph	8 mph	3 mph
Wind Direction:	SE	Southwest	East	North	Southeast
Dew Presence (Y/N):	N	Y	N	N	N
Soil Temp., Unit:	52 F	70 F	62 F	63 F	77 F
Soil Surf. Moisture:	Dry	Moist	Dry	Moist	Dry
Root Zone Moisture:	Moist	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist	Moist	Dry	Dry
% Cloud Cover:	15	100	100	20	100

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code:	ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Growth Stage:		V1	V2	V4	V4
Height, Unit:		1.5 in	3 in	7 in	9 in
Crop Health:		Good	Good	Good	Good

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code:	IPOSS	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:			cotyledon	cot-2 leaf	cot-2 leaf
Height, Unit:			1 in	1.5 in	1.5 in
Density,Unit:			3-10 m2	0-4 m2	4-8 m2

APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	Tractor	Tractor	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	20 in	22 in	24 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air	Comp. Air	Comp. Air

Trial Comments

5/14/14: No injury observed from PRE treatments

5/22/14: POST treatments have not been applied so only activity from PRE applications are noted.

6/04/14: Weed control is fair to excellent for all treatments.

7/16/14: All treatments provided good to excellent control of all othe broadleaves and not included in the rating. Grass control was good to excellent with all Liberty 280 and Impact+atrazine treatments. Treatment 7 (Impact alone) was poor on fall panicum.

University of Delaware

Sweet Corn Weed Control to Allow Rotational Flexibility

Trial ID: SCRN1-14 Cooperator:
Location: Field #14 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	ZEAMS Sweet Corn Stunting % 05/21/14	ZEAMS Sweet Corn Leaf Brn % 05/21/14	ZEAMS Sweet Corn Stunting % 05/22/14	AMAPA Palmer Amaranth Control % 05/22/14
1	Untreated Check							0.0 e	0.0 e	0.0 b	0.0 b
2	Dual II Magnum..s-metolachlor	7.64	E	0.64	lb ai/a	PRE	A	21.7 b	18.3 c		
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
3	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	18.0 c	21.7 b		
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
4	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	15.0 d	19.0 c		
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	DPRE	B				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
5	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	28.3 a	25.0 a		
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
6	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	0.0 e	0.0 e	0.0 b	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
7	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	0.0 e	0.0 e	0.0 b	100.0 a
	Impact.....topramezone	2.8	SC	0.0164	lb ai/a	28DAP	D				
	Crop Oil Concentrate	100	L	1.25	% v/v	28DAP	D				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	28DAP	D				
8	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	0.0 e	0.0 e	0.0 b	100.0 a
	Impact.....topramezone	2.8	SC	0.0164	lb ai/a	28DAP	D				
	Atrazine 4L	4	L	0.5	lb ai/a	28DAP	D				
	Crop Oil Concentrate	100	L	1.25	% v/v	28DAP	D				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	28DAP	D				
9	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	0.0 e	0.0 e	0.0 b	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
10	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	0.0 e	0.0 e	12.3 a	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
11	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	0.0 e	0.0 e	0.0 b	100.0 a
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A				
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=5,8
Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

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Weed Code											AMAPA
Crop Code								ZEAMS	ZEAMS	ZEAMS	
Weed or Crop Name								Sweet	Sweet	Sweet	Palmer
Weed or Crop Name								Corn	Corn	Corn	Amaranth
Rating Data Type								Stunting	Leaf Brn	Stunting	Control
Rating Unit								%	%	%	%
Rating Date								05/21/14	05/21/14	05/22/14	05/22/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
12	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	0.0 e	9.7 d		
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	21DAP	C				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	21DAP	C				
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	35DAP	E				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	35DAP	E				
LSD P=.05								2.13	2.28	1.69	.
Standard Deviation								1.26	1.35	0.95	0.00
CV								18.15	17.26	53.99	0.0
Replicate F								1.481	3.320	1.000	0.000
Replicate Prob(F)								0.2493	0.0550	0.3966	1.0000
Treatment F								215.851	173.323	72.053	0.000
Treatment Prob(F)								0.0001	0.0001	0.0001	1.0000

Weed Code							AMBEL	DIGSA	IPOSS	PANDI
Crop Code										
Weed or Crop Name							Common	Crabgras	Mornglry	Fall
Weed or Crop Name							Ragweed	Species	Species	Panicum
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							05/22/14	05/22/14	05/22/14	05/22/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Untreated Check							0.0 d	0.0 c	0.0 e	0.0 c
2	Dual II Magnum..s-metolachlor	7.64	E	0.64	lb ai/a	PRE	A				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
3	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
4	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A				
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	DPRE	B				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
5	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
6	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	40.0 bc	95.7 ab	36.7 cd	93.3 ab
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
7	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	30.0 c	90.7 ab	33.3 d	88.3 b
	Impact.....topramezone	2.8	SC	0.0164	lb ai/a	28DAP	D				
	Crop Oil Concentrate	100	L	1.25	% v/v	28DAP	D				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	28DAP	D				
8	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	36.7 c	90.0 ab	36.7 cd	90.0 b
	Impact.....topramezone	2.8	SC	0.0164	lb ai/a	28DAP	D				
	Atrazine 4L	4	L	0.5	lb ai/a	28DAP	D				
	Crop Oil Concentrate	100	L	1.25	% v/v	28DAP	D				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	28DAP	D				
9	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	50.4 b	83.3 b	53.3 bc	89.9 b
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
10	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	90.0 a	100.0 a	79.3 a	99.0 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
11	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	48.6 b	95.0 ab	55.0 b	91.0 b
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A				
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				

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Weed Code							AMBEL	DIGSA	IPOSS	PANDI
Crop Code										
Weed or Crop Name							Common	Crabgras	Mornglry	Fall
Weed or Crop Name							Ragweed	Species	Species	Panicum
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							05/22/14	05/22/14	05/22/14	05/22/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
12	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A			
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	21DAP	C			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	21DAP	C			
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	35DAP	E			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	35DAP	E			
LSD P=.05								11.35	14.62	17.71	5.86
Standard Deviation								6.24	8.22	9.95	3.26
CV								14.77	10.37	23.67	4.14
Replicate F								1.162	0.974	1.465	4.033
Replicate Prob(F)								0.3518	0.4056	0.2695	0.0486
Treatment F								55.973	55.458	18.103	344.198
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	ZEAMS	ZEAMS	AMAPA	AMBEL
	Weed Code									AMAPA	AMBEL
	Crop Code							ZEAMS	ZEAMS		
	Weed or Crop Name							Sweet	Sweet	Palmer	Common
	Weed or Crop Name							Corn	Corn	Amaranth	Ragweed
	Rating Data Type							Stunting	Stunting	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/04/14	06/18/14	06/18/14	06/18/14
1	Untreated Check							0.0 e	0.0 c	0.0 c	0.0 c
2	Dual II Magnum..s-metolachlor	7.64	E	0.64	lb ai/a	PRE	A	18.3 bc	10.0 ab	91.7 b	100.0 a
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
3	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	20.0 b	7.3 b	100.0 a	100.0 a
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
4	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	20.0 b	10.7 ab	100.0 a	95.0 ab
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	DPRE	B				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
5	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	28.3 a	13.3 a	100.0 a	90.0 b
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
6	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	4.7 d	0.0 c	100.0 a	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
7	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	0.0 e	0.0 c	100.0 a	100.0 a
	Impact.....topramezone	2.8	SC	0.0164	lb ai/a	28DAP	D				
	Crop Oil Concentrate	100	L	1.25	% v/v	28DAP	D				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	28DAP	D				
8	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	6.3 d	0.0 c	100.0 a	100.0 a
	Impact.....topramezone	2.8	SC	0.0164	lb ai/a	28DAP	D				
	Atrazine 4L	4	L	0.5	lb ai/a	28DAP	D				
	Crop Oil Concentrate	100	L	1.25	% v/v	28DAP	D				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	28DAP	D				
9	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	7.0 d	2.3 c	100.0 a	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
10	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	15.0 c	12.0 a	100.0 a	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
11	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	4.0 d	2.3 c	100.0 a	100.0 a
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A				
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
	Weed Code									AMAPA	AMBEL
	Crop Code							ZEAMS	ZEAMS		
	Weed or Crop Name							Sweet	Sweet	Palmer	Common
	Weed or Crop Name							Corn	Corn	Amaranth	Ragweed
	Rating Data Type							Stunting	Stunting	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/04/14	06/18/14	06/18/14	06/18/14
12	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	4.7 d	0.0 c	100.0 a	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	21DAP	C				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	21DAP	C				
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	35DAP	E				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	35DAP	E				
	LSD P=.05							3.96	3.54	3.73	9.12
	Standard Deviation							2.34	2.09	2.20	5.38
	CV							21.88	43.26	2.42	5.95
	Replicate F							0.629	0.133	1.000	1.941
	Replicate Prob(F)							0.5424	0.8758	0.3840	0.1673
	Treatment F							46.832	19.958	510.065	84.922
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Weed Code							DIGSA	IPOSS	PANDI	IPOSS
Crop Code										
Weed or Crop Name							Crabgras	Morngly	Fall	Morngly
Weed or Crop Name							Species	Species	Panicum	Species
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							06/18/14	06/18/14	06/18/14	07/16/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Untreated Check							0.0 e	0.0 d	0.0 c	0.0 f
2	Dual II Magnum..s-metolachlor	7.64	E	0.64	lb ai/a	PRE	A	86.7 d	40.0 c	66.7 b	20.0 e
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
3	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	90.7 cd	40.0 c	56.7 b	36.7 d
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
4	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	99.7 a	50.0 bc	98.0 a	43.3 cd
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	DPRE	B				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
5	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	95.0 bc	46.7 bc	85.0 a	46.7 c
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C				
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	21DAP	C				
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C				
6	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	100.0 a	76.0 a	100.0 a	65.0 ab
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
7	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	99.0 ab	56.7 b	88.3 a	43.3 cd
	Impact.....topramezone	2.8	SC	0.0164	lb ai/a	28DAP	D				
	Crop Oil Concentrate	100	L	1.25	% v/v	28DAP	D				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	28DAP	D				
8	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	100.0 a	82.7 a	96.7 a	66.7 ab
	Impact.....topramezone	2.8	SC	0.0164	lb ai/a	28DAP	D				
	Atrazine 4L	4	L	0.5	lb ai/a	28DAP	D				
	Crop Oil Concentrate	100	L	1.25	% v/v	28DAP	D				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	28DAP	D				
9	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	100.0 a	73.0 a	95.0 a	60.0 b
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
10	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	100.0 a	81.7 a	100.0 a	70.0 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				
11	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	100.0 a	81.7 a	95.0 a	71.7 a
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A				
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D				

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Weed Code							DIGSA	IPOSS	PANDI	IPOSS
Crop Code										
Weed or Crop Name							Crabgras	Mornglry	Fall	Mornglry
Weed or Crop Name							Species	Species	Panicum	Species
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							06/18/14	06/18/14	06/18/14	07/16/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
12	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	100.0 a	79.3 a	100.0 a	70.0 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	21DAP	C				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	21DAP	C				
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	35DAP	E				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	35DAP	E				
LSD P=.05								4.36	10.54	17.55	9.08
Standard Deviation								2.57	6.22	10.36	5.36
CV								2.88	10.55	12.67	10.84
Replicate F								3.784	0.341	1.444	1.185
Replicate Prob(F)								0.0387	0.7148	0.2574	0.3246
Treatment F								366.346	48.809	23.951	52.659
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	ZEAMS Sweet Corn Yield Ct #/23'rw 07/17/14	ZEAMS Sweet Corn Yield Wt kg/23'rw 07/17/14
	Weed Code								
	Crop Code								
	Weed or Crop Name								
	Weed or Crop Name								
	Rating Data Type								
	Rating Unit								
	Rating Date								
1	Untreated Check							28.3 d	4.99 c
2	Dual II Magnum..s-metolachlor	7.64	E	0.64	lb ai/a	PRE	A	34.7 a	9.25 ab
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C		
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C		
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C		
3	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	29.3 cd	8.78 b
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C		
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C		
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C		
4	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	29.3 cd	9.43 ab
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/a	DPRE	B		
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C		
	Basagran.....bentazon	4	L	0.75	lb ai/a	21DAP	C		
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C		
5	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	33.0 ab	9.16 ab
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	21DAP	C		
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	21DAP	C		
	Nonionic Surfactant	100	L	0.5	% v/v	21DAP	C		
6	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	31.0 bc	10.33 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D		
7	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	31.0 bc	10.47 a
	Impact.....topramezone	2.8	SC	0.0164	lb ai/a	28DAP	D		
	Crop Oil Concentrate	100	L	1.25	% v/v	28DAP	D		
	30% Urea Ammonium Nitrate	100	L	2	% v/v	28DAP	D		
8	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	31.7 bc	9.91 ab
	Impact.....topramezone	2.8	SC	0.0164	lb ai/a	28DAP	D		
	Atrazine 4L	4	L	0.5	lb ai/a	28DAP	D		
	Crop Oil Concentrate	100	L	1.25	% v/v	28DAP	D		
	30% Urea Ammonium Nitrate	100	L	2	% v/v	28DAP	D		
9	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	30.0 cd	10.07 ab
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D		
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	28DAP	D		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D		
10	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE	A	29.7 cd	10.04 ab
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D		
11	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	31.3 bc	10.35 a
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A		
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	28DAP	D		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	D		

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Weed Code								
Crop Code							ZEAMS	ZEAMS
Weed or Crop Name							Sweet	Sweet
Weed or Crop Name							Corn	Corn
Rating Data Type							Yield Ct	Yield Wt
Rating Unit							#/23'rw	kg/23'rw
Rating Date							07/17/14	07/17/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
12	Dual II Magnum..s-metolachlor	7.64	E	1.43	lb ai/a	PRE	A	30.3 cd	10.44 a
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	21DAP	C		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	21DAP	C		
	Liberty 280.....glufosinate	2.34	SL	0.366	lb ai/a	35DAP	E		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	35DAP	E		
LSD P=.05								2.51	1.378
Standard Deviation								1.48	0.814
CV								4.81	8.62
Replicate F								13.456	7.587
Replicate Prob(F)								0.0002	0.0031
Treatment F								4.155	10.316
Treatment Prob(F)								0.0022	0.0001

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Spinach Safety After Impact Applications

Trial ID: SCRN3-14 Location: Greenwood Trial Year:
Protocol ID: SCRN3-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: SPQOL Spinacia oleracea Spinach
BBCH Scale: BVNH
Planting Date: 08/27/14
Harvested Width, Unit: 48 IN
Harvested Length, Unit: 39 IN

Site and Design

Treated Plot Width: 50 FT Site Type: FIELD field
Treated Plot Length: 65 FT
Treated Plot Area: 3250 FT2 Treatments: 3 Tillage Type: CONTIL conventional-till
Replications: 4 Study Design: RACOBL Randomized Complete Block (RCB)

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal

Application Description

	A
Application Date:	06/12/14
Appl. Stop Time:	02:00 PM
Application Method:	SPRAY
Application Timing:	4WAP
Application Placement:	BROADC
Applied By:	VanGessl
Air Temperature, Unit:	76 F
% Relative Humidity:	79
Wind Velocity, Unit:	3 mph
Wind Direction:	SE
Dew Presence (Y/N):	N no
Soil Temperature, Unit:	76 F
Soil Moisture:	NORMAL
% Cloud Cover:	100

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	SPQOL BVNH

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Application Equipment

	A
Appl. Equipment:	Backpack
Equipment Type:	SPRBAC
Operation Pressure, Unit:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	9 ft
Boom Height, Unit:	18 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/ac
Mix Size, Unit:	2 Liters
Propellant:	COMCO2

Trial Comments

09/12/14: Spinach is in 2nd set of true leaves, 2nd true leaves are 0.25 to 1" long. No observable differences in biomass. No whitening observed in any treatment.

09/30/14: No diifferences observed between the treatments.

10/09/14: Spinach was harvested with garden shears right at the soil level, so yields are much higher than observed with commerically harvested fields. Harvested two quadrats (1 meter long and 0.61 meter wide).

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Spinach Safety After Impact Applications

Trial ID: SCRN3-14 Location: Greenwood Trial Year:
Protocol ID: SCRN3-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Crop Code	SPQOL
Crop Name	Spinach
Rating Type	Yield
Rating Unit	lb/A
Rating Date	10/09/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
1	Untreated Check							24267.0 a
2	Impact.....topramezone	2.81	SC	0.0165	lb ai/a	4 WAP	A	27129.6 a
	Atrazine 4L	4	L	0.5	lb ai/a	4 WAP	A	
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	A	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	4 WAP	A	
3	Impact.....topramezone	2.81	SC	0.044	lb ai/a	4 WAP	A	23565.2 a
	Atrazine 4L	4	L	0.5	lb ai/a	4 WAP	A	
	Crop Oil Concentrate	100	L	1.25	% v/v	4 WAP	A	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	4 WAP	A	

LSD P=.05	4388.81
Standard Deviation	2536.55
CV	10.15
Replicate F	0.294
Replicate Prob(F)	0.8288
Treatment F	2.216
Treatment Prob(F)	0.1902

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Impact Safety with Mesotrione Applied at Planting

Trial ID: SCRN7-14 Cooperator:
Location: Field #14 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Sweet Corn ZEAMS Variety: see comments
Planting Date: 05/06/14 Planting Method: Row- Unit Planter Depth: 0.75 in
Rate: 24000 Sd/A Row Spacing: 30 in Seed Bed: Medium
Soil Temperature: 72 F Soil Moisture: Moist Emergence Date: 05/13/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.1 Texture: loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.7 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/06/14	05/30/14
Time of Day:	9:50 am	9:00 am
Application Method:	Spray	Spray
Application Timing:	PRE	POST
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	58 F	59 F
% Relative Humidity:	55	81
Wind Velocity, Unit:	2 mph	1 mph
Wind Direction:	West	Northeast
Dew Presence (Y/N):	N	Y
Soil Temp., Unit:	57 F	59 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	N/A	Moist
% Cloud Cover:	55	100

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	ZEAMS	ZEAMS
Growth Stage:		V3 to V4
Height, Unit:		6 in
Crop Health:		F-G

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	22 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

Trial Comments

05/06/14: Sweet corn varieties are BC0805, Argent, How Sweet It Is, and Silver King.

05/21/14: No difference in treatment for crop safety. All looked very similar.

05/30/14: How Sweet it is was V3 stage; all others V4.

07/16/14: Weed control was fair to good for all treatments. Weed dids not influence yields.

07/21/14: Plot 307 had planter problem and only half a row exists - #'s doubled for this plot.

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Impact Safety with Mesotrione Applied at Planting

Trial ID: SCRN7-14 Cooperator:
Location: Field #14 Investigator: Mark VanGessel

Crop Code							ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Weed or Crop Name							Swt Crn	Swt Crn	Swt Crn	Swt Crn	Swt Crn
Weed or Crop Name							BC0805	How swt	Slv King	Argent	BC0805
Rating Data Type							Stunting	Stunting	Stunting	Stunting	Lf Burn
Rating Unit							%	%	%	%	%
Rating Date							05/23/14	05/23/14	05/23/14	05/23/14	06/04/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Untreated Check							0.0 a	0.0 a	0.0 a	0.0 a	0.0 c
	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A					
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
2	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	0.0 a	2.3 a	1.7 a	0.0 a	0.0 c
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
3	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	1.7 a	1.7 a	0.0 a	1.7 a	15.7 b
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.156	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
4	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	2.3 a	0.0 a	0.0 a	2.3 a	13.0 b
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
5	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	0.0 a	1.7 a	1.7 a	0.0 a	15.7 b
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
6	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A					17.3 b
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0437	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=21
Could not calculate LSD (% mean diff) for columns 30,37 because error mean square = 0.

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Crop Code							ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Weed or Crop Name							Swt Crn	Swt Crn	Swt Crn	Swt Crn	Swt Crn
Weed or Crop Name							BC0805	How swt	Slv King	Argent	BC0805
Rating Data Type							Stunting	Stunting	Stunting	Stunting	Lf Burn
Rating Unit							%	%	%	%	%
Rating Date							05/23/14	05/23/14	05/23/14	05/23/14	06/04/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
7	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A				25.0 a
	----s-metolachlor	2.4		1.08							
	----atrazine	3.1		1.39							
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A				
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	POST	B				
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B				
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B				
8	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A				16.7 b
	----s-metolachlor	2.4		1.08							
	----atrazine	3.1		1.39							
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A				
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B				
	Methylated Seed Oil	100	L	0.94	% v/v	POST	B				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B				
LSD P=.05								3.65	5.39	3.65	4.42	5.03
Standard Deviation								1.94	2.86	1.94	2.35	2.87
CV								242.6	252.41	290.47	293.59	22.22
Replicate F								2.549	0.033	0.444	0.471	1.538
Replicate Prob(F)								0.1392	0.9681	0.6561	0.6405	0.2491
Treatment F								1.000	0.420	0.667	0.683	27.488
Treatment Prob(F)								0.4609	0.7907	0.6328	0.6233	0.0001

Crop Code							ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Weed or Crop Name							Swt Crn	Swt Crn	Swt Crn	Swt Crn	Swt Crn
Weed or Crop Name							How swt	Slv King	Argent	BC0805	How swt
Rating Data Type							Lf Burn	Lf Burn	Lf Burn	Stunting	Stunting
Rating Unit							%	%	%	%	%
Rating Date							06/04/14	06/04/14	06/04/14	06/04/14	06/04/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Untreated Check							0.0 c	0.0 c	0.0 c	0.0 b	0.0 c
	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A					
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
2	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	0.0 c	0.0 c	0.0 c	0.0 b	10.0 b
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
3	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	12.3 ab	14.0 a	14.7 b	8.0 a	13.3 ab
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.156	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
4	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	10.3 b	10.7 b	13.0 b	12.0 a	13.3 ab
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
5	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	13.0 ab	14.0 a	19.0 a	7.0 a	18.3 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
6	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	15.0 a	12.3 ab	16.7 ab	11.7 a	18.3 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0437	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					

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Crop Code							ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Weed or Crop Name							Swt Crn	Swt Crn	Swt Crn	Swt Crn	Swt Crn
Weed or Crop Name							How swt	Slv King	Argent	BC0805	How swt
Rating Data Type							Lf Burn	Lf Burn	Lf Burn	Stunting	Stunting
Rating Unit							%	%	%	%	%
Rating Date							06/04/14	06/04/14	06/04/14	06/04/14	06/04/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
7	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	12.3 ab	15.0 a	15.7 ab	11.3 a	12.3 b
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
8	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	10.7 b	12.3 ab	14.0 b	9.7 a	9.0 b
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Methylated Seed Oil	100	L	0.94	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
LSD P=.05								3.32	3.30	3.69	5.28	5.99
Standard Deviation								1.90	1.88	2.11	3.02	3.42
CV								20.59	19.24	18.14	40.45	28.9
Replicate F								7.000	2.866	3.120	1.131	0.068
Replicate Prob(F)								0.0078	0.0905	0.0757	0.3506	0.9349
Treatment F								28.661	32.374	36.936	8.005	8.818
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0005	0.0003

Crop Code							ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Weed or Crop Name							Swt Crn	Swt Crn	Swt Crn	Swt Crn	Swt Crn
Weed or Crop Name							Slv King	Argent	BC0805	How swt	Slv King
Rating Data Type							Stunting	Stunting	Stunting	Stunting	Stunting
Rating Unit							%	%	%	%	%
Rating Date							06/04/14	06/04/14	06/11/14	06/11/14	06/11/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Untreated Check							0.0 c	0.0 b	0.0 c	0.0 b	0.0 c
	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A					
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
2	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	5.7 b	0.0 b	0.0 c	11.7 a	11.7 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
3	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	10.7 ab	14.0 a	2.3 bc	10.0 a	8.7 ab
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.156	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
4	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	15.7 a	17.3 a	13.0 a	12.0 a	9.0 ab
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
5	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	7.0 b	13.3 a	4.7 bc	13.0 a	11.3 ab
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
6	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	15.7 a	19.7 a	7.0 ab	14.0 a	10.7 ab
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0437	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					

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Crop Code							ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Weed or Crop Name							Swt Crn	Swt Crn	Swt Crn	Swt Crn	Swt Crn
Weed or Crop Name							Slv King	Argent	BC0805	How swt	Slv King
Rating Data Type							Stunting	Stunting	Stunting	Stunting	Stunting
Rating Unit							%	%	%	%	%
Rating Date							06/04/14	06/04/14	06/11/14	06/11/14	06/11/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
7	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	15.0 a	17.3 a	8.0 ab	12.3 a	8.0 b
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
8	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	10.3 ab	20.0 a	7.3 ab	8.3 a	9.7 ab
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Methylated Seed Oil	100	L	0.94	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
LSD P=.05								5.42	6.97	6.43	7.79	3.61
Standard Deviation								3.09	3.98	3.67	4.45	2.06
CV								30.95	31.31	69.42	43.75	23.87
Replicate F								0.170	0.603	0.040	0.786	0.472
Replicate Prob(F)								0.8457	0.5609	0.9608	0.4749	0.6334
Treatment F								9.735	12.711	4.414	3.029	9.785
Treatment Prob(F)								0.0002	0.0001	0.0088	0.0369	0.0002

Crop Code							ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Weed or Crop Name							Swt Crn	Swt Crn	Swt Crn	Swt Crn	Swt Crn
Weed or Crop Name							Argent	BC0805	How swt	Slv King	Argent
Rating Data Type							Stunting	Stunting	Stunting	Stunting	Stunting
Rating Unit							%	%	%	%	%
Rating Date							06/11/14	07/14/14	07/14/14	07/14/14	07/14/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Untreated Check							0.0 b	0.0 c	0.0 d	0.0 b	0.0 c
	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A					
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
2	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	0.0 b	0.0 c	0.0 d	0.0 b	0.0 c
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
3	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	4.0 ab	5.7 ab	15.0 ab	14.0 a	8.0 b
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.156	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
4	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	4.0 ab	10.7 a	17.0 a	14.0 a	14.7 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
5	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	11.3 a	2.3 bc	9.7 c	0.0 b	0.0 c
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
6	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	9.7 a	2.3 bc	15.7 ab	13.0 a	14.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0437	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					

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Crop Code							ZEAMS	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Weed or Crop Name							Swt Crn	Swt Crn	Swt Crn	Swt Crn	Swt Crn
Weed or Crop Name							Argent	BC0805	How swt	Slv King	Argent
Rating Data Type							Stunting	Stunting	Stunting	Stunting	Stunting
Rating Unit							%	%	%	%	%
Rating Date							06/11/14	07/14/14	07/14/14	07/14/14	07/14/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
7	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	8.7 a	3.3 bc	14.0 b	11.7 a	6.7 b
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
8	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	8.7 a	9.7 a	14.0 b	9.7 a	15.7 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Methylated Seed Oil	100	L	0.94	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
LSD P=.05								7.64	5.49	2.43	4.60	4.98
Standard Deviation								4.36	3.14	1.39	2.63	2.84
CV								75.31	73.81	13.02	33.74	38.52
Replicate F								0.114	0.623	0.086	1.489	0.062
Replicate Prob(F)								0.8932	0.5508	0.9177	0.2592	0.9402
Treatment F								3.059	5.089	74.370	18.907	17.515
Treatment Prob(F)								0.0357	0.0048	0.0001	0.0001	0.0001

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							ZEAMS Swt Crn BC0805 Count #/25'row 06/12/14	ZEAMS Swt Crn How swt Count #/25'row 06/12/14	ZEAMS Swt Crn Slv King Count #/25'row 06/12/14	ZEAMS Swt Crn Argent Count #/25'row 06/12/14	Swt Crn BC0805 Ttl#ears #/25'row 07/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Untreated Check							30.1 a	33.7 a	27.0 a	24.0 a	32.0 a
	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A					
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
2	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	33.0 a	27.0 a	26.0 a	26.0 a	32.7 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
3	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	34.0 a	27.0 a	24.7 a	23.7 a	33.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.156	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
4	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	34.7 a	27.7 a	29.0 a	26.7 a	31.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
5	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	33.3 a	34.7 a	27.3 a	22.0 a	34.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
6	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	34.3 a	27.7 a	27.3 a	22.0 a	31.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0437	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					

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Crop Code							ZEAMS	ZEAMS	ZEAMS	ZEAMS	
Weed or Crop Name							Swt Crn	Swt Crn	Swt Crn	Swt Crn	Swt Crn
Weed or Crop Name							BC0805	How swt	Slv King	Argent	BC0805
Rating Data Type							Count	Count	Count	Count	Ttl#ears
Rating Unit							#/25'row	#/25'row	#/25'row	#/25'row	#/25'row
Rating Date							06/12/14	06/12/14	06/12/14	06/12/14	07/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
7	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	35.0 a	34.3 a	25.3 a	25.0 a	33.7 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
8	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	26.7 a	26.0 a	27.3 a	21.7 a	29.3 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Methylated Seed Oil	100	L	0.94	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
LSD P=.05								6.26	9.63	4.45	7.42	3.45
Standard Deviation								3.55	5.50	2.54	4.24	1.97
CV								10.87	18.48	9.5	17.74	6.15
Replicate F								0.198	1.493	0.697	0.300	0.461
Replicate Prob(F)								0.8231	0.2583	0.5144	0.7458	0.6399
Treatment F								1.936	1.395	0.867	0.610	1.905
Treatment Prob(F)								0.1441	0.2816	0.5545	0.7391	0.1443

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							Swt Crn BC0805 Weight kg 07/21/14	Swt Crn BC0805 WtShuckd kg 07/21/14	Swt Crn BC0805 Marketbl ears # 07/21/14	Swt Crn BC0805 Incomplt pollen # 07/21/14	Swt Crn BC0805 Bottle neck # 07/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Untreated Check							11.57 a	8.08 a	27.3 a	9.0 a	0.0 a
	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A					
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
2	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	10.64 a	7.40 a	25.7 a	9.0 a	0.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
3	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	10.72 a	7.47 a	26.3 a	8.3 a	0.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.156	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
4	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	10.75 a	7.53 a	25.7 a	9.3 a	0.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
5	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	11.37 a	7.92 a	28.3 a	9.0 a	0.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
6	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	10.51 a	7.32 a	24.0 a	7.7 a	0.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0437	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					

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Crop Code												
Weed or Crop Name								Swt Crn	Swt Crn	Swt Crn	Swt Crn	Swt Crn
Weed or Crop Name								BC0805	BC0805	BC0805	BC0805	BC0805
Rating Data Type								Weight	WtShuckd	Marketbl	Incomplt	Bottle
Rating Unit								kg	kg	ears #	pollen #	neck #
Rating Date								07/21/14	07/21/14	07/21/14	07/21/14	07/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
7	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	11.20 a	7.82 a	28.0 a	6.0 a	0.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
8	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	10.52 a	7.35 a	26.3 a	6.3 a	0.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Methylated Seed Oil	100	L	0.94	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
LSD P=.05								1.377	0.885	3.16	7.01	.
Standard Deviation								0.786	0.506	1.81	4.01	0.00
CV								7.21	6.64	6.83	49.55	0.0
Replicate F								1.247	1.995	17.219	0.938	0.000
Replicate Prob(F)								0.3175	0.1729	0.0002	0.4148	1.0000
Treatment F								0.823	0.987	1.838	0.313	0.000
Treatment Prob(F)								0.5841	0.4784	0.1575	0.9359	1.0000

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							Swt Crn BC0805 Crooked rows # 07/21/14	Swt Crn SilvKing Ttl#ears #/25'row 07/23/14	Swt Crn SilvKing Weight kg 07/23/14	Swt Crn SilvKing WtShuckd kg 07/23/14	Swt Crn SilvKing Marketbl ears # 07/23/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Untreated Check							17.0 a	28.7 a	8.98 a	6.39 a	18.7 a
	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A					
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
2	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	12.7 a	27.0 a	8.80 a	6.02 a	17.7 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
3	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	12.3 a	21.3 a	7.67 a	5.24 a	17.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.156	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
4	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	11.0 a	25.3 a	7.86 a	5.35 a	17.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
5	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	11.0 a	27.7 a	8.61 a	5.91 a	18.7 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
6	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	12.3 a	28.3 a	8.63 a	6.07 a	18.3 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0437	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					

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Crop Code												
Weed or Crop Name								Swt Crn	Swt Crn	Swt Crn	Swt Crn	Swt Crn
Weed or Crop Name								BC0805	SilvKing	SilvKing	SilvKing	SilvKing
Rating Data Type								Crooked	Ttl#ears	Weight	WtShuckd	Marketbl
Rating Unit								rows #	#/25'row	kg	kg	ears #
Rating Date								07/21/14	07/23/14	07/23/14	07/23/14	07/23/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
7	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	8.7 a	25.3 a	8.41 a	5.87 a	20.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	POST	B					
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B					
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
8	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	13.3 a	27.0 a	9.03 a	6.43 a	18.0 a
	----s-metolachlor	2.4		1.08								
	----atrazine	3.1		1.39								
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A					
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B					
	Methylated Seed Oil	100	L	0.94	% v/v	POST	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B					
LSD P=.05								5.62	5.11	1.346	0.929	4.62
Standard Deviation								3.21	2.92	0.769	0.530	2.64
CV								26.09	11.09	9.04	8.98	14.53
Replicate F								1.815	0.151	0.812	0.560	39.818
Replicate Prob(F)								0.1992	0.8609	0.4639	0.5833	0.0001
Treatment F								1.661	1.965	1.256	1.986	0.424
Treatment Prob(F)								0.1982	0.1336	0.3381	0.1300	0.8718

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							Swt Crn SilvKing Incomplt pollent# 07/23/14	Swt Crn SilvKing Bottle neck # 07/23/14	Swt Crn SilvKing Crooked rows # 07/23/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Untreated Check							9.0 a	0.0 a	10.3 a
	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A			
	----s-metolachlor	2.4		1.08						
	----atrazine	3.1		1.39						
2	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	5.0 a	0.0 a	7.3 a
	----s-metolachlor	2.4		1.08						
	----atrazine	3.1		1.39						
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A			
3	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	4.7 a	0.0 a	7.7 a
	----s-metolachlor	2.4		1.08						
	----atrazine	3.1		1.39						
	Callisto.....mesotrione	4	SC	0.156	lb ai/a	PRE	A			
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B			
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B			
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B			
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B			
4	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	5.7 a	0.0 a	6.3 a
	----s-metolachlor	2.4		1.08						
	----atrazine	3.1		1.39						
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A			
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B			
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B			
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B			
5	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	8.3 a	0.0 a	7.0 a
	----s-metolachlor	2.4		1.08						
	----atrazine	3.1		1.39						
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A			
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B			
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B			
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B			
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B			
6	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	7.3 a	0.0 a	9.0 a
	----s-metolachlor	2.4		1.08						
	----atrazine	3.1		1.39						
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A			
	Impact.....topramezone	2.8	SC	0.0437	lb ai/a	POST	B			
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B			
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B			
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B			

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Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							Swt Crn SilvKing Incomplt pollent# 07/23/14	Swt Crn SilvKing Bottle neck # 07/23/14	Swt Crn SilvKing Crooked rows # 07/23/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
7	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	3.0 a	0.0 a	8.0 a
	----s-metolachlor	2.4		1.08						
	----atrazine	3.1		1.39						
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A			
	Laudis.....tembotrione	3.5	SC	0.082	lb ai/a	POST	B			
	Atrazine 4L	4	L	0.5	lb ai/a	POST	B			
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	B			
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B			
8	Bicep II Magnum Premix	5.5	L	2.47	lb ai/a	PRE	A	8.0 a	0.0 a	7.7 a
	----s-metolachlor	2.4		1.08						
	----atrazine	3.1		1.39						
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	PRE	A			
	Impact.....topramezone	2.8	SC	0.0219	lb ai/a	POST	B			
	Methylated Seed Oil	100	L	0.94	% v/v	POST	B			
	30% Urea Ammonium Nitrate	100	L	2	% v/v	POST	B			
LSD P=.05								4.77	.	3.88
Standard Deviation								2.72	0.00	2.22
CV								42.69	0.0	27.99
Replicate F								0.878	0.000	24.496
Replicate Prob(F)								0.4374	1.0000	0.0001
Treatment F								1.793	0.000	0.945
Treatment Prob(F)								0.1668	1.0000	0.5038

University of Delaware

Evaluation of Grain Sorghum Weed Control Programs

Trial ID: Milo1-14 Location: Field #14 Trial Year:
Protocol ID: Milo1-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Bayer

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: SORVU Sorghum bicolor Grain sorghum
Variety: DKS 28-05 BBCH Scale: BGRM
Planting Date: 06/12/14
Planting Rate, Unit: 4 S/ROWFT Planting Method: PLANTD planted
Depth, Unit: 1 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 15 IN Emergence Date: 06/16/14
Harvest Date: 11/12/14
Harvested Width, Unit: 6.25 FT
Soil Temperature, Unit: 76 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDIUM medium % Standard Moisture: 14.0

Pest Description

Pest 1 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morning glory

Pest 2 Type: W Code: AMBEL Ambrosia artemisiifolia
Common Name: Common ragweed

Pest 3 Type: W Code: ABUTH Abutilon theophrasti
Common Name: velvetleaf

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 8 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/13/14	Dual II Magnum	7.64	E	1.25	PT/A

Field Prep./Maintenance:
Nitrogen (approx 80 lb N/Acre) was broadcast applied preemergence as 30% UAN.

Soil Description

% Sand: 79 % OM: 1.4 Texture: LS loamy sand
% Silt: 14 pH: 6.1
% Clay: 7 CEC: 5.1 Fert. Level: E excellent
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

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Application Description

	A
Application Date:	07/10/14
Appl. Stop Time:	11:00 AM
Application Method:	SPRAY
Application Timing:	POST
Application Placement:	BROADC
Applied By:	Johnson
Air Temperature, Unit:	79 F
% Relative Humidity:	77
Wind Velocity, Unit:	2 mph
Wind Direction:	S
Dew Presence (Y/N):	Y yes
Soil Temperature, Unit:	78 F
Soil Moisture:	WET
% Cloud Cover:	100

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	SORVU BGRM
Stage Scale Used:	DESC
Stage Majority, Percent:	V7 100
Height, Unit:	15 in
Height Minimum, Maximum:	13 16

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	IPOSS W
Stage Majority, Percent:	run 100
Height, Unit:	9 in
Height Minimum, Maximum:	6 12
Density, Unit:	2 m2
Pest 2 Code, Type, Scale:	AMBEL W
Stage Majority, Percent:	veg 100
Height, Unit:	7 in
Height Minimum, Maximum:	5 8
Density, Unit:	1 m2
Pest 3 Code, Type, Scale:	ABUTH W
Stage Majority, Percent:	veg 100
Height, Unit:	8 in
Height Minimum, Maximum:	6 10
Density, Unit:	1 m2

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Application Equipment

	A
Appl. Equipment:	Tractor
Equipment Type:	TRMOSP
Operation Pressure, Unit:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	10 ft
Boom Height, Unit:	32 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/ac
Mix Size, Unit:	0.7 Gallons
Propellant:	COMAIR

Trial Comments

University of Delaware

Evaluation of Grain Sorghum Weed Control Programs

Trial ID: Milo1-14 Location: Field #14 Trial Year:
Protocol ID: Milo1-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Bayer

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	SORVU Sorghum LeafBrn % 07/16/14	SORVU Sorghum Stunting % 07/16/14	SORVU Sorghum Stunting % 07/22/14	IPOSS mornglry Control % 07/22/14	SORVU Sorghum Yield Bu/A 11/12/14
1	Untreated Check						0.0 e	0.0 c	0.0 c	0.0 e	116.9 a
2	Huskie Premix	2.05	EC	0.208	lb ai/a	POST	18.0 b	14.7 ab	10.0 ab	76.0 d	123.5 a
	----pyrasulfotole	0.3		0.0304							
	----bromoxynil	1.75		0.178							
	Atrazine 4L	4	L	0.5	lb ai/a	POST					
	Nonionic Surfactant	100	L	0.25	% v/v	POST					
	Dry Ammonium Sulfate	100	D	0.6	% w/v	POST					
3	Huskie Premix	2.05	EC	0.256	lb ai/a	POST	25.0 a	18.0 a	14.7 a	85.0 bc	130.9 a
	----pyrasulfotole	0.3		0.0375							
	----bromoxynil	1.75		0.219							
	Atrazine 4L	4	L	0.5	lb ai/a	POST					
	Nonionic Surfactant	100	L	0.25	% v/v	POST					
	Dry Ammonium Sulfate	100	D	0.6	% w/v	POST					
4	Huskie Premix	2.05	EC	0.208	lb ai/a	POST	18.0 b	16.3 a	13.0 ab	94.3 a	127.4 a
	----pyrasulfotole	0.3		0.0304							
	----bromoxynil	1.75		0.178							
	Atrazine 4L	4	L	0.5	lb ai/a	POST					
	Starane Ultra...fluroxypyr	2.8	EC	0.0656	lb ae/a	POST					
	Nonionic Surfactant	100	L	0.25	% v/v	POST					
	Dry Ammonium Sulfate	100	D	0.6	% w/v	POST					
5	Atrazine 4L	4	L	0.5	lb ai/a	POST	6.3 d	15.3 ab	9.0 ab	77.0 cd	117.6 a
	Buctril 2EC.....bromoxynil	2	EC	0.25	lb ai/a	POST					
6	Banvel.....dicamba	4	L	0.28	lb ai/a	POST	0.0 e	14.0 ab	10.7 ab	82.0 cd	136.2 a
	Atrazine 4L	4	L	0.5	lb ai/a	POST					
	Nonionic Surfactant	100	L	0.25	% v/v	POST					
7	Facet L.....quinclorac	1.5	L	0.375	lb ae/a	POST	9.7 c	10.7 b	7.3 b	91.7 ab	131.4 a
	Atrazine 4L	4	L	1	lb ai/a	POST					
	Crop Oil Concentrate	100	L	1	% v/v	POST					
8	Permit.....halosulfuron	75	DF	0.0314	lb ai/a	POST	4.0 d	14.0 ab	13.0 ab	76.0 d	111.2 a
	Banvel.....dicamba	4	L	0.125	lb ai/a	POST					
	Nonionic Surfactant	100	L	0.25	% v/v	POST					
LSD P=.05							3.29	5.11	6.68	8.18	24.89
Standard Deviation							1.88	2.92	3.76	4.67	14.21
CV							18.54	22.68	38.67	6.42	11.43
Replicate F							0.568	1.949	0.529	1.467	2.330
Replicate Prob(F)							0.5794	0.1792	0.6024	0.2639	0.1338
Treatment F							73.269	11.087	4.487	125.588	1.096
Treatment Prob(F)							0.0001	0.0001	0.0114	0.0001	0.4167

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=3

University of Delaware

Evaluating Weed Control for Grain Sorghum

Trial ID: Milo3-14 Cooperator:
Location: Field #14 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Sorghum SORVU Variety: DKS 28-05
Planting Date: 06/12/14 Planting Method: Row- Unit Planter Depth: 1 in
Rate: 4 Sd/row-ft Row Spacing: 15 in Seed Bed: Medium
Soil Temperature: 76 F Soil Moisture: Moist Emergence Date: 06/16/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-10-0 at 15 gal/A (32 lb N & 15 lb P) 2 x 2 were applied at planting. The study was sidedressed with 30 gal/A 30% UAN solution (98 lb N) at layby. Total N applied was 130 lb/A.

SOIL DESCRIPTION

% Sand: 79 % OM: 1.4 Texture: loamy sand
% Silt: 14 pH: 6.1
% Clay: 7 CEC: 5.1 Fert. Level: Optimum

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	06/13/14
Time of Day:	11:00 am
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	81 F
% Relative Humidity:	69
Wind Velocity, Unit:	3 mph
Wind Direction:	South
Dew Presence (Y/N):	N
Soil Temp., Unit:	81 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	N/A
% Cloud Cover:	60

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	SORVU

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

07/16/14: Palmer amarnath and large crabgrass control was good to excellent for all treatments (>85%); except crabgrass control with Sharpen which was <40% control.

University of Delaware

Evaluating Weed Control for Grain Sorghum

Trial ID: Milo3-14 Cooperator:
Location: Field #14 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	SORVU	SORVU	SORVU	IPOSS	AMAPA	IPOSS
	Weed Code											
	Crop Code						SORVU	SORVU	SORVU			
	Weed or Crop Name						Grain	Grain	Grain	Morngly	Palmer	Morngly
	Weed or Crop Name						Sorghum	Sorghum	Sorghum	Species	Amaranth	Species
	Rating Data Type						Stunting	Stunting	Stunting	Control	Control	Control
	Rating Unit						%	%	%	%	%	%
	Rating Date						06/30/14	07/16/14	07/22/14	07/16/14	07/22/14	07/22/14
1	Untreated Check						0.0 d	0.0 d	0.0 d	0.0 e	0.0 b	0.0 e
2	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	8.7 bc	3.3 cd	11.7 ab	74.8 bc	100.0 a	83.7 a
	----s-metolachlor	2.49		1.68								
	----mesotrione	0.25		0.168								
	----atrazine	0.93		0.626								
3	Lumax EZ Premix	3.67	SC	1.98	lb ai/a	PRE	10.3 b	4.7 cd	2.3 cd	71.7 bc	100.0 a	61.7 bcd
	----s-metolachlor	2.49		1.34								
	----mesotrione	0.25		0.135								
	----atrazine	0.93		0.5								
	Bicep II Magnum Premix	5.5	L	0.55	lb ai/a	PRE						
	----s-metolachlor	2.4		0.24								
	----atrazine	3.1		0.31								
4	Lumax EZ Premix	3.67	SC	1.48	lb ai/a	PRE	12.3 b	2.3 cd	0.0 d	77.0 b	100.0 a	69.3 abc
	----s-metolachlor	2.49		1								
	----mesotrione	0.25		0.101								
	----atrazine	0.93		0.375								
	Bicep II Magnum Premix	5.5	L	1.1	lb ai/a	PRE						
	----s-metolachlor	2.4		0.48								
	----atrazine	3.1		0.62								
5	Lumax EZ Premix	3.67	SC	0.99	lb ai/a	PRE	9.7 b	0.0 d	0.0 d	63.3 cd	100.0 a	64.3 bcd
	----s-metolachlor	2.49		0.67								
	----mesotrione	0.25		0.0674								
	----atrazine	0.93		0.25								
	Bicep II Magnum Premix	5.5	L	1.65	lb ai/a	PRE						
	----s-metolachlor	2.4		0.72								
	----atrazine	3.1		0.93								
6	Lumax EZ Premix	3.67	SC	4.95	lb ai/a	PRE	14.0 b	11.7 b	8.3 bc	91.7 a	100.0 a	80.0 ab
	----s-metolachlor	2.49		3.36								
	----mesotrione	0.25		0.337								
	----atrazine	0.93		1.25								
7	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	10.3 b	5.7 c	8.0 bc	66.7 bcd	100.0 a	75.0 abc
	----s-metolachlor	2.49		1.68								
	----mesotrione	0.25		0.168								
	----atrazine	0.93		0.626								
	Atrazine 4L	4	L	0.625	lb ai/a	PRE						
8	Bicep II Magnum Premix	5.5	L	2.75	lb ai/a	PRE	9.7 b	0.0 d	0.0 d	56.7 d	100.0 a	56.7 cd
	----s-metolachlor	2.4		1.2								
	----atrazine	3.1		1.55								
9	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	2.3 cd	0.0 d	2.3 cd	67.3 bcd	100.0 a	50.0 d

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=4,7
Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

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Weed Code														
Crop Code								SORVU	SORVU	SORVU	IPOSS	AMAPA	IPOSS
Weed or Crop Name								Grain	Grain	Grain	Mornglry	Palmer	Mornglry
Weed or Crop Name								Sorghum	Sorghum	Sorghum	Species	Amaranth	Species
Rating Data Type								Stunting	Stunting	Stunting	Control	Control	Control
Rating Unit								%	%	%	%	%	%
Rating Date								06/30/14	07/16/14	07/22/14	07/16/14	07/22/14	07/22/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg							
10	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE		21.7 a	20.7 a	17.3 a	91.3 a	100.0 a	83.7 a
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE							
LSD P=.05								6.99	5.51	7.32	12.82	.	18.67
Standard Deviation								4.08	3.21	4.27	7.41	0.00	10.88
CV								41.16	66.5	85.37	11.22	0.0	17.43
Replicate F								1.036	2.327	0.807	2.907	0.000	4.650
Replicate Prob(F)								0.3752	0.1263	0.4618	0.0838	1.0000	0.0236
Treatment F								6.392	12.910	6.054	36.330	0.000	15.492
Treatment Prob(F)								0.0004	0.0001	0.0006	0.0001	1.0000	0.0001

Weed Code						DIGSA	
Crop Code							SORVU
Weed or Crop Name						Large	Grain
Weed or Crop Name						Crabgras	Sorghum
Rating Data Type						Control	Yield
Rating Unit						%	Bu/A
Rating Date						07/22/14	11/12/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg		
1	Untreated Check						0.0 c	84.8 c
2	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	100.0 a	132.0 ab
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.168				
	----atrazine	0.93		0.626				
3	Lumax EZ Premix	3.67	SC	1.98	lb ai/a	PRE	100.0 a	132.6 ab
	----s-metolachlor	2.49		1.34				
	----mesotrione	0.25		0.135				
	----atrazine	0.93		0.5				
	Bicep II Magnum Premix	5.5	L	0.55	lb ai/a	PRE		
	----s-metolachlor	2.4		0.24				
	----atrazine	3.1		0.31				
4	Lumax EZ Premix	3.67	SC	1.48	lb ai/a	PRE	100.0 a	130.3 ab
	----s-metolachlor	2.49		1				
	----mesotrione	0.25		0.101				
	----atrazine	0.93		0.375				
	Bicep II Magnum Premix	5.5	L	1.1	lb ai/a	PRE		
	----s-metolachlor	2.4		0.48				
	----atrazine	3.1		0.62				
5	Lumax EZ Premix	3.67	SC	0.99	lb ai/a	PRE	100.0 a	133.3 ab
	----s-metolachlor	2.49		0.67				
	----mesotrione	0.25		0.0674				
	----atrazine	0.93		0.25				
	Bicep II Magnum Premix	5.5	L	1.65	lb ai/a	PRE		
	----s-metolachlor	2.4		0.72				
	----atrazine	3.1		0.93				
6	Lumax EZ Premix	3.67	SC	4.95	lb ai/a	PRE	100.0 a	141.0 a
	----s-metolachlor	2.49		3.36				
	----mesotrione	0.25		0.337				
	----atrazine	0.93		1.25				
7	Lumax EZ Premix	3.67	SC	2.47	lb ai/a	PRE	100.0 a	133.9 ab
	----s-metolachlor	2.49		1.68				
	----mesotrione	0.25		0.168				
	----atrazine	0.93		0.626				
	Atrazine 4L	4	L	0.625	lb ai/a	PRE		
8	Bicep II Magnum Premix	5.5	L	2.75	lb ai/a	PRE	100.0 a	126.7 ab
	----s-metolachlor	2.4		1.2				
	----atrazine	3.1		1.55				
9	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	35.0 b	123.2 b

University of Delaware

Weed Code							DIGSA	
Crop Code								SORVU
Weed or Crop Name							Large	Grain
Weed or Crop Name							Crabgras	Sorghum
Rating Data Type							Control	Yield
Rating Unit							%	Bu/A
Rating Date							07/22/14	11/12/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg		
10	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	100.0 a	133.2 ab
	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	PRE		
LSD P=.05							2.80	16.76
Standard Deviation							1.63	9.77
CV							1.95	7.69
Replicate F							0.944	1.558
Replicate Prob(F)							0.4084	0.2377
Treatment F							1448.463	7.635
Treatment Prob(F)							0.0001	0.0001

University of Delaware

Winter Peas for Cover Crops
Comparison of Varieties
Trial ID: Cover1-14 Cooperator: NE-IPM
Location: Field #18 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Winter Peas Variety: see treatment list
Planting Date: 09/27/13 Planting Method: Drilled- Cone System Depth: 0.8 in
Rate: 60 lb/A Row Spacing: 7.5 in Seed Bed: Medium/Trashy
Soil Temperature: 70 F Soil Moisture: Moist Emergence Date: 10/10/13

Crop 2: Hairy Vetch Variety: not specified
Planting Date: 09/27/13 Planting Method: Drilled- Cone System Depth: 0.8 in
Rate: 30 lb/A Row Spacing: 7.5 in Seed Bed: Medium/Trashy
Soil Temperature: 70 F Soil Moisture: Moist Emergence Date: 10/10/13

SITE AND DESIGN

Plot Width, Unit: 5.25 FT Plot Length, Unit: 15 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Chisel Plowed 9-23-13 & Disked Twice 9-25-13

Trial Initiation Comments: Double-crop soybeans were mowed 9-19-13 prior to tillage.

	Previous Crops	Year
1.	DC Soybean	2013
2.	Sweet Corn	2013

SOIL DESCRIPTION

% Sand: 83 % OM: 1.4 Texture: loamy sand
% Silt: 10 pH: 5.8
% Clay: 7 CEC: 4.5 Fert. Level: Medium

MOISTURE CONDITIONS

	Date	Amount	Unit	Type
1.	09/27/13	0.5	in	Sprinkler - Lateral Move

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.6 Unit: mi

Trial Comments

12/28/13: DS admiral, 4010 field peas, and maxum are 6-8" tall, looking very much like english pea plants- all showing significant leaf burn (cold damage). Other peas are low to the ground and quite green still.

05/12/14: Winter survival was good to excellent with both sources of Austrian winter pea and hairy vetch. Poor winter survival with Frostmaster and Whistler; no winter survival with DS Admiral, 4010 Field Peas, or Maxum field peas.

Percent blooming of remaining plants: 10% for treatment 1; 5% for treatmtne 2; 3% for treatment 3, and 15% for both treatments 4 and 8.

University of Delaware

Winter Peas for Cover Crops
Comparison of Varieties
Trial ID: Cover1-14 Cooperator: NE-IPM
Location: Field #18 Investigator: Mark VanGessel

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date				PIBSS Winter Pea GrndCovr % 12/28/13	PIBSS Winter Pea Dry Wght kg/plot	SECCE Winter Rye Dry Wght kg/plot
Trt No.	Treatment Name	Form Conc	Form Type Rate	Rate Unit		
1	Austrian Winter Pea - REC	100	D	60 lb/a	36.7 c	60.9 a	
2	Austrian Winter Pea - AB Seed	100	D	60 lb/a	46.7 b	61.9 a	
3	Frostmaster Winter Peas	100	D	60 lb/a	23.3 d		
4	Whistler Winter Peas	100	D	60 lb/a	25.0 d		
5	DS Admiral Peas	100	D	60 lb/a	23.3 d		
6	4010 Field Peas	100	D	60 lb/a	28.3 d		
7	Maxum Field Peas	100	D	60 lb/a	36.7 c		
8	Hairy Vetch	100	D	30 lb/a	56.7 a		57.1
LSD P=.05					7.05	40.04	.
Standard Deviation					4.03	11.40	.
CV					11.65	18.56	.
Replicate F					1.220	2.329	
Replicate Prob(F)					0.3247	0.3004	
Treatment F					27.119	0.012	
Treatment Prob(F)					0.0001	0.9217	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) for columns 3 because error mean square = 0.

University of Delaware

Winter Peas for Cover Crops
Planting Strategies
Trial ID: Cover2-14 Cooperator: NE-IPM
Location: Field #18 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Austrian Winter Pea Variety: not stated
Planting Date: 09/27/13 Planting Method: Drilled- Cone System Depth: 0.8 in
Row Spacing: 7.5 in Seed Bed: Medium/Trashy
Soil Temperature: 70 F Soil Moisture: Moist Emergence Date: 10/10/13

Crop 2: Rye SECCE Variety: not stated
Planting Date: 09/27/13 Planting Method: Drilled- Cone System Depth: 0.8 in
Row Spacing: 7.5 in Seed Bed: Medium/Trashy
Soil Temperature: 70 F Soil Moisture: Moist Emergence Date: 10/10/13

SITE AND DESIGN

Plot Width, Unit: 5.6 FT Plot Length, Unit: 15 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Chisel Plowed 9-23-13 & Disked Twice 9-25-13

Trial Initiation Comments: Double-crop soybeans were mowed 9-19-13 prior to tillage.

	Previous Crops	Year
1.	DC Soybeans	2013
2.	Sweet Corn	2013

SOIL DESCRIPTION

% Sand: 83 % OM: 1.4 Texture: loamy sand
% Silt: 10 pH: 5.8
% Clay: 7 CEC: 4.5 Fert. Level: Medium

MOISTURE CONDITIONS

	Date	Amount	Unit	Type
1.	09/27/13	0.5	in	Sprinkler - Lateral Move

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.6 Unit: mi

CROP STAGE AT EACH APPLICATION

	A
Crop 2 Code:	SECCE

Trial Comments

05/22/14: Peas at 60% bloom (Mischler scale) (all plants flowering but no pods formed); rye is just beginning anthesis stage (1st timing for rolling in ROSE).

Weeds present included: redstem filaree, primrose, field pansy, knawel, horseweed, and mouseear chickweed. Much higher weed seed production in pea only. Mouseearc cress produced seeds in all treatments but fully senesced at this time.

University of Delaware

Winter Peas for Cover Crops
Planting Strategies
Trial ID: Cover2-14 Cooperator: NE-IPM
Location: Field #18 Investigator: Mark VanGessel

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date			PIBSS Winter Pea GrndCovr % 12/28/13	Winter Annu Wds GrndCovr 05/22/14	SECCE Winter Rye Wght g/0.5m2 05/19/14	PIBSS Winter Pea Wght g/0.5m2 05/19/14	Cover Crop Biomass TtlWght g/0.5m2 05/19/14
Trt No.	Treatment Name	Rate Rate Unit					
1	Austrian Winter Pea - REC	40 lb/a	30.0 d	43.3 a	0.00 c	55.93 ab	55.93 c
2	Austrian Winter Pea - REC	50 lb/a	40.0 cd	43.3 a	0.00 c	68.10 a	68.10 c
3	Austrian Winter Pea - REC	60 lb/a	50.0 bc	33.3 ab	0.00 c	65.97 a	65.97 c
4	Austrian Winter Pea - REC	70 lb/a	53.3 b	26.7 abc	0.00 c	72.10 a	72.10 c
5	Austrian Winter Pea - REC Rye	40 lb/a 30 lb/a	56.7 ab	25.0 abc	144.13 ab	21.30 c	165.43 ab
6	Austrian Winter Pea - REC Rye	50 lb/a 30 lb/a	53.3 b	15.0 bc	122.30 b	18.37 c	140.67 bc
7	Austrian Winter Pea - REC Rye	60 lb/a 30 lb/a	56.7 ab	15.0 bc	162.57 ab	49.54 abc	250.41 a
8	Austrian Winter Pea - REC Rye	40 lb/a 60 lb/a	68.3 a	10.0 c	211.03 a	22.33 c	233.37 a
9	Austrian Winter Pea - REC Rye	50 lb/a 60 lb/a	68.3 a	11.7 bc	164.07 ab	30.17 bc	194.23 ab
10	Austrian Winter Pea - REC Rye	60 lb/a 60 lb/a	68.3 a	21.7 abc	215.10 a	27.13 bc	242.23 a
LSD P=.05			13.11	21.83	80.852	31.286	86.994
Standard Deviation			7.64	12.73	47.133	18.161	50.500
CV			14.03	51.94	46.25	42.14	33.93
Replicate F			3.124	3.350	0.733	1.789	2.807
Replicate Prob(F)			0.0685	0.0580	0.4945	0.1971	0.0884
Treatment F			8.084	2.791	11.404	4.179	7.384
Treatment Prob(F)			0.0001	0.0305	0.0001	0.0055	0.0002

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=4,5

University of Delaware

Early-Season Weed Control in No-Till Winter Wheat

Trial ID: SG1-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Winter Wheat TRZAW Variety: USG3251
Planting Date: 10/21/13 Planting Method: Drilled Depth: 0.8 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Friable/Trashy
Soil Temperature: 68 F Soil Moisture: Moist Emergence Date: 10/31/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage/Corn Stubble

SOIL DESCRIPTION

% Sand: 81 % OM: 1.5 Texture: loamy sand
% Silt: 12 pH: 5.9
% Clay: 7 CEC: 4.5 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	10/14/13	10/21/13	11/05/13
Time of Day:	1:30 pm	4:00 pm	10:45 am
Application Method:	Spray	Spray	Spray
Application Timing:	7EPP	PRE	Spike
Applic. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	68 F	66 F	60 F
% Relative Humidity:	65	37	57
Wind Velocity, Unit:	6 mph	4 mph	4 mph
Wind Direction:	East	South	East
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	68 F	67 F	59 F
Soil Surf. Moisture:	Moist	Dry	Dry
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry
% Cloud Cover:	90	20	50

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	TRZAW	TRZAW	TRZAW
Growth Stage:			1 leaf
Height, Unit:			2.8 in
Crop Health:			Good

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	18 in	18 in	20 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2

Trial Comments

11/17/13: Plant 1.5" deep. 2 collars visible.

12/02/13: Weed density is low in untreated check; mostly henbit and a few jagged chickweed weeds in 2-4 leaf stage and <1'.

University of Delaware

Early-Season Weed Control in No-Till Winter Wheat

Trial ID: SG1-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW Winter Wheat Stunting % 11/17/13	TRZAW Winter Wheat Stunting % 12/02/13	TRZAW Winter Wheat Stunting % 04/20/14	HLOUM Jagged Chickwd Control % 04/20/14
1	Untreated Check							0.0 c	0.0 d	0.0 c	0.0 e
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B				
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7 DPP	A	9.7 a	9.7 bc	20.0 a	75.0 bc
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	7 DPP	A				
3	Peak.....prosulfuron	57	WG	0.0135	lb ai/a	7 DPP	A	1.7 c	0.0 d	5.0 bc	75.0 bc
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	7 DPP	A				
4	Peak.....prosulfuron	57	WG	0.0178	lb ai/a	7 DPP	A	1.7 c	10.7 ab	9.7 bc	90.0 ab
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	7 DPP	A				
5	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	B	1.7 c	4.7 cd	0.0 c	43.3 d
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B				
6	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	B	0.0 c	8.0 bc	2.3 c	68.3 c
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B				
7	Metribuzin.....metribuzin	75	DF	0.047	lb ai/a	PRE	B	10.0 a	10.7 ab	5.0 bc	60.0 cd
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B				
8	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	PRE	B	6.7 ab	11.3 ab	5.0 bc	88.3 ab
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B				
9	Authority MTZ Premix	45	DF	0.155	lb ai/a	PRE	B	9.0 a	9.0 bc	12.3 ab	93.3 ab
	----sulfentrazone	18		0.062							
	----metribuzin	27		0.093							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B				
10	Authority MTZ Premix	45	DF	0.31	lb ai/a	PRE	B	9.7 a	15.0 a	12.3 ab	100.0 a
	----sulfentrazone	18		0.124							
	----metribuzin	27		0.186							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B				
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	3.6 bc	2.3 d	0.0 c	100.0 a
	Axiom Premix	68	WG	0.17	lb ai/a	Spike	C				
	----flufenacet	54		0.135							
	----metribuzin	14		0.035							
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C				
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	0.0 c	8.0 bc	3.3 bc	100.0 a
	Axiom Premix	68	WG	0.255	lb ai/a	Spike	C				
	----flufenacet	54		0.202							
	----metribuzin	14		0.0525							
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C				
13	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	1.7 c	2.3 d	3.3 bc	93.3 ab
	Metribuzin.....metribuzin	75	DF	0.047	lb ai/a	Spike	C				
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1

University of Delaware

Weed Code										HLOUM
Crop Code							TRZAW	TRZAW	TRZAW	
Weed or Crop Name							Winter	Winter	Winter	Jagged
Weed or Crop Name							Wheat	Wheat	Wheat	Chickwd
Rating Data Type							Stunting	Stunting	Stunting	Control
Rating Unit							%	%	%	%
Rating Date							11/17/13	12/02/13	04/20/14	04/20/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	0.0 c	9.0 bc	3.3 bc	96.7 a
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Spike	C				
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C				
LSD P=.05								3.94	5.21	9.94	19.84
Standard Deviation								2.34	3.10	5.92	11.82
CV								59.37	43.15	101.53	15.28
Replicate F								0.179	0.640	2.831	0.055
Replicate Prob(F)								0.8374	0.5352	0.0772	0.9463
Treatment F								9.173	6.550	2.862	16.900
Treatment Prob(F)								0.0001	0.0001	0.0109	0.0001

Weed Code							LAMAM	
Crop Code								TRZAW
Weed or Crop Name							Henbit	Winter
Weed or Crop Name								Wheat
Rating Data Type							Control	Yield
Rating Unit							%	Bu/A
Rating Date							04/20/14	07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Untreated Check							0.0 g	72.5 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7 DPP	A	78.3 cd	72.2 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	7 DPP	A	
3	Peak.....prosulfuron	57	WG	0.0135	lb ai/a	7 DPP	A	96.0 a	69.3 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	7 DPP	A	
4	Peak.....prosulfuron	57	WG	0.0178	lb ai/a	7 DPP	A	95.7 a	64.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	7 DPP	A	
5	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	B	60.0 f	76.6 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	
6	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	B	78.3 cd	76.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	
7	Metribuzin.....metribuzin	75	DF	0.047	lb ai/a	PRE	B	63.3 f	75.5 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	
8	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	PRE	B	66.7 ef	75.9 a
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	
9	Authority MTZ Premix	45	DF	0.155	lb ai/a	PRE	B	86.7 a-d	73.4 a
	----sulfentrazone	18		0.062				
	----metribuzin	27		0.093				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	
10	Authority MTZ Premix	45	DF	0.31	lb ai/a	PRE	B	87.7 abc	74.6 a
	----sulfentrazone	18		0.124				
	----metribuzin	27		0.186				
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	83.3 bcd	73.2 a
	Axiom Premix	68	WG	0.17	lb ai/a	Spike	C	
	----flufenacet	54		0.135				
	----metribuzin	14		0.035				
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C	
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	91.7 ab	71.4 a
	Axiom Premix	68	WG	0.255	lb ai/a	Spike	C	
	----flufenacet	54		0.202				
	----metribuzin	14		0.0525				
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C	
13	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	76.7 de	76.2 a
	Metribuzin.....metribuzin	75	DF	0.047	lb ai/a	Spike	C	
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C	

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Weed Code							LAMAM	
Crop Code								TRZAW
Weed or Crop Name							Henbit	Winter
Weed or Crop Name								Wheat
Rating Data Type							Control	Yield
Rating Unit							%	Bu/A
Rating Date							04/20/14	07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	PRE	B	86.0 a-d	66.7 a
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Spike	C		
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C		
LSD P=.05								10.86	11.43
Standard Deviation								6.47	6.81
CV								8.62	9.36
Replicate F								5.881	9.363
Replicate Prob(F)								0.0078	0.0009
Treatment F								42.524	0.888
Treatment Prob(F)								0.0001	0.5745

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Zidua PRE and Delayed PRE in Winter Wheat

Trial ID: SG2-14 Cooperator: BASF
Location: Field #18 Investigator: Mark VanGessel

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Annual Broadleaves	ANNBR	
2.	Annual Ryegrass	LOLMU	Lolium multiflorum Lam.
3.	Henbit	LAMAM	Lamium amplexicaule L.
4.	Whitlowgrass	ERPVE	Draba verna L.
5.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.

Crop 1: Winter Wheat TRZAW Variety: USG3555
Planting Date: 10/28/13 Planting Method: Drilled Depth: 1 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Smooth
Soil Temperature: 66 F Soil Moisture: Moist Emergence Date: 11/04/13

SITE AND DESIGN
Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Disked Twice

Trial Initiation Comments: Annual ryegrass was broadcast seeded at 5 lb/A on 10-28-14 prior to planting.

SOIL DESCRIPTION
% Sand: 81 % OM: 1.5 Texture: loamy sand
% Silt: 12 pH: 5.9
% Clay: 7 CEC: 4.5 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	10/29/13	11/05/13	11/20/13	04/01/14
Time of Day:	2:30 pm	11:15 am	2:30 pm	10:10 am
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	DelayPRE	2lf-1tlW	4lf-2tlR
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	64 F	60 F	46 F	47 F
% Relative Humidity:	55	57	56	59
Wind Velocity, Unit:	3 mph	4 mph	6 mph	1 mph
Wind Direction:	Northeast	East	Northeast	North
Dew Presence (Y/N):	N	N	N	Y
Soil Temp., Unit:	63 F	59 F	45 F	47 F
Soil Surf. Moisture:	Dry	Dry	Moist	Moist
Root Zone Moisture:	Moist	Moist	Moist	Wet
Leaf Surf. Moisture:	N/A	Dry	Dry	Wet
% Cloud Cover:	35	50	20	15

CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:		spike	2-leaf	2-3 tiller
Height, Unit:		0.7 in	3.5 in	5 in
Crop Health:		Good	Good	Good

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WEED STAGE AT EACH APPLICATION

	A	B	C	D
Weed 1 Code:	ANNBR	ANNBR	ANNBR	ANNBR
Growth Stage:		cotyledon		
Height, Unit:		0.2 in		
Density,Unit:		50-150 m2		
Weed 2 Code:	LOLMU	LOLMU	LOLMU	LOLMU
Growth Stage:			1-2 leaf	1-2 tiller
Height, Unit:			2 in	3 in
Density,Unit:			80 m2	0-5 m2
Weed 3 Code:	LAMAM	LAMAM	LAMAM	LAMAM
Growth Stage:				vegetative
Height, Unit:				1 in
Density,Unit:				60-100 m2
Weed 4 Code:	ERPVE	ERPVE	ERPVE	ERPVE
Growth Stage:				flower
Height, Unit:				2 in
Density,Unit:				160 m2
Weed 5 Code:	HLOUM	HLOUM	HLOUM	HLOUM
Growth Stage:				veg-eaFlwr
Height, Unit:				2 in
Density,Unit:				20-80 m2

APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	Backpack	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	18 in	18 in	20 in	22 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2	CO2

Trial Comments

11/14/13: Wheat seeded 1" deep.

12/02/13: Common and jagged chickweed at cotyledon to 2 leaves. Annual ryegrass 1 leaf. Treatment 3 LOLMU seedlings were present - fewer with treatment 5. Very good control with treatment 1.

04/18/14: Most of annual ryegrass died over the winter/spring.

05/09/14: Zidua seems to be controlling annual bluegrass. Areas of field with low spots for rain to puddle resulted in more injury and as a result data is more variable.

05/19/14: Percent of plants with fully emerged seed heads. This is a visual rating.

06/07/14: % control based on observed seed heads (LOLMU) in the wheat or above.

University of Delaware

Zidua PRE and Delayed PRE in Winter Wheat

Trial ID: SG2-14 Cooperator: BASF
Location: Field #18 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
	Weed Code							TRZAW	TRZAW	TRZAW	TRZAW	TRZAW
	Crop Code							Winter	Winter	Winter	Winter	Winter
	Weed or Crop Name							Wheat	Wheat	Wheat	Wheat	Wheat
	Weed or Crop Name											
	Rating Data Type							Stunting	Stunting	Stunting	Stunting	Stunting
	Rating Unit							%	%	%	%	%
	Rating Date							11/14/13	12/02/13	12/28/13	04/04/14	04/18/14
1	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	PRE	A	9.0 b	4.0 e	12.0 ab	20.0 ab	16.7 cd
2	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	DelayPRE	B	0.0 e	4.0 e	9.0 bc	12.3 cde	10.0 def
3	Zidua.....pyroxasulfone	85	WG	0.0266	lb ai/a	PRE	A	4.7 d	0.0 f	4.0 e	16.7 abc	13.3 cde
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
4	Zidua.....pyroxasulfone	85	WG	0.053	lb ai/a	PRE	A	8.0 bc	12.3 ab	9.0 bc	23.3 a	28.3 a
	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	2lf-1tlW	C					
5	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	6.3 cd	10.7 abc	8.7 bc	17.3 abc	13.3 cde
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
6	Zidua.....pyroxasulfone	85	WG	0.071	lb ai/a	PRE	A	15.0 a	9.0 bcd	13.0 a	22.3 ab	26.7 a
	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	2lf-1tlW	C					
7	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	7.0 bc	13.3 a	12.0 ab	22.3 ab	25.7 ab
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	2lf-1tlW	C					
8	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	6.3 cd	11.7 ab	8.0 cd	15.7 bcd	18.3 bc
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	2lf-1tlW	C					
9	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	DelayPRE	B	0.0 e	8.0 cd	8.3 c	18.3 abc	10.7 def
	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	2lf-1tlW	C					
10	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	6.3 cd	7.0 de	6.0 cde	16.7 abc	11.7 c-f
	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	A					
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
11	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	7.0 bc	9.7 bcd	8.0 cd	18.3 abc	15.0 cde
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A					
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
12	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C		9.7 bcd	4.7 de	8.0 e	8.7 ef
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	2lf-1tlW	C					
13	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	4lf-2tlR	D		0.0 f		0.0 f	0.0 g
14	Axiom Premix	68	WG	0.255	lb ai/a	2lf-1tlW	C		0.0 f	0.0 f	12.3 cde	9.7 def
	----flufenacet	54		0.202								
	----metribuzin	14		0.0525								
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	4lf-2tlR	D					
15	Untreated Check							0.0 e	0.0 f	0.0 f	0.0 f	0.0 g
16	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A	0.0 e	0.0 f	0.0 f	9.0 de	5.0 fg
	LSD P=.05							2.23	3.54	3.57	7.44	7.54
	Standard Deviation							1.32	2.12	2.13	4.46	4.52
	CV							24.64	34.2	31.15	30.69	33.97
	Replicate F							3.103	0.310	4.478	0.346	1.415
	Replicate Prob(F)							0.0633	0.7360	0.0205	0.7102	0.2586
	Treatment F							33.949	16.684	12.380	7.847	10.514
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	HLOUM Jagged Chickwd	LAMAM Henbit	TRZAW Winter Wheat	LOLMU Italian Ryegrass	HLOUM Jagged Chickwd
	Weed Code							HLOUM	LAMAM		LOLMU	HLOUM
	Crop Code									TRZAW		
	Weed or Crop Name							Jagged	Henbit	Winter	Italian	Jagged
	Weed or Crop Name							Chickwd		Wheat	Ryegrass	Chickwd
	Rating Data Type							Control	Control	Stunting	Control	Control
	Rating Unit							%	%	%	%	%
	Rating Date							04/18/14	04/18/14	05/09/14	05/09/14	05/09/14
1	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	PRE	A	100.0 a	100.0 a	11.3 bc	98.0 a	100.0 a
2	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	DelayPRE	B	94.0 ab	100.0 a	3.3 def	97.0 a	100.0 a
3	Zidua.....pyroxasulfone	85	WG	0.0266	lb ai/a	PRE	A	100.0 a	100.0 a	7.3 cde	99.0 a	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
4	Zidua.....pyroxasulfone	85	WG	0.053	lb ai/a	PRE	A	100.0 a	100.0 a	16.7 ab	98.0 a	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	2lf-1tlW	C					
5	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	100.0 a	96.7 a	6.3 c-f	97.0 a	96.7 a
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
6	Zidua.....pyroxasulfone	85	WG	0.071	lb ai/a	PRE	A	100.0 a	100.0 a	20.0 a	98.7 a	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	2lf-1tlW	C					
7	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	96.7 ab	100.0 a	9.0 cd	99.0 a	95.0 a
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	2lf-1tlW	C					
8	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	100.0 a	100.0 a	9.0 cd	99.0 a	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	2lf-1tlW	C					
9	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	DelayPRE	B	100.0 a	99.0 a	5.7 c-f	98.0 a	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	2lf-1tlW	C					
10	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	100.0 a	100.0 a	9.0 cd	98.0 a	100.0 a
	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	A					
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
11	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	100.0 a	100.0 a	8.0 cde	97.7 a	100.0 a
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A					
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C					
12	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C	91.7 bc	98.3 a	7.3 cde	97.0 a	90.0 a
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	2lf-1tlW	C					
13	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	4lf-2tlR	D	0.0 e	0.0 c	0.0 f	65.7 b	0.0 c
14	Axiom Premix	68	WG	0.255	lb ai/a	2lf-1tlW	C	86.0 cd	100.0 a	1.7 ef	99.0 a	88.3 a
	----flufenacet	54		0.202								
	----metribuzin	14		0.0525								
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	4lf-2tlR	D					
15	Untreated Check							0.0 e	0.0 c	0.0 f	0.0 c	0.0 c
16	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A	81.7 d	90.0 b	0.0 f	0.0 c	63.3 b
	LSD P=.05							6.89	4.94	6.98	23.56	12.78
	Standard Deviation							4.13	2.96	4.18	14.13	7.66
	CV							4.9	3.43	58.39	16.86	9.2
	Replicate F							2.047	1.481	0.629	1.349	2.031
	Replicate Prob(F)							0.1468	0.2436	0.5398	0.2748	0.1488
	Treatment F							196.152	391.873	5.541	17.071	58.493
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001

Weed Code										LOLMU
Crop Code							TRZAW	TRZAW	TRZAW	
Weed or Crop Name							Wheat	Winter	Winter	Italian
Weed or Crop Name							Heads	Wheat	Wheat	Ryegrass
Rating Data Type							Emerged	HeadCt	HeadCt	Control
Rating Unit							%	#/5'row	#/5'row	%
Rating Date							05/19/14	06/02/14	06/02/14	06/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	PRE	A	56.7 def	147.0 a	128.7 a	98.3 ab
2	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	DelayPRE	B	93.3 ab	139.7 ab	132.0 a	96.7 ab
3	Zidua.....pyroxasulfone	85	WG	0.0266	lb ai/a	PRE	A	61.7 c-f	147.3 a	134.3 a	95.0 b
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C				
4	Zidua.....pyroxasulfone	85	WG	0.053	lb ai/a	PRE	A	50.0 efg	125.7 bcd	122.3 a	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	2lf-1tlW	C				
5	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	70.0 a-f	135.0 a-d	140.7 a	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C				
6	Zidua.....pyroxasulfone	85	WG	0.071	lb ai/a	PRE	A	25.0 g	119.0 d	133.3 a	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	2lf-1tlW	C				
7	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	65.0 b-f	138.3 abc	135.3 a	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C				
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	2lf-1tlW	C				
8	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	43.3 fg	143.7 ab	128.3 a	100.0 a
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C				
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	2lf-1tlW	C				
9	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	DelayPRE	B	93.3 ab	125.7 bcd	134.3 a	98.3 ab
	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	2lf-1tlW	C				
10	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	90.0 abc	147.0 a	135.3 a	100.0 a
	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	A				
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C				
11	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	81.7 a-d	139.3 ab	139.7 a	100.0 a
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A				
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C				
12	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C	88.3 abc	138.0 abc	125.3 a	98.3 ab
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	2lf-1tlW	C				
13	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	4lf-2tlR	D	80.0 a-e	128.3 bcd	136.7 a	100.0 a
14	Axiom Premix	68	WG	0.255	lb ai/a	2lf-1tlW	C	96.7 a	135.7 a-d	132.7 a	100.0 a
	----flufenacet	54		0.202							
	----metribuzin	14		0.0525							
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	4lf-2tlR	D				
15	Untreated Check							83.3 a-d	120.3 cd	149.0 a	0.0 c
16	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A	76.7 a-e	128.3 bcd	130.0 a	0.0 c
LSD P=.05								30.39	18.54	19.13	3.69
Standard Deviation								18.22	11.12	11.47	2.21
CV								25.25	8.24	8.58	2.55
Replicate F								1.962	0.689	0.158	2.021
Replicate Prob(F)								0.1582	0.5100	0.8544	0.1501
Treatment F								3.810	2.120	0.918	702.638
Treatment Prob(F)								0.0009	0.0390	0.5545	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW Winter Wheat Yield Bu/A 07/01/14	TRZAW Winter Wheat Stunting % 01/02/15
	Weed Code								
	Crop Code							TRZAW	TRZAW
	Weed or Crop Name							Winter	Winter
	Weed or Crop Name							Wheat	Wheat
	Rating Data Type							Yield	Stunting
	Rating Unit							Bu/A	%
	Rating Date							07/01/14	01/02/15
1	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	PRE	A	80.1 ab	0.0 e
2	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	DelayPRE	B	82.4 a	0.0 e
3	Zidua.....pyroxasulfone	85	WG	0.0266	lb ai/a	PRE	A	78.8 ab	0.0 e
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C		
4	Zidua.....pyroxasulfone	85	WG	0.053	lb ai/a	PRE	A	77.4 ab	0.0 e
	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	2lf-1tlW	C		
5	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	81.9 a	0.0 e
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C		
6	Zidua.....pyroxasulfone	85	WG	0.071	lb ai/a	PRE	A	69.2 cd	0.0 e
	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	2lf-1tlW	C		
7	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	72.0 bc	6.7 c
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C		
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	2lf-1tlW	C		
8	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	79.2 ab	10.3 b
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C		
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	2lf-1tlW	C		
9	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	DelayPRE	B	79.1 ab	0.0 e
	Zidua.....pyroxasulfone	85	WG	0.0664	lb ai/a	2lf-1tlW	C		
10	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	79.0 ab	1.7 de
	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	A		
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C		
11	Zidua.....pyroxasulfone	85	WG	0.0356	lb ai/a	PRE	A	81.1 a	4.7 cd
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A		
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C		
12	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	2lf-1tlW	C	81.5 a	8.0 bc
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	2lf-1tlW	C		
13	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	4lf-2tlR	D	72.6 bc	15.0 a
14	Axiom Premix	68	WG	0.255	lb ai/a	2lf-1tlW	C	80.8 a	11.3 b
	----flufenacet	54		0.202					
	----metribuzin	14		0.0525					
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	4lf-2tlR	D		
15	Untreated Check							63.6 d	
16	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	A	72.1 bc	
	LSD P=.05							8.12	3.42
	Standard Deviation							4.87	2.04
	CV							6.33	49.51
	Replicate F							81.479	0.384
	Replicate Prob(F)							0.0001	0.6852
	Treatment F							3.716	19.734
	Treatment Prob(F)							0.0011	0.0001

University of Delaware

POST Corn Harvest Treatments for Palmer amaranth
and Planting Winter Wheat
Trial ID: SG3a-14 Cooperator:
Location: Field #7 front Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.

Crop 1: Winter Wheat TRZAW Variety: USG 3215
Planting Date: 10/21/13 Planting Method: Drilled Depth: 1.5 in
Rate: 120 lb/A Row Spacing: 7 in Seed Bed: Firm/Trashy
Soil Temperature: 68 F Soil Moisture: Moist Emergence Date: 10/31/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage/Corn Stubble

Trial Initiation Comments: The corn stubble was flail chopped to a height of 4-6 inches on 9-13-13. The center 12 inches of each plot was not chopped due to the center gear-box design.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	10/22/13	Roundup WeatherMax	4.5	AS	32	fl oz/A

SOIL DESCRIPTION

% Sand: 78 % OM: 3.2 Texture: sandy loam
% Silt: 13 pH: 5.7
% Clay: 9 CEC: 7.1 Fert. Level: Optimum

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.2 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	09/19/13
Time of Day:	9:45 am
Application Method:	Spray
Application Timing:	POST Har
Applic. Placement:	Brdcst
Air Temp., Unit:	66 F
% Relative Humidity:	61
Wind Velocity, Unit:	2 mph
Wind Direction:	West
Dew Presence (Y/N):	Y
Soil Temp., Unit:	63 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Dry
Leaf Surf. Moisture:	Moist
% Cloud Cover:	5

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	TRZAW

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	AMAPA
Growth Stage:	chopped
Height, Unit:	5 in
Density,Unit:	2-10 m2
Weed 2 Code:	DIGSA
Growth Stage:	chopped
Height, Unit:	5 in
Density,Unit:	4-12 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	46 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

09/19/13: Weed heights in the center 12" were 18-30 inch Palmer amaranth (flower to seed stage) and 12-18 inch large crabgrass (flower to seed stage).

11/14/13: Seeding depth 1.5" deep. Burndown application of glyphosate did a good job for henbit, but there's new emergence. No weed control was rated.

11/21/13: Very heavy henbit density, larger than 25/ft2t. All treatments have plants that emeraged prior to rain last week (reason for poor control is not because rain leach away the herbicides). All treatments (including untreated check) have little to no palmer amaranth plants. Untreated check has heavy large crabgrass density, but not the other treatments. Control of winter annuals at planting is not acceptable.

University of Delaware

POST Corn Harvest Treatments for Palmer amaranth
and Planting Winter Wheat
Trial ID: SG3a-14 Cooperator:
Location: Field #7 front Investigator: Mark VanGessel

Weed Code								LAMAM
Crop Code							TRZAW	
Weed or Crop Name							Winter	Henbit
Weed or Crop Name							Wheat	
Rating Data Type							Stunting	Control
Rating Unit							%	%
Rating Date							11/14/13	11/21/13
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
1	Untreated Check							0.0 c	0.0 e
2	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A	0.0 c	0.0 e
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
3	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTHar	A	0.0 c	0.0 e
	Crop Oil Concentrate	100	L	1.25	% v/v	POSTHar	A		
4	Zidua.....pyroxasulfone	85	WG	0.053	lb ai/a	POSTHar	A	3.0 abc	16.7 d
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
5	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	POSTHar	A	4.7 ab	26.7 cd
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
6	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	POSTHar	A	2.3 bc	40.0 bc
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
7	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	POSTHar	A	7.0 a	56.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
8	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	POSTHar	A	0.0 c	40.0 bc
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
9	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	POSTHar	A	0.0 c	43.3 ab
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
10	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	POSTHar	A	4.7 ab	56.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
LSD P=.05								4.26	15.94
Standard Deviation								2.48	9.29
CV								114.68	33.18
Replicate F								1.042	2.202
Replicate Prob(F)								0.3731	0.1395
Treatment F								3.242	17.957
Treatment Prob(F)								0.0161	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

POST Corn Harvest Treatments for Palmer amaranth
and Planting Winter Wheat
Trial ID: SG3b-14 Cooperator:
Location: Field #7 back Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.

Crop 1: Winter Wheat TRZAW Variety: USG 3215
Planting Date: 10/21/13 Planting Method: Drilled Depth: 1.5 in
Rate: 120 lb/A Row Spacing: 7 in Seed Bed: Firm/Trashy
Soil Temperature: 68 F Soil Moisture: Moist Emergence Date: 10/31/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage/Corn Stubble

Trial Initiation Comments: The corn stubble was not flail chopped.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	10/22/13	Roundup WeatherMax	4.5	AS	32	fl oz/A

SOIL DESCRIPTION

% Sand: 78 % OM: 3.2 Texture: sandy loam
% Silt: 13 pH: 5.7
% Clay: 9 CEC: 7.1 Fert. Level: Optimum

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.2 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	09/19/13
Time of Day:	9:45 am
Application Method:	Spray
Application Timing:	POST Har
Applic. Placement:	Brdcst
Air Temp., Unit:	66 F
% Relative Humidity:	61
Wind Velocity, Unit:	2 mph
Wind Direction:	West
Dew Presence (Y/N):	Y
Soil Temp., Unit:	63 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Dry
Leaf Surf. Moisture:	Moist
% Cloud Cover:	5

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	TRZAW

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	AMAPA
Growth Stage:	flowr-seed
Height, Unit:	24 in
Density,Unit:	2-10 m2
Weed 2 Code:	DIGSA
Growth Stage:	flowr-seed
Height, Unit:	15 in
Density,Unit:	4-12 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	46 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

09/19/13: Palmer amaranth height ranged from 18-30 inches. Large crabgrass height ranged from 12-18 inches.

11/14/13: Wheat was seeded 1.5" deep. Burndown of glyphosphate work well. New emergence of henbit (cotyledon) observed in plots. Not rated.

11/21/13: All treatments except 1,2,4,5 had good to excellent kill of palmer amaranth. Henbit control was better this study than in SG3a (mowed stalks) because appeared to be less interference from crop residue. Control of winter annuals at planting is not acceptable.

University of Delaware

POST Corn Harvest Treatments for Palmer amaranth
and Planting Winter Wheat
Trial ID: SG3b-14 Cooperator:
Location: Field #7 back Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW Winter Wheat Stunting % 11/14/13	LAMAM Henbit Control % 11/21/13
1	Untreated Check							0.0 c	0.0 e
2	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A	0.0 c	0.0 e
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
3	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTHar	A	0.0 c	0.0 e
	Crop Oil Concentrate	100	L	1.25	% v/v	POSTHar	A		
4	Zidua.....pyroxasulfone	85	WG	0.053	lb ai/a	POSTHar	A	2.3 bc	0.0 e
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
5	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	POSTHar	A	8.0 a	50.0 cd
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
6	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	POSTHar	A	8.0 a	63.3 b
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
7	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	POSTHar	A	9.7 a	81.7 a
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
8	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	POSTHar	A	3.3 bc	53.3 bcd
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
9	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	POSTHar	A	0.0 c	46.7 d
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
10	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	POSTHar	A	5.7 ab	60.0 bc
	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POSTHar	A		
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POSTHar	A		
	LSD P=.05							4.32	13.30
	Standard Deviation							2.52	7.75
	CV							68.04	21.84
	Replicate F							0.994	1.123
	Replicate Prob(F)							0.3895	0.3470
	Treatment F							7.007	51.034
	Treatment Prob(F)							0.0002	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

ALS-Resistant Horseweed Control in Winter Wheat

Trial ID: SG4-14 Cooperator:
Location: Field #22D Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
2.	Henbit	LAMAM	Lamium amplexicaule L.
3.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
4.	Field Pansy	VIORA	Viola rafinesquii Greene
5.	Horseweed	ERICA	Erigeron canadensis L.
6.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.

Crop 1: Winter Wheat TRZAW Variety: USG 3251
Planting Date: 10/21/13 Planting Method: Drilled Depth: 0.75 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Firm/Trashy
Soil Temperature: 68 F Soil Moisture: Moist Emergence Date: 10/31/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage/Medium Weeds

SOIL DESCRIPTION

% Sand: 80 % OM: 1.3 Texture: sandy loam
% Silt: 10 pH: 5.4
% Clay: 10 CEC: 3.9 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.6 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	10/14/13	10/21/13	11/05/13	12/04/13	04/01/14
Time of Day:	1:30 pm	4:00 pm	10:30 am	12:15 pm	10:45 am
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	7EPP	PRE	Spike	Fall	Spring
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	68 F	66 F	60 F	54 F	50 F
% Relative Humidity:	65	37	57	75	53
Wind Velocity, Unit:	6 mph	4 mph	4 mph	1 mph	2 mph
Wind Direction:	East	South	East	Southwest	Northwest
Dew Presence (Y/N):	N	N	N	N	Y
Soil Temp., Unit:	68 F	67 F	59 F	54 F	48 F
Soil Surf. Moisture:	Moist	Dry	Dry	Moist	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist	Wet
Leaf Surf. Moisture:	Dry	Dry	Dry	Moist	Moist
% Cloud Cover:	90	20	50	90	15

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:			1 leaf	3-4 leaf	2-3 tiller
Height, Unit:			2.8 in	5 in	6 in
Crop Health:			Good	Good	Good

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code:	OEOLA	OEOLA	OEOLA	OEOLA	OEOLA
Growth Stage:				rosette	rosette
Height, Unit:				2 in	5 in
Density,Unit:				0-50 m2	0-50 m2
Weed 2 Code:	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM
Growth Stage:				cot-6 leaf	vegetative
Height, Unit:				1 in	6 in
Density,Unit:				0-80 m2	0-80 m2
Weed 3 Code:	HLOUM	HLOUM	HLOUM	HLOUM	HLOUM
Growth Stage:				cot-10 lf	vegetative
Height, Unit:				0.5 in	6 in
Density,Unit:				40-400 m2	0-40 m2
Weed 4 Code:	VIORA	VIORA	VIORA	VIORA	VIORA
Growth Stage:				cot-4 leaf	veg-eaFlwr
Height, Unit:				0.5 in	2 in
Density,Unit:				0-70 m2	0-70 m2
Weed 5 Code:	ERICA	ERICA	ERICA	ERICA	ERICA
Growth Stage:				cot-6 leaf	rosette
Height, Unit:				0.25 in	2 in
Density,Unit:				12-150 m2	12-150 m2
Weed 6 Code:	CERVU	CERVU	CERVU	CERVU	CERVU
Growth Stage:				cot-4 leaf	vegetative
Height, Unit:				0.25 in	3 in
Density,Unit:				0-16 m2	0-16 m2

APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	Backpack	Backpack	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	18 in	18 in	20 in	21 in	22 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2	CO2	CO2

University of Delaware

ALS-Resistant Horseweed Control in Winter Wheat

Trial ID: SG4-14 Cooperator:
Location: Field #22D Investigator: Mark VanGessel

Trial Comments

12/2/13: Rated only for applications at 7 DPP, PRE, or Spike. Valor was weak on henbit and field pansy; Sharpen was weak on knawel, hebit, jagged chickweed, and field pansy; good control with metribuzin

4/21/14: Injury hard to rate due to weed competition. Stunting in UTC. Wheat is 12" tall. Density of weeds in UTC. Vol. rye in plots as well.

6/07/14: Ratings >85% probably due to late spring emergence of horseweed. Also, suspect a low density of ALS-resistant horseweed which may explain some variability in the data.

4/22/15: Low jaged chickweed density in some plots. Noticable reduction in jagged chickweed population.
The treatments providing good control => short lived seed in seedbank.

University of Delaware

ALS-Resistant Horseweed Control in Winter Wheat

Trial ID: SG4-14 Cooperator:
Location: Field #22D Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW Winter Wheat Stunting % 11/17/13	TRZAW Winter Wheat Stunting % 12/02/13	TRZAW Winter Wheat Stunting % 12/28/13	TRZAW Winter Wheat Stunting % 04/21/14	CERVU Mouseear Chickwd Control % 04/21/14
	Weed Code											CERVU
	Crop Code							TRZAW	TRZAW	TRZAW	TRZAW	
	Weed or Crop Name							Winter Wheat	Winter Wheat	Winter Wheat	Winter Wheat	Mouseear Chickwd
	Weed or Crop Name							Stunting	Stunting	Stunting	Stunting	Control
	Rating Data Type							%	%	%	%	%
	Rating Unit							11/17/13	12/02/13	12/28/13	04/21/14	04/21/14
	Rating Date											
1	Untreated Check							0.0 c	0.0 b	0.0 c		0.0 e
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7 DPP	A	7.0 b	10.7 a	5.7 b		100.0 a
	Crop Oil Concentrate	100	L	1	% v/v	7 DPP	A					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	7 DPP	A					
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	E					
	----thifensulfuron	33		0.0154								
	----tribenuron	17		.00796								
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	E					
3	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	B	1.7 c	2.3 b	0.0 c	7.0	93.3 a
	Crop Oil Concentrate	100	L	1	% v/v	PRE	B					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	B					
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	E					
	----thifensulfuron	33		0.0154								
	----tribenuron	17		.00796								
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	E					
4	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Spike	C	16.7 a	11.3 a	10.7 a	5.0	100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C					
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	E					
	----thifensulfuron	33		0.0154								
	----tribenuron	17		.00796								
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	E					
5	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Fall	D			0.0 c		
6	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Fall	D			2.3 bc	7.0	40.0 c
7	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Spring	E					70.0 b
8	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	D			0.0 c		0.0 e
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D					
9	Clarity.....dicamba	4	L	0.125	lb ai/a	Spring	E					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E					
10	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	D			2.3 bc		15.0 d
11	2,4-D amine	3.8	L	0.237	lb ae/a	Spring	E					50.0 c
12	2,4-D amine	3.8	L	0.475	lb ae/a	Spring	E					40.0 c
13	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	D			0.0 c		100.0 a
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Fall	D					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Due to missing data, larger LSD values (col. 4: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.
Missing data estimates are included in columns:Yates=11; Average=5,6,9,10
Excluded replicate 3 in column 10
Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

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Weed Code											CERVU
Crop Code							TRZAW	TRZAW	TRZAW	TRZAW	
Weed or Crop Name							Winter	Winter	Winter	Winter	Mouseear
Weed or Crop Name							Wheat	Wheat	Wheat	Wheat	Chickwd
Rating Data Type							Stunting	Stunting	Stunting	Stunting	Control
Rating Unit							%	%	%	%	%
Rating Date							11/17/13	12/02/13	12/28/13	04/21/14	04/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
14	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	E			10.0	65.0 b
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	E				
15	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	E				63.3 b
	----pyrasulfotole	0.3		0.035							
	----bromoxynil	1.75		0.205							
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	E				
16	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	D		5.7 b	7.0	100.0 a
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	D				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D				
LSD P=.05								3.33	5.61	4.41	.	12.81
Standard Deviation								1.67	2.81	2.57	.	7.26
CV								26.32	46.17	96.45	.	12.15
Replicate F								3.000	1.310	0.323		1.399
Replicate Prob(F)								0.1250	0.3373	0.7284		0.2816
Treatment F								60.880	12.630	5.935		77.750
Treatment Prob(F)								0.0001	0.0053	0.0007		0.0001

Weed Code							ERICA	HLOUM	LAMAM	OEOLA
Crop Code										
Weed or Crop Name							Horse-	Jagged	Henbit	Cutleaf
Weed or Crop Name							weed	Chickwd		EPrimrse
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							04/21/14	04/21/14	04/21/14	04/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Untreated Check							0.0 d	0.0 h	0.0 f	0.0 c
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7 DPP	A	100.0 a	97.3 ab	86.0 a	100.0 a
	Crop Oil Concentrate	100	L	1	% v/v	7 DPP	A				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	7 DPP	A				
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	E				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		.00796							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	E				
3	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	B	100.0 a	81.0 b	91.0 a	92.5 a
	Crop Oil Concentrate	100	L	1	% v/v	PRE	B				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	B				
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	E				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		.00796							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	E				
4	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Spike	C	95.0 a	100.0 a	100.0 a	98.3 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C				
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	E				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		.00796							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	E				
5	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Fall	D	35.0 c	36.7 de	43.3 bc	95.0 a
6	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Fall	D	15.0 cd	50.0 cd	43.3 bc	100.0 a
7	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Spring	E	70.0 b	60.0 c	53.3 b	85.0 a
8	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	D	100.0 a	23.3 efg	23.3 cde	90.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D				
9	Clarity.....dicamba	4	L	0.125	lb ai/a	Spring	E	100.0 a	13.3 gh	20.0 def	96.7 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E				
10	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	D	100.0 a	10.0 gh	10.0 ef	100.0 a
11	2,4-D amine	3.8	L	0.237	lb ae/a	Spring	E	93.3 ab	33.3 def	40.0 bcd	93.3 a
12	2,4-D amine	3.8	L	0.475	lb ae/a	Spring	E	82.5 ab	16.7 fgh	43.3 bc	100.0 a
13	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	D	100.0 a	90.0 ab	98.3 a	90.0 a
	----pyrasulfotole	0.3		0.035							
	----bromoxynil	1.75		0.205							
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Fall	D				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	ERICA	HLOUM	LAMAM	OEOLA
	Weed Code							ERICA	HLOUM	LAMAM	OEOLA
	Crop Code										
	Weed or Crop Name							Horse-	Jagged	Henbit	Cutleaf
	Weed or Crop Name							weed	Chickwd		EPrimrse
	Rating Data Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							04/21/14	04/21/14	04/21/14	04/21/14
14	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	E	100.0 a	90.0 ab	93.3 a	30.0 b
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	E				
15	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	E	100.0 a	96.7 ab	100.0 a	36.7 b
	----pyrasulfotole	0.3		0.035							
	----bromoxynil	1.75		0.205							
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	E				
16	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	D	76.7 ab	100.0 a	100.0 a	100.0 a
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	D				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D				
	LSD P=.05							23.34	17.95	20.17	18.80
	Standard Deviation							13.79	10.77	12.10	11.13
	CV							17.4	19.18	20.48	13.62
	Replicate F							0.302	2.161	1.224	0.117
	Replicate Prob(F)							0.7422	0.1328	0.3084	0.8904
	Treatment F							17.217	35.882	26.411	22.802
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	VIORA Field Pansy Control % 04/21/14	ERICA Horse-weed Control % 06/07/14	ERICA Horse-weed Control % 07/09/14
	Weed Code							VIORA	ERICA	ERICA
	Crop Code									
	Weed or Crop Name							Field Pansy	Horse-weed	Horse-weed
	Weed or Crop Name							Control	Control	Control
	Rating Data Type							%	%	%
	Rating Unit							04/21/14	06/07/14	07/09/14
	Rating Date									
1	Untreated Check							0.0 e	0.0 g	0.0 g
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7 DPP	A	92.5 ab	80.0 abc	81.0 abc
	Crop Oil Concentrate	100	L	1	% v/v	7 DPP	A			
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	7 DPP	A			
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	E			
	----thifensulfuron	33		0.0154						
	----tribenuron	17		.00796						
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	E			
3	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	B	90.0 b	99.0 a	97.0 a
	Crop Oil Concentrate	100	L	1	% v/v	PRE	B			
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	B			
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	E			
	----thifensulfuron	33		0.0154						
	----tribenuron	17		.00796						
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	E			
4	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Spike	C	100.0 a	59.1 de	81.3 abc
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	C			
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	E			
	----thifensulfuron	33		0.0154						
	----tribenuron	17		.00796						
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	E			
5	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Fall	D	0.0 e	36.7 f	26.7 f
6	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Fall	D	0.0 e	40.0 ef	50.0 e
7	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Spring	E	0.0 e	63.3 cd	61.7 de
8	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	D	30.0 d	93.3 ab	80.3 bc
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D			
9	Clarity.....dicamba	4	L	0.125	lb ai/a	Spring	E	0.0 e	100.0 a	95.0 ab
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E			
10	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	D	0.0 e	80.0 abc	71.7 cd
11	2,4-D amine	3.8	L	0.237	lb ae/a	Spring	E	0.0 e	76.7 bcd	71.7 cd
12	2,4-D amine	3.8	L	0.475	lb ae/a	Spring	E	40.0 c	100.0 a	79.3 bc
13	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	D	0.0 e	96.0 ab	73.3 cd
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Fall	D			

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	VIORA	ERICA	ERICA
	Weed Code							VIORA	ERICA	ERICA
	Crop Code									
	Weed or Crop Name							Field	Horse-	Horse-
	Weed or Crop Name							Pansy	weed	weed
	Rating Data Type							Control	Control	Control
	Rating Unit							%	%	%
	Rating Date							04/21/14	06/07/14	07/09/14
14	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	E	0.0 e	80.0 abc	93.3 ab
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	E			
15	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	E	0.0 e	100.0 a	93.0 ab
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	E			
16	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	D	100.0 a	66.0 cd	68.3 cd
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	D			
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D			
	LSD P=.05							8.37	20.51	16.58
	Standard Deviation							3.63	12.28	9.95
	CV							12.84	16.79	14.16
	Replicate F							0.533	0.823	9.014
	Replicate Prob(F)							0.4860	0.4493	0.0009
	Treatment F							266.584	15.967	20.496
	Treatment Prob(F)							0.0001	0.0001	0.0001

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ALS-Resistant Horseweed Control in Winter Wheat
Spring Treatments
Trial ID: SG4a-14 Cooperator:
Location: Field #22D Investigator: Mark VanGessel

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
2.	Henbit	LAMAM	Lamium amplexicaule L.
3.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
4.	Field Pansy	VIORA	Viola rafinesquii Greene
5.	Horseweed	ERICA	Erigeron canadensis L.
6.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.

Crop 1: Winter Wheat TRZAW Variety: USG 3251
Planting Date: 10/21/13 Planting Method: Drilled Depth: 0.75 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Firm/Trashy
Soil Temperature: 68 F Soil Moisture: Moist Emergence Date: 10/31/13

SITE AND DESIGN
Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

SOIL DESCRIPTION
% Sand: 80 % OM: 1.3 Texture: sandy loam
% Silt: 10 pH: 5.4
% Clay: 10 CEC: 3.9 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.6 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	04/01/14
Time of Day:	11:15 am
Application Method:	Spray
Application Timing:	Spring
Applic. Placement:	Brdcst
Air Temp., Unit:	50 F
% Relative Humidity:	53
Wind Velocity, Unit:	2 mph
Wind Direction:	Northwest
Dew Presence (Y/N):	Y
Soil Temp., Unit:	48 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Wet
Leaf Surf. Moisture:	Moist
% Cloud Cover:	15

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	TRZAW
Growth Stage:	2-3 tiller
Height, Unit:	6 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	OEOLA
Growth Stage:	rosette
Height, Unit:	3 in
Density,Unit:	0-120 m2
Weed 2 Code:	LAMAM
Growth Stage:	vegetative
Height, Unit:	4 in
Density,Unit:	0-40 m2
Weed 3 Code:	HLOUM
Growth Stage:	eaFlower
Height, Unit:	4 in
Density,Unit:	0-20 m2
Weed 4 Code:	VIORA
Growth Stage:	vegetative
Height, Unit:	2 in
Density,Unit:	0-12 m2
Weed 5 Code:	ERICA
Growth Stage:	rosette
Height, Unit:	2 in
Density,Unit:	0-160 m2
Weed 6 Code:	CERVU
Growth Stage:	vegetative
Height, Unit:	4 in
Density,Unit:	0-12 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	22 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

06/07/14: Ratings >85% probably due to late spring emergence of horseweed. Also, suspect a low density of ALS-resistant horseweed which may explain some variability in the data.

04/22/15: Treatments 2 and 4 were safe for clover. Treatment 5 had fair safety for clover, while treatment 6 and 7 had poor safety to clover. Treatments 3 and 8 killed clover.

University of Delaware

ALS-Resistant Horseweed Control in Winter Wheat
Spring Treatments
Trial ID: SG4a-14 Cooperator:
Location: Field #22D Investigator: Mark VanGessel

Weed Code							ERICA	LAMAM	VIORA	ERICA
Weed or Crop Name							Horse-	Henbit	Field	Horse-
Weed or Crop Name							weed		Pansy	weed
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							04/21/14	04/21/14	04/21/14	06/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Untreated Check							0.0 c	0.0 c	0.0 c	0.0 b
2	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Spring	A	100.0 a	53.3 b	35.0 b	80.0 a
3	Clarity.....dicamba	4	L	0.125	lb ai/a	Spring	A	100.0 a	50.2 b	35.0 b	100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
4	2,4-D amine	3.8	L	0.237	lb ae/a	Spring	A	95.0 a	55.0 b	35.0 b	81.7 a
5	2,4-D amine	3.8	L	0.475	lb ae/a	Spring	A	100.0 a	60.0 b	60.0 a	96.0 a
6	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	A	100.0 a	100.0 a	26.7 b	100.0 a
	----pyrasulfotole	0.3		0.0258							
	----bromoxynil	1.75		0.15							
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	A				
7	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	A	100.0 a	98.3 a	25.0 b	96.7 a
	----pyrasulfotole	0.3		0.035							
	----bromoxynil	1.75		0.205							
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	A				
8	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	A	60.0 b	100.0 a	68.3 a	81.3 a
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Spring	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
LSD P=.05								33.19	12.04	10.30	26.32
Standard Deviation								16.61	6.83	5.47	15.03
CV								20.29	10.57	15.36	18.91
Replicate F								0.351	0.297	0.730	0.200
Replicate Prob(F)								0.7176	0.7477	0.5113	0.8210
Treatment F								13.968	75.983	44.755	14.681
Treatment Prob(F)								0.0025	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=2; Average=1,3

University of Delaware

Valor and Fierce Preplant Burndown in No-Till Winter Wheat

Trial ID: SG5-14 Cooperator: Valent
Location: Field #18 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
3.	Hairy Bittercress	CARHI	Cardamine hirsuta L.

Crop 1: Winter Wheat TRZAW Variety: USG3555
Planting Date: 10/28/13 Planting Method: Drilled Depth: 1 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Smooth
Soil Temperature: 66 F Soil Moisture: Moist Emergence Date: 11/04/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage/Corn Stubble

Trial Initiation Comments: Annual ryegrass was broadcast seeded at 5 lb/A on 10-28-14 prior to planting.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.5 Texture: loamy sand
% Silt: 12 pH: 5.9
% Clay: 7 CEC: 4.5 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	10/14/13	10/21/13	11/05/13	12/04/13
Time of Day:	1:30 pm	4:00 pm	10:40 am	11:40 am
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	14EPP	7EPP	Spike	Fall
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	68 F	66 F	60 F	54 F
% Relative Humidity:	65	37	57	75
Wind Velocity, Unit:	6 mph	4 mph	4 mph	1 mph
Wind Direction:	East	South	East	Southwest
Dew Presence (Y/N):	N	N	N	N
Soil Temp., Unit:	68 F	67 F	59 F	54 F
Soil Surf. Moisture:	Moist	Dry	Dry	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry	Moist
% Cloud Cover:	90	20	50	90

CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:			Spike	2-3 leaf
Height, Unit:			0.7 in	6 in
Crop Health:			Good	Good

WEED STAGE AT EACH APPLICATION

	A	B	C	D
Weed 1 Code:	LAMAM	LAMAM	LAMAM	LAMAM
Growth Stage:				cot-4 leaf
Height, Unit:				1 in
Density,Unit:				60-80 m2
Weed 2 Code:	HLOUM	HLOUM	HLOUM	HLOUM
Growth Stage:				cot-2 leaf
Height, Unit:				0.5 in
Density,Unit:				20-40 m2
Weed 3 Code:	CARHI	CARHI	CARHI	CARHI
Growth Stage:				cot-1 leaf
Height, Unit:				0.5 in
Density,Unit:				4 m2

APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	Backpack	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	20 in	24 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2	CO2

Trial Comments

11/17/13: Wheat planted aproximatly 1.25" deep. 1 collar visible. aproximatly 4" tall.

12/02/13: Very low weed density, even untreated checks had few henbit plants, but almost no henbit observed in treatments.

04/05/14: Only rated center 6 rows, not those planted in the tire tracks. Seeds were closer to soil surface in the tire tracks and injury & wheat stand was quite variable.

05/07/14: Stand is variable but not consistent across reps. Treatment effect on yields will be variable as well. Mouseear and jagged chickweed also present in the untreated checks, but all treatment provided excellent control unless noted. Treatments 2 and 4 had poor control of jagged chickweed in the first rep only.

06/08/14: Annual ryegrass based on seed-heads above canopy. Density of ryegrass is low, approximately 15-20/ plot in untreated checks.
It looks like alot of ryegrass emerged shortly after seeding and if glyphosate was applied at least 7 days later, density was reduced (Note treatment 6).

University of Delaware

Valor and Fierce Preplant Burndown in No-Till Winter Wheat

Trial ID: SG5-14 Cooperator: Valent
Location: Field #18 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
	Weed Code							TRZAW	TRZAW	TRZAW	TRZAW
	Crop Code							Winter	Winter	Winter	Winter
	Weed or Crop Name							Wheat	Wheat	Wheat	Wheat
	Weed or Crop Name							Stunting	Stunting	Stunting	Stunting
	Rating Data Type							%	%	%	%
	Rating Unit							11/17/13	12/02/13	12/28/13	04/05/14
	Rating Date										
1	Untreated Check							0.0 b	0.0 c	0.0 c	0.0 d
2	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	14EPP	A	11.7 a	13.0 a	5.7 b	16.7 c
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	14EPP	A				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	14EPP	A				
3	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	14EPP	A	11.7 a	7.0 b	8.3 ab	36.7 a
	Fierce Premix	76	WG	0.142	lb ai/a	14EPP	A				
	----flumioxazin	33.5		0.0626							
	----pyroxasulfone	42.5		0.0794							
	Dry Ammonium Sulfate	100	D	1.5	% w/v	14EPP	A				
4	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	B	11.7 a	15.0 a	11.3 a	20.0 bc
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	B				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	7EPP	B				
5	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	B	13.3 a	12.3 a	9.7 a	28.3 ab
	Fierce Premix	76	WG	0.142	lb ai/a	7EPP	B				
	----flumioxazin	33.5		0.0626							
	----pyroxasulfone	42.5		0.0794							
	Dry Ammonium Sulfate	100	D	1.5	% w/v	7EPP	B				
6	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	B	0.0 b	0.0 c	0.0 c	0.0 d
	Dry Ammonium Sulfate	100	D	1.5	% w/v	7EPP	B				
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	D				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		.00796							
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D				
7	Axiom Premix	68	WG	0.255	lb ai/a	Spike	C	0.0 b	1.7 c	1.7 c	3.3 d
	----flufenacet	54		0.202							
	----metribuzin	14		0.0525							
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	D				
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	D				
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	D				
8	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	D	0.0 b		11.3 a	35.0 a
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Fall	D				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D				
	LSD P=.05							3.38	2.94	3.21	8.41
	Standard Deviation							1.93	1.65	1.83	4.80
	CV							31.92	23.6	30.54	27.44
	Replicate F							1.960	0.471	1.043	0.948
	Replicate Prob(F)							0.1776	0.6355	0.3784	0.4109
	Treatment F							33.880	46.680	21.277	29.935
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW Winter Wheat Stunting % 04/18/14	HLOUM Jagged Chickwd Control % 04/18/14	LAMAM Henbit Control % 04/18/14	LAMAM Henbit Control % 05/07/14
1	Untreated Check							0.0 c	0.0 c	0.0 b	0.0 c
2	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	14EPP	A	23.3 a	91.7 b	96.7 a	100.0 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	14EPP	A				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	14EPP	A				
3	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	14EPP	A	16.7 ab	96.7 ab	96.7 a	100.0 a
	Fierce Premix	76	WG	0.142	lb ai/a	14EPP	A				
	----flumioxazin	33.5		0.0626							
	----pyroxasulfone	42.5		0.0794							
	Dry Ammonium Sulfate	100	D	1.5	% w/v	14EPP	A				
4	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	B	21.7 a	92.7 b	95.0 a	88.3 b
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	B				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	7EPP	B				
5	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	B	21.7 a	100.0 a	96.0 a	100.0 a
	Fierce Premix	76	WG	0.142	lb ai/a	7EPP	B				
	----flumioxazin	33.5		0.0626							
	----pyroxasulfone	42.5		0.0794							
	Dry Ammonium Sulfate	100	D	1.5	% w/v	7EPP	B				
6	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	B	0.0 c	100.0 a	93.3 a	86.7 b
	Dry Ammonium Sulfate	100	D	1.5	% w/v	7EPP	B				
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	D				
	----thifensulfuron	33		0.0154							
	----tribenuron	17		.00796							
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D				
7	Axiom Premix	68	WG	0.255	lb ai/a	Spike	C	10.0 b	100.0 a	100.0 a	100.0 a
	----flufenacet	54		0.202							
	----metribuzin	14		0.0525							
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	D				
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	D				
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	D				
8	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	D	21.7 a	100.0 a	100.0 a	100.0 a
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Fall	D				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D				
LSD P=.05								7.96	7.06	8.69	10.09
Standard Deviation								4.55	4.03	4.96	5.76
CV								31.64	4.74	5.86	6.83
Replicate F								1.058	2.098	0.032	1.789
Replicate Prob(F)								0.3735	0.1596	0.9684	0.2032
Treatment F								14.036	220.352	143.495	107.978
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Weed Code	LOLMU
Crop Code	
Weed or Crop Name	Italian
Weed or Crop Name	Ryegrass
Rating Data Type	Control
Rating Unit	%
Rating Date	06/08/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Untreated Check							0.0 c
2	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	14EPP	A	100.0 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	14EPP	A	
	Dry Ammonium Sulfate	100	D	1.5	% w/v	14EPP	A	
3	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	14EPP	A	100.0 a
	Fierce Premix	76	WG	0.142	lb ai/a	14EPP	A	
	----flumioxazin	33.5		0.0626				
	----pyroxasulfone	42.5		0.0794				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	14EPP	A	
4	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	B	100.0 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	7EPP	B	
	Dry Ammonium Sulfate	100	D	1.5	% w/v	7EPP	B	
5	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	B	100.0 a
	Fierce Premix	76	WG	0.142	lb ai/a	7EPP	B	
	----flumioxazin	33.5		0.0626				
	----pyroxasulfone	42.5		0.0794				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	7EPP	B	
6	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/a	7EPP	B	65.0 b
	Dry Ammonium Sulfate	100	D	1.5	% w/v	7EPP	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	D	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D	
7	Axiom Premix	68	WG	0.255	lb ai/a	Spike	C	100.0 a
	----flufenacet	54		0.202				
	----metribuzin	14		0.0525				
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	D	
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	D	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	D	
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	D	
8	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	D	100.0 a
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Fall	D	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	D	

LSD P=.05	11.16
Standard Deviation	6.37
CV	7.67
Replicate F	1.000
Replicate Prob(F)	0.3927
Treatment F	94.385
Treatment Prob(F)	0.0001

University of Delaware

Weed Control with Axiom and Huskie in Winter Wheat

Trial ID: SG6-14 (2) Cooperator: Bayer
Location: Felton Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.

Crop 1: Winter Wheat TRZAW
Planting Date: 10/21/13
Emergence Date: 10/31/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION

	A	B	C
Application Date:	11/04/13	11/22/13	04/02/14
Time of Day:	10:15 am	1:45 pm	11:00 am
Application Method:	Spray	Spray	Spray
Application Timing:	Spike	Fall	Spring
Applic. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	46 F	65 F	56 F
% Relative Humidity:	54	80	64
Wind Velocity, Unit:	5 mph	7 mph	6 mph
Wind Direction:	Northeast	Southwest	East
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	44 F	63 F	57 F
Soil Surf. Moisture:	Dry	Dry	Dry
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry
% Cloud Cover:	0	100	100

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	TRZAW	TRZAW	TRZAW
Growth Stage:	1 collar	2 collar	2 tiller
Height, Unit:	3 in	4 in	4 in
Crop Health:	Good	Good	Fair

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	LAMAM	LAMAM	LAMAM
Growth Stage:	cotyledon	0-2 leaf	vegetative
Height, Unit:	0.3 in	1 in	2.5 in
Density,Unit:	3-8 ft2	4-40 m2	0-5 m2
Weed 2 Code:	STEME	STEME	STEME
Growth Stage:	cotyledon	2-6 leaf	EaFlowr
Height, Unit:	0.3 in	1 in	5 in
Density,Unit:	3-8 ft2	40-120 m2	15 m2

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2

Trial Comments

11/22/14: No injury or stunting observed from spike treatments.

04/02/14: Wheat is stressed from recovery from winter and lots of geese grazing.

University of Delaware

Weed Control with Axiom and Huskie in Winter Wheat

Trial ID: SG6-14 (2) Cooperator: Bayer
Location: Felton Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
	Weed Code								LAMAM	STEME		
	Crop Code							TRZAW			TRZAW	TRZAW
	Weed or Crop Name							Winter	Henbit	Common	Winter	Winter
	Weed or Crop Name							Wheat		Chickwd	Wheat	Wheat
	Rating Data Type							Stunting	Control	Control	Stunting	Chloross
	Rating Unit							%	%	%	%	%
	Rating Date							04/02/14	04/02/14	04/02/14	04/09/14	04/09/14
1	Untreated Check							0.0 b	0.0 b	0.0 d	0.0 d	0.0 c
2	Axiom Premix	68	WG	0.255	lb ai/a	PRE	A	16.7 a	100.0 a	73.3 c	9.0 bc	0.0 c
	----flufenacet	54		0.202								
	----metribuzin	14		0.0525								
	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	C					
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	C					
3	Axiom Premix	68	WG	0.255	lb ai/a	PRE	A	18.3 a	95.0 a	75.0 c	21.7 a	15.0 b
	----flufenacet	54		0.202								
	----metribuzin	14		0.0525								
	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	C					
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Spring	C					
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C					
4	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	C	0.0 b	0.0 b	0.0 d	11.3 b	18.3 a
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Spring	C					
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C					
5	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	B	0.0 b	100.0 a	86.7 b	0.0 d	0.0 c
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Fall	B					
6	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	B	18.3 a	100.0 a	100.0 a	7.0 c	0.0 c
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	B					
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B					
	LSD P=.05							6.98	6.43	6.43	3.94	2.14
	Standard Deviation							3.84	3.54	3.54	2.17	1.18
	CV							43.17	5.37	6.33	26.55	21.21
	Replicate F							1.792	1.000	2.333	0.887	1.000
	Replicate Prob(F)							0.2161	0.4019	0.1473	0.4421	0.4019
	Treatment F							19.396	625.000	470.867	41.837	162.400
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW	LAMAM	STEME
	Weed Code								LAMAM	STEME
	Crop Code							TRZAW		
	Weed or Crop Name							Winter	Henbit	Common
	Weed or Crop Name							Wheat		Chickwd
	Rating Data Type							Stunting	Control	Control
	Rating Unit							%	%	%
	Rating Date							05/02/14	05/02/14	05/02/14
1	Untreated Check							0.0 a	0.0 b	0.0 d
2	Axiom Premix	68	WG	0.255	lb ai/a	PRE	A	0.0 a	100.0 a	88.7 b
	----flufenacet	54		0.202						
	----metribuzin	14		0.0525						
	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	C			
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	C			
3	Axiom Premix	68	WG	0.255	lb ai/a	PRE	A	9.0 a	100.0 a	93.3 ab
	----flufenacet	54		0.202						
	----metribuzin	14		0.0525						
	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	C			
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Spring	C			
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C			
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C			
4	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	C	8.0 a	100.0 a	74.3 c
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Spring	C			
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C			
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	C			
5	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	B	5.7 a	98.3 a	89.3 b
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Fall	B			
6	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	B	8.0 a	100.0 a	96.7 a
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	B			
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B			
	LSD P=.05							8.13	2.14	7.20
	Standard Deviation							4.47	1.18	3.96
	CV							87.4	1.42	5.37
	Replicate F							0.278	1.000	1.877
	Replicate Prob(F)							0.7627	0.4019	0.2031
	Treatment F							2.537	3577.000	261.125
	Treatment Prob(F)							0.0986	0.0001	0.0001

University of Delaware

Weed Control with Huskie or PowerFlex in Winter Wheat

Trial ID: SG7-14 Cooperator: Bayer, Dow
Location: Field #22D Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
3.	Whitlowgrass	ERPVE	Draba verna L.

Crop 1: Winter Wheat TRZAW Variety: USG3555
Planting Date: 10/28/13 Planting Method: Drilled Depth: 1 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Smooth
Soil Temperature: 66 F Soil Moisture: Moist Emergence Date: 11/04/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Disked Twice

SOIL DESCRIPTION

% Sand: 80 % OM: 1.3 Texture: sandy loam
% Silt: 10 pH: 5.4
% Clay: 10 CEC: 3.9 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.6 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	12/05/13	04/01/14
Time of Day:	10:00 am	10:40 am
Application Method:	Spray	Spray
Application Timing:	Fall	Spring
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	54 F	50 F
% Relative Humidity:	97	53
Wind Velocity, Unit:	3 mph	2 mph
Wind Direction:	South	Northwest
Dew Presence (Y/N):	Y	Y
Soil Temp., Unit:	54 F	48 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Wet
Leaf Surf. Moisture:	Moist	Moist
% Cloud Cover:	100	15

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	TRZAW	TRZAW
Growth Stage:	2-3 leaf	2-3 tiller
Height, Unit:	5 in	6 in
Crop Health:	Good	Good

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	LAMAM	LAMAM
Growth Stage:	cot-4 leaf	vegetative
Height, Unit:	0.5 in	2.7 in
Density,Unit:	40-240 m2	0-40 m2
Weed 2 Code:	HLOUM	HLOUM
Growth Stage:	cot-4 leaf	vegetative
Height, Unit:	0.5 in	2.5 in
Density,Unit:	12-80 m2	0-20 m2
Weed 3 Code:	ERPVE	ERPVE
Growth Stage:		vegetative
Height, Unit:		2 in
Density,Unit:		0-40 m2

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	24 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Trial Comments

12/05/13: The rate of Huskie in treatment 8 should have been 15 fl-oz/A but was reduced because we ran out of product.

12/28/13: Leaf burn observed only in treatments 6 & 8

Leaf Burn:	Rep I	Rep 2	Rep 3
Treatment 6:	.	12	15
Treatment 8	15	12	10

4/04/14: Treatmetns 11 and 12 showing 10 to 15% chlorosis in addtition to stunting. Treatments 6 and 8 had about 10% stand loss in addition to stunting.

4/18/14: Treatments with Huskie alone (trt. 2,3, &4) resulted in poor control of field pansy.Plot 201,205, and 209 also had poor control of field pansy. Plot 309 and 308 had poor/no control of field pansy.

5/09/14: Field pansy poor in treatments 7,4,3,2,8,5,9. Mouseear chickweed control poor treatments 2,3,5. Wheat is showing nitrogen stress.

University of Delaware

Weed Control with Huskie or PowerFlex in Winter Wheat

Trial ID: SG7-14 Cooperator: Bayer, Dow
Location: Field #22D Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW	TRZAW	TRZAW	HLOUM	LAMAM
	Weed Code											
	Crop Code							TRZAW	TRZAW	TRZAW		
	Weed or Crop Name							Winter	Winter	Winter	Jagged	Henbit
	Weed or Crop Name							Wheat	Wheat	Wheat	Chickwd	
	Rating Data Type							Stunting	Stunting	Stunting	Control	Control
	Rating Unit							%	%	%	%	%
	Rating Date							12/28/13	04/04/14	04/18/14	04/18/14	04/18/14
1	Untreated Check							0.0 f	0.0 c	0.0 c	0.0 e	0.0 d
2	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	A	0.0 f	2.3 c	0.0 c	83.3 d	100.0 a
	----pyrasulfotole	0.3		0.0258								
	----bromoxynil	1.75		0.15								
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A					
3	Huskie Premix	2.05	EC	0.216	lb ai/a	Fall	A	1.7 ef	5.7 bc	0.0 c	85.0 cd	100.0 a
	----pyrasulfotole	0.3		0.0316								
	----bromoxynil	1.75		0.184								
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A					
4	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	A	0.0 f	3.3 bc	4.7 c	91.0 a-d	100.0 a
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A					
5	Huskie Premix	2.05	EC	0.216	lb ai/a	Fall	A	4.0 e	4.0 bc	8.7 c	82.3 d	100.0 a
	----pyrasulfotole	0.3		0.0316								
	----bromoxynil	1.75		0.184								
	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A					
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	A	20.4 a	51.1 a	49.4 a	100.0 a	100.0 a
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
7	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	A	10.0 c	0.0 c	6.3 c	100.0 a	100.0 a
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	A					
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A					
8	Huskie Premix	2.05	EC	0.154	lb ai/a	Fall	A	17.3 b	50.0 a	40.0 b	100.0 a	100.0 a
	----pyrasulfotole	0.3		0.0225								
	----bromoxynil	1.75		0.131								
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
9	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	A	9.0 cd	0.0 c	4.7 c	96.7 ab	100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	Fall	A					
10	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	A	7.0 d	0.0 c	5.7 c	96.7 ab	95.7 a
	Starane Ultra...fluroxypyr	2.8	EC	0.109	lb ae/a	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	Fall	A					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,2,3

University of Delaware

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
	Weed Code										HLOUM	LAMAM
	Crop Code							TRZAW	TRZAW	TRZAW		
	Weed or Crop Name							Winter	Winter	Winter	Jagged	Henbit
	Weed or Crop Name							Wheat	Wheat	Wheat	Chickwd	
	Rating Data Type							Stunting	Stunting	Stunting	Control	Control
	Rating Unit							%	%	%	%	%
	Rating Date							12/28/13	04/04/14	04/18/14	04/18/14	04/18/14
11	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	B		8.0 bc	2.3 c	88.3 bcd	83.3 b
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	Spring	B					
12	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	B		10.7 b	8.7 c	95.0 abc	65.0 c
	Starane Ultra...fluroxypyr	2.8	EC	0.109	lb ae/a	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	Spring	B					
	LSD P=.05							2.92	8.22	8.85	10.67	6.06
	Standard Deviation							1.70	4.84	5.21	6.30	3.58
	CV							24.41	42.98	47.95	7.42	4.12
	Replicate F							2.375	2.184	1.630	7.836	1.761
	Replicate Prob(F)							0.1232	0.1375	0.2198	0.0027	0.1953
	Treatment F							56.235	44.643	29.081	57.226	201.871
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001

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Weed Code							HLOUM	LAMAM	
Crop Code									TRZAW
Weed or Crop Name							Jagged	Henbit	Winter
Weed or Crop Name							Chickwd		Wheat
Rating Data Type							Control	Control	Yield
Rating Unit							%	%	Bu/A
Rating Date							05/09/14	05/09/14	07/14/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Untreated Check							63.3 a	66.7 a	29.4 a
2	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	A	100.0 a	89.0 a	38.0 a
	----pyrasulfotole	0.3		0.0258						
	----bromoxynil	1.75		0.15						
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A			
3	Huskie Premix	2.05	EC	0.216	lb ai/a	Fall	A	66.7 a	66.7 a	37.6 a
	----pyrasulfotole	0.3		0.0316						
	----bromoxynil	1.75		0.184						
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A			
4	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	A	63.3 a	66.7 a	38.2 a
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A			
5	Huskie Premix	2.05	EC	0.216	lb ai/a	Fall	A	100.0 a	100.0 a	37.1 a
	----pyrasulfotole	0.3		0.0316						
	----bromoxynil	1.75		0.184						
	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Fall	A			
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A			
6	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	A	96.7 a	100.0 a	29.6 a
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	A			
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A			
7	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	A	100.0 a	94.0 a	38.6 a
	----pyrasulfotole	0.3		0.035						
	----bromoxynil	1.75		0.205						
	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	A			
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	A			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A			
8	Huskie Premix	2.05	EC	0.154	lb ai/a	Fall	A	100.0 a	100.0 a	35.0 a
	----pyrasulfotole	0.3		0.0225						
	----bromoxynil	1.75		0.131						
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	A			
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A			
9	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	A	100.0 a	100.0 a	41.5 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A			
	30% Urea Ammonium Nitrate	100	L	2	% v/v	Fall	A			
10	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	A	96.7 a	89.3 a	40.6 a
	Starane Ultra...fluroxypyr	2.8	EC	0.109	lb ae/a	Fall	A			
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A			
	30% Urea Ammonium Nitrate	100	L	2	% v/v	Fall	A			

University of Delaware

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	HLOUM	LAMAM	TRZAW
	Weed Code							HLOUM	LAMAM	
	Crop Code									TRZAW
	Weed or Crop Name							Jagged	Henbit	Winter
	Weed or Crop Name							Chickwd		Wheat
	Rating Data Type							Control	Control	Yield
	Rating Unit							%	%	Bu/A
	Rating Date							05/09/14	05/09/14	07/14/14
11	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	B	100.0 a	85.0 a	34.8 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B			
	30% Urea Ammonium Nitrate	100	L	2	% v/v	Spring	B			
12	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	B	100.0 a	94.0 a	37.2 a
	Starane Ultra...fluroxypyr	2.8	EC	0.109	lb ae/a	Spring	B			
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B			
	30% Urea Ammonium Nitrate	100	L	2	% v/v	Spring	B			
	LSD P=.05							49.67	52.75	8.85
	Standard Deviation							29.33	31.15	5.23
	CV							32.39	35.56	14.33
	Replicate F							0.003	0.020	7.507
	Replicate Prob(F)							0.9968	0.9801	0.0033
	Treatment F							0.872	0.569	1.563
	Treatment Prob(F)							0.5780	0.8335	0.1791

University of Delaware

POST Control of ALS-Resistant Common Chickweed in Winter Wheat

Trial ID: SG8-14 Cooperator: DuPont
Location: Felton Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.

Crop 1: Winter Wheat TRZAW
Planting Date: 10/21/13
Emergence Date: 10/31/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION

	A	B
Application Date:	11/22/13	04/02/14
Time of Day:	1:45 pm	11:00 am
Application Method:	Spray	Spray
Application Timing:	Fall	Spring
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	65 F	56 F
% Relative Humidity:	80	64
Wind Velocity, Unit:	7 mph	6 mph
Wind Direction:	Southwest	East
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	63 F	57 F
Soil Surf. Moisture:	Dry	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	100	100

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	TRZAW	TRZAW
Growth Stage:	2 collar	2 tiller
Height, Unit:	4 in	4 in
Crop Health:	Good	Fair

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	LAMAM	LAMAM
Growth Stage:	0-2 leaf	vegetative
Height, Unit:	1 in	2.5 in
Density,Unit:	4-40 m2	0-5 m2
Weed 2 Code:	STEME	STEME
Growth Stage:	2-6 leaf	EaFlowr
Height, Unit:	1 in	5 in
Density,Unit:	40-120 m2	15 m2

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Trial Comments

04/02/14: Henbit density quite variable.

05/02/14: Due to variability in henbit density it was not rated. In treatments 6 and 7 leaves were at different lengths (ragged look to the wheat) but no stunting was observed. Cornflower was observed in treatments 5 and 11 (only 1 to 2 plants).

University of Delaware

POST Control of ALS-Resistant Common Chickweed in Winter Wheat

Trial ID: SG8-14 Cooperator: DuPont
Location: Felton Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW Winter Wheat Stunting % 04/02/14	LAMAM Henbit Control % 04/02/14	STEME Common Chickwd Control % 04/02/14	TRZAW Winter Wheat Stunting % 04/09/14	TRZAW Winter Wheat Chloross % 04/09/14
1	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	3.3 b		15.5 c	0.0 d	0.0 d
	----thifensulfuron	33		0.0154								
	----tribenuron	17		.00796								
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
2	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	25.0 a	100.0 a	100.0 a	4.0 bcd	0.0 d
	----thifensulfuron	33		0.0154								
	----tribenuron	17		.00796								
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
3	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	26.7 a	100.0 a	100.0 a	13.3 a	0.0 d
	----thifensulfuron	33		0.0154								
	----tribenuron	17		.00796								
	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
4	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	2.3 b	74.6 b	63.3 b	3.3 bcd	0.0 d
	----thifensulfuron	33		0.0154								
	----tribenuron	17		.00796								
	Starane Ultra...fluroxypyr	2.8	EC	0.0875	lb ae/a	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
5	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B				0.0 d	0.0 d
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
6	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B				4.7 bcd	18.3 a
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B					
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
7	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B				4.7 bcd	16.7 a
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B					
	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
8	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B				5.7 bc	15.7 ab
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B					
	Metribuzin.....metribuzin	75	DF	0.28	lb ai/a	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
9	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B				0.0 d	10.7 bc
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B					
	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
10	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B				2.3 cd	5.7 c
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B					
	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Spring	B					
	MCPA Ester 4	3.7	EC	0.462	lb ae/a	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,2,3,6,7

University of Delaware

Weed Code								LAMAM	STEME		
Crop Code							TRZAW			TRZAW	TRZAW
Weed or Crop Name							Winter	Henbit	Common	Winter	Winter
Weed or Crop Name							Wheat		Chickwd	Wheat	Wheat
Rating Data Type							Stunting	Control	Control	Stunting	Chloross
Rating Unit							%	%	%	%	%
Rating Date							04/02/14	04/02/14	04/02/14	04/09/14	04/09/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
11	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B			8.0 ab	9.0 c
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B				
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Spring	B				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B				
12	Untreated Check							0.6 b	2.6 c	2.6 c	0.0 d	0.0 d
LSD P=.05								10.26	19.91	16.65	5.63	5.55
Standard Deviation								5.32	8.78	8.34	3.32	3.28
CV								45.9	12.68	14.81	86.67	51.73
Replicate F								0.358	1.181	2.470	1.049	0.054
Replicate Prob(F)								0.7115	0.3953	0.1650	0.3670	0.9472
Treatment F								18.102	82.515	90.793	4.291	15.368
Treatment Prob(F)								0.0009	0.0005	0.0001	0.0018	0.0001

Weed Code									STEME
Crop Code								TRZAW	
Weed or Crop Name								Winter	Common
Weed or Crop Name								Wheat	Chickwd
Rating Data Type								Stunting	Control
Rating Unit								%	%
Rating Date								05/02/14	05/02/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
1	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	3.3 bcd	40.0 e
	----thifensulfuron	33		0.0154					
	----tribenuron	17		.00796					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
2	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	4.7 bc	95.7 a
	----thifensulfuron	33		0.0154					
	----tribenuron	17		.00796					
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Fall	A		
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
3	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	8.7 a	99.0 a
	----thifensulfuron	33		0.0154					
	----tribenuron	17		.00796					
	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Fall	A		
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
4	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	6.2 ab	58.3 d
	----thifensulfuron	33		0.0154					
	----tribenuron	17		.00796					
	Starane Ultra...fluroxypyr	2.8	EC	0.0875	lb ae/a	Fall	A		
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
5	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B	4.7 bc	40.0 e
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
6	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B	0.0 d	96.7 a
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B		
	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
7	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B	0.0 d	100.0 a
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B		
	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
8	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B	0.0 d	100.0 a
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B		
	Metribuzin.....metribuzin	75	DF	0.28	lb ai/a	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
9	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B	0.0 d	67.7 cd
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B		
	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
10	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B	1.7 cd	79.3 bc
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B		
	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Spring	B		
	MCPA Ester 4	3.7	EC	0.462	lb ae/a	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		

University of Delaware

Weed Code								STEME
Crop Code							TRZAW	
Weed or Crop Name							Winter	Common
Weed or Crop Name							Wheat	Chickwd
Rating Data Type							Stunting	Control
Rating Unit							%	%
Rating Date							05/02/14	05/02/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
11	Harmony XP.....thifensulfuron	75	SG	0.0155	lb ai/a	Spring	B	0.0 d	80.0 b
	Express XP.....tribenuron	75	SG	0.0078	lb ai/a	Spring	B		
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
12	Untreated Check							0.0 d	0.0 f
LSD P=.05								3.89	12.14
Standard Deviation								2.28	7.15
CV								93.88	10.01
Replicate F								1.289	1.194
Replicate Prob(F)								0.2974	0.3227
Treatment F								5.222	58.786
Treatment Prob(F)								0.0007	0.0001

University of Delaware

PRE & POST Control of ALS-Resistant Common Chickweed in Winter Wheat

Trial ID: SG9-14 Cooperator: DuPont
Location: Chesterville Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.

Crop 1: Winter Wheat TRZAW
Planting Date: 10/24/13 Planting Method: Broadcast- Spinner Depth: 0.25 in
Rate: 30 Sd/ft2
Soil Moisture: Moist Emergence Date: 11/02/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Minimum tillage

Trial Initiation Comments: Wheat was spun on (broadcast seeded) and incorporated with turbo-till equipment.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	10/24/13	Roundup WeatherMax	4.5	AS	32	fl oz/A

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION

	A	B	C
Application Date:	10/24/13	12/03/13	04/02/14
Time of Day:	12:00 pm	11:45 am	5:00 pm
Application Method:	Spray	Spray	Spray
Application Timing:	PRE	Fall	Spring
Applic. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	52 F	55 F	66 F
% Relative Humidity:	47	47	45
Wind Velocity, Unit:	6 mph	2 mph	2 mph
Wind Direction:	Northwest	Northwest	East
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	50 F	54 F	65 F
Soil Surf. Moisture:	Moist	Moist	Moist
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry
% Cloud Cover:	30	0	5

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	TRZAW	TRZAW	TRZAW
Growth Stage:		2 leaf	1-2 tiller
Height, Unit:		3 in	4 in
Crop Health:		Good	Good

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	LAMAM	LAMAM	LAMAM
Growth Stage:		cotyledon	
Height, Unit:		0.2 in	
Density,Unit:		0-1 m2	
Weed 2 Code:	STEME	STEME	STEME
Growth Stage:		cotyledon	
Height, Unit:		0.3 in	
Density,Unit:		0-1 m2	

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2

Trial Comments

12/02/13: Fair stand of wheat (turbo-roll plnated) 2-4" tall, 1-2 tellers. No weeds observed in UTC. No apparent injury from any treatment.

05/02/14: Weed control was excellent for all treatments. No weeds observed in untreated checks. Stand of wheat is inconsistant due to planting method so ratings for injury were inconsistant.

University of Delaware

PRE & POST Control of ALS-Resistant Common Chickweed in Winter Wheat

Trial ID:	SG9-14	Cooperator:	DuPont
Location:	Chesterville	Investigator:	Mark VanGessel

Crop Code	TRZAW
Weed or Crop Name	Winter
Weed or Crop Name	Wheat
Rating Data Type	Stunting
Rating Unit	%
Rating Date	05/02/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Finesse Premix	75	DF	0.0234	lb ai/a	PRE	A	16.7 b
	----chlorsulfuron	62.5		0.0195				
	----metsulfuron	12.5		0.0039				
	Abundit.....glyphosate	3	SC	0.75	lb ae/a	PRE	A	
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	C	
2	Finesse Premix	75	DF	0.0234	lb ai/a	PRE	A	28.3 a
	----chlorsulfuron	62.5		0.0195				
	----metsulfuron	12.5		0.0039				
	Abundit.....glyphosate	3	SC	0.75	lb ae/a	PRE	A	
	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Fall	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	C	
3	Finesse Premix	75	DF	0.0234	lb ai/a	PRE	A	7.3 cd
	----chlorsulfuron	62.5		0.0195				
	----metsulfuron	12.5		0.0039				
	Abundit.....glyphosate	3	SC	0.75	lb ae/a	PRE	A	
	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Fall	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	C	
4	Finesse Premix	75	DF	0.0234	lb ai/a	PRE	A	7.0 cd
	----chlorsulfuron	62.5		0.0195				
	----metsulfuron	12.5		0.0039				
	Abundit.....glyphosate	3	SC	0.75	lb ae/a	PRE	A	
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Fall	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	C	
5	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	B	3.5 cd
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	C	

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Average=1

University of Delaware

Crop Code	TRZAW
Weed or Crop Name	Winter
Weed or Crop Name	Wheat
Rating Data Type	Stunting
Rating Unit	%
Rating Date	05/02/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
6	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	B	11.0 bc
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Fall	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	C	
7	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	B	5.7 cd
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Fall	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	C	
8	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	B	0.0 d
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Fall	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	C	
9	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	B	3.5 cd
	----chlorsulfuron	62.5		0.0156				
	----metsulfuron	12.5		.00312				
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	C	
10	Harmony Extra SG Premix	50	SG	0.0156	lb ai/a	Fall	B	8.5 c
	----thifensulfuron	33		0.0103				
	----tribenuron	17		0.0053				
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	C	
11	Harmony Extra SG Premix	50	SG	0.0156	lb ai/a	Fall	B	0.0 d
	----thifensulfuron	33		0.0103				
	----tribenuron	17		0.0053				
	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Fall	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	B	
	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	C	

University of Delaware

Crop Code	TRZAW
Weed or Crop Name	Winter
Weed or Crop Name	Wheat
Rating Data Type	Stunting
Rating Unit	%
Rating Date	05/02/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
12	Untreated Check							0.0 d

LSD P=.05	7.80
Standard Deviation	4.45
CV	58.4
Replicate F	0.165
Replicate Prob(F)	0.8496
Treatment F	10.115
Treatment Prob(F)	0.0001

University of Delaware

Wheat Safety to Metribuzin Timing

Trial ID: SG10-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Winter Wheat TRZAW Variety: USG3555
Planting Date: 10/28/13 Planting Method: Drilled Depth: 1 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Smooth
Soil Temperature: 66 F Soil Moisture: Moist Emergence Date: 11/04/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: FACTORIAL
Tillage Type: Disked Twice

MAINTENANCE

Field Prep./Maintenance: Untreated checks sprayed with Harmony Extra 50SG (0.9 oz/A) on 4-9-14.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.5 Texture: loamy sand
% Silt: 12 pH: 5.9
% Clay: 7 CEC: 4.5 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	10/29/13	11/05/13	11/20/13	03/11/14	04/01/14
Time of Day:	2:30 pm	11:00 am	2:15 pm	10:30 am	10:00 am
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	PRE	Spike	2-leaf	EaSpring	Spring
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	64 F	60 F	46 F	65 F	47 F
% Relative Humidity:	55	57	56	34	59
Wind Velocity, Unit:	3 mph	4 mph	6 mph	3 mph	1 mph
Wind Direction:	Northeast	East	Northeast	Northwest	North
Dew Presence (Y/N):	N	N	N	N	Y
Soil Temp., Unit:	63 F	59 F	45 F	64 F	45 F
Soil Surf. Moisture:	Dry	Dry	Moist	Moist	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist	Wet
Leaf Surf. Moisture:	N/A	Dry	Dry	Dry	Wet
% Cloud Cover:	35	50	20	80	15

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:		Spike	2-leaf	2-4 tiller	2-4 tiller
Height, Unit:		0.7 in	3.5 in	3 in	5 in
Crop Health:		Good	Good	Fair	F-Good

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APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	Backpack	Backpack	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	20 in	20 in	21 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2	CO2	CO2

Trial Comments

12/02/13: Injury for treatments 2 & 6 is combination of leaf burn and stunting. Other treatments only showing stunting.

12/28/13: Treatment 6 has about 15% leaf burn, but most evident is stunting. Treatment 2, 5, & 6 also are lighter colors (chlorotic) compared to untreated plots.

03/11/14: Wheat has suffered some goose damage; also has not yet resumed growth from severe winter.

04/06/14: Trt. 6 stand loss approximately 25%

04/19/14: plot 102,208,105,209,306,106,202, and 303 had stand loss. Trt 5 (105,209,306) only has stand loss in tire tracks. Untreated checks is showing signs of weed competition- not as tall or as much biomass as other plots at other trials.

05/09/14: Treatment 9 (untreated check) is stunted and showing stress from weed competition. At .094 rate- fall treatment (2) was better than early spring (3) and at early spring treatment 7 (higher rate) was better than treatment 3 (lower rate).

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Wheat Safety to Metribuzin Timing

Trial ID: SG10-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

Crop Code							TRZAW	TRZAW	TRZAW	TRZAW	TRZAW
Weed or Crop Name							Winter	Winter	Winter	Winter	Winter
Weed or Crop Name							Wheat	Wheat	Wheat	Wheat	Wheat
Rating Data Type							Injury	Injury	Stunting	Stunting	Stunting
Rating Unit							%	%	%	%	%
Rating Date							11/17/13	12/02/13	12/28/13	04/06/14	04/19/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	PRE	A	5.7 a	8.0 c	8.3 d	9.7 cd	9.0 de
	Nonionic Surfactant	100	L	0.25	% v/v	PRE	A					
	PRE application											
2	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	2-leaf	C		20.0 b	25.0 b	43.3 b	25.0 b
	Nonionic Surfactant	100	L	0.25	% v/v	2-leaf	C					
	EPOST - Fall (2lvs)											
3	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	EaSpring	D				3.3 d	6.7 def
	Nonionic Surfactant	100	L	0.25	% v/v	EaSpring	D					
	Spring - First N application											
4	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Spring	E					6.3 def
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E					
	Spring - After Green Up											
5	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	PRE	A	5.0 a	18.3 b	16.7 c	46.7 b	18.3 c
	Nonionic Surfactant	100	L	0.25	% v/v	PRE	A					
	PRE application											
6	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	2-leaf	C		31.7 a	43.3 a	76.7 a	63.3 a
	Nonionic Surfactant	100	L	0.25	% v/v	2-leaf	C					
	EPOST - Fall (2lvs)											
7	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	EaSpring	D				5.7 d	4.7 efg
	Nonionic Surfactant	100	L	0.25	% v/v	EaSpring	D					
	Spring - First N application											
8	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Spring	E					1.0 fg
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E					
	Spring - After Green Up											
9	Untreated Check								0.0 d	0.0 e	0.0 d	0.0 g
10	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Spike	B	7.0 a	10.7 c	8.0 d	20.0 c	11.7 d
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	B					
LSD P=.05								2.39	3.21	4.89	12.58	5.71
Standard Deviation								1.05	1.77	2.69	7.18	3.33
CV								17.9	11.96	15.91	27.99	22.8
Replicate F								2.800	1.726	2.338	1.837	0.659
Replicate Prob(F)								0.1736	0.2270	0.1468	0.1957	0.5294
Treatment F								2.800	116.527	99.908	43.187	95.238
Treatment Prob(F)								0.1736	0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=6

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW Winter Wheat Stunting % 05/09/14	TRZAW Winter Wheat HeadCt 5' row 05/30/14	TRZAW Winter Wheat HeadCt 5' row 05/30/14	TRZAW Winter Wheat Yield Bu/A 07/01/14
	Crop Code							TRZAW	TRZAW	TRZAW	TRZAW
	Weed or Crop Name							Winter	Winter	Winter	Winter
	Weed or Crop Name							Wheat	Wheat	Wheat	Wheat
	Rating Data Type							Stunting	HeadCt	HeadCt	Yield
	Rating Unit							%	5' row	5' row	Bu/A
	Rating Date							05/09/14	05/30/14	05/30/14	07/01/14
1	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	PRE	A	0.0 c	126.3 a	114.0 a	78.1 b
	Nonionic Surfactant	100	L	0.25	% v/v	PRE	A				
	PRE application										
2	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	2-leaf	C	9.0 b	113.0 a	100.7 a	78.2 b
	Nonionic Surfactant	100	L	0.25	% v/v	2-leaf	C				
	EPOST - Fall (2lvs)										
3	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	EaSpring	D	0.0 c	105.3 a	104.7 a	83.0 ab
	Nonionic Surfactant	100	L	0.25	% v/v	EaSpring	D				
	Spring - First N application										
4	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Spring	E	2.3 bc	109.3 a	105.7 a	81.1 ab
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E				
	Spring - After Green Up										
5	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	PRE	A	9.0 b	115.3 a	120.3 a	78.3 b
	Nonionic Surfactant	100	L	0.25	% v/v	PRE	A				
	PRE application										
6	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	2-leaf	C	56.7 a	85.0 a	104.0 a	64.9 c
	Nonionic Surfactant	100	L	0.25	% v/v	2-leaf	C				
	EPOST - Fall (2lvs)										
7	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	EaSpring	D	0.0 c	105.3 a	115.0 a	85.6 a
	Nonionic Surfactant	100	L	0.25	% v/v	EaSpring	D				
	Spring - First N application										
8	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Spring	E	0.0 c	117.0 a	112.0 a	80.5 ab
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	E				
	Spring - After Green Up										
9	Untreated Check							0.4 c	101.0 a	107.7 a	78.6 b
10	Metribuzin.....metribuzin	75	DF	0.094	lb ai/a	Spike	B	6.3 bc	108.3 a	126.7 a	81.9 ab
	Nonionic Surfactant	100	L	0.25	% v/v	Spike	B				
	LSD P=.05							7.27	28.46	33.38	6.93
	Standard Deviation							4.22	16.59	19.46	4.04
	CV							50.4	15.28	17.52	5.11
	Replicate F							0.340	6.952	3.796	3.037
	Replicate Prob(F)							0.7162	0.0058	0.0421	0.0730
	Treatment F							50.826	1.316	0.523	5.617
	Treatment Prob(F)							0.0001	0.2955	0.8392	0.0009

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Wheat Safety to Metribuzin Timing

Trial ID: SG10-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date						TRZAW Winter Wheat Injury % 11/17/13	TRZAW Winter Wheat Injury % 12/02/13	TRZAW Winter Wheat Stunting % 12/28/13	TRZAW Winter Wheat Stunting % 04/06/14	TRZAW Winter Wheat Stunting % 04/19/14
Trt Treatment No. Name	Form Form Conc Type	Rate Rate	Rate Unit	Grow Stg	Appl Code					
TABLE OF R MEANS Replicate 1							18.0	21.3	26.2	16.5
Replicate 2							19.3	22.5	37.0	15.9
Replicate 3							21.3	26.3	29.5	18.0
TABLE OF A (Metribuzin Rate) MEANS 1 Metribuzin.....metribuzin 1 Nonionic Surfactant	75 DF 100 L	0.094 0.25	lb ai/a % v/v	PRE PRE	A A		14.0 b	16.7 b	18.8 b	11.8 b
2 Metribuzin.....metribuzin 2 Nonionic Surfactant	75 DF 100 L	0.187 0.25	lb ai/a % v/v	PRE PRE	A A		25.0 a	30.0 a	43.0 a	21.8 a
LSD P=.05 Standard Deviation CV							1.72 1.72 8.84	2.76 2.76 11.85	5.70 6.27 20.28	3.12 3.57 21.25
TABLE OF B (Timing (Wheat Stage)) MEANS 1 PRE application							13.2 b	12.5 b	28.2 b	13.7 b
2 EPOST - Fall (2lvs)							25.8 a	34.2 a	60.0 a	44.2 a
3 Spring - First N application							.	.	4.5 c	5.7 c
4 Spring - After Green Up							.	.	.	3.7 c
LSD P=.05 Standard Deviation CV							2.44 1.72 8.84	3.90 2.76 11.85	8.06 6.27 20.28	4.42 3.57 21.25
TABLE OF A (Metribuzin Rate) B (Timing (Wheat Stage)) MEANS 1 Metribuzin.....metribuzin 1 Nonionic Surfactant 1 PRE application	75 DF 100 L	0.094 0.25	lb ai/a % v/v	PRE PRE	A A	5.7 a	8.0 a	8.3 d	9.7 c	9.0 d
2 Metribuzin.....metribuzin 2 Nonionic Surfactant 1 PRE application	75 DF 100 L	0.187 0.25	lb ai/a % v/v	PRE PRE	A A	5.0 a	18.3 a	16.7 c	46.7 b	18.3 c
1 Metribuzin.....metribuzin 1 Nonionic Surfactant 2 EPOST - Fall (2lvs)	75 DF 100 L	0.094 0.25	lb ai/a % v/v	PRE PRE	A A	.	20.0 a	25.0 b	43.3 b	25.0 b
2 Metribuzin.....metribuzin 2 Nonionic Surfactant 2 EPOST - Fall (2lvs)	75 DF 100 L	0.187 0.25	lb ai/a % v/v	PRE PRE	A A	.	31.7 a	43.3 a	76.7 a	63.3 a
1 Metribuzin.....metribuzin 1 Nonionic Surfactant 3 Spring - First N application	75 DF 100 L	0.094 0.25	lb ai/a % v/v	PRE PRE	A A	.	.	.	3.3 c	6.7 de
2 Metribuzin.....metribuzin 2 Nonionic Surfactant 3 Spring - First N application	75 DF 100 L	0.187 0.25	lb ai/a % v/v	PRE PRE	A A	.	.	.	5.7 c	4.7 de
1 Metribuzin.....metribuzin 1 Nonionic Surfactant 4 Spring - After Green Up	75 DF 100 L	0.094 0.25	lb ai/a % v/v	PRE PRE	A A	.	.	.	.	6.3 de
2 Metribuzin.....metribuzin 2 Nonionic Surfactant 4 Spring - After Green Up	75 DF 100 L	0.187 0.25	lb ai/a % v/v	PRE PRE	A A	.	.	.	.	1.0 e

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Crop Code							TRZAW	TRZAW	TRZAW	TRZAW	TRZAW
Weed or Crop Name							Winter	Winter	Winter	Winter	Winter
Weed or Crop Name							Wheat	Wheat	Wheat	Wheat	Wheat
Rating Data Type							Injury	Injury	Stunting	Stunting	Stunting
Rating Unit							%	%	%	%	%
Rating Date							11/17/13	12/02/13	12/28/13	04/06/14	04/19/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
LSD P=.05								2.39	3.44	5.52	11.40	6.25
Standard Deviation								1.05	1.72	2.76	6.27	3.57
CV								19.76	8.84	11.85	20.28	21.25

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							TRZAW Winter Wheat Stunting % 05/09/14	TRZAW Winter Wheat HeadCt 5' row 05/30/14	TRZAW Winter Wheat HeadCt 5' row 05/30/14	TRZAW Winter Wheat Yield Bu/A 07/01/14
Trt Treatment No. Name	Form Form Conc Type	Rate	Rate Unit	Grow Stg	Appl Code					
TABLE OF R MEANS Replicate 1							10.5	125.5	128.4	78.2
Replicate 2							8.8	98.4	95.3	81.3
Replicate 3							9.6	104.9	105.0	76.6
TABLE OF A (Metribuzin Rate) MEANS										
1 Metribuzin.....metribuzin	75 DF	0.094	lb ai/a	PRE	A		2.8 b	113.5 a	106.3 a	80.1 a
1 Nonionic Surfactant	100 L	0.25	% v/v	PRE	A					
2 Metribuzin.....metribuzin	75 DF	0.187	lb ai/a	PRE	A		16.4 a	105.7 a	112.8 a	77.3 a
2 Nonionic Surfactant	100 L	0.25	% v/v	PRE	A					
LSD P=.05 Standard Deviation CV							4.05 4.62 48.02	13.70 15.65 14.28	12.70 14.51 13.24	3.27 3.74 4.75
TABLE OF B (Timing (Wheat Stage)) MEANS										
1 PRE application							4.5 b	120.8 a	117.2 a	78.2 b
2 EPOST - Fall (2lvs)							32.8 a	99.0 a	102.3 a	71.5 c
3 Spring - First N application							0.0 b	105.3 a	109.8 a	84.3 a
4 Spring - After Green Up							1.2 b	113.2 a	108.8 a	80.8 ab
LSD P=.05 Standard Deviation CV							5.72 4.62 48.02	19.38 15.65 14.28	17.96 14.51 13.24	4.63 3.74 4.75
TABLE OF A (Metribuzin Rate) B (Timing (Wheat Stage)) MEANS										
1 Metribuzin.....metribuzin	75 DF	0.094	lb ai/a	PRE	A		0.0 c	126.3 a	114.0 a	78.1 b
1 Nonionic Surfactant	100 L	0.25	% v/v	PRE	A					
1 PRE application										
2 Metribuzin.....metribuzin	75 DF	0.187	lb ai/a	PRE	A		9.0 b	115.3 a	120.3 a	78.3 b
2 Nonionic Surfactant	100 L	0.25	% v/v	PRE	A					
1 PRE application										
1 Metribuzin.....metribuzin	75 DF	0.094	lb ai/a	PRE	A		9.0 b	113.0 a	100.7 a	78.2 b
1 Nonionic Surfactant	100 L	0.25	% v/v	PRE	A					
2 EPOST - Fall (2lvs)										
2 Metribuzin.....metribuzin	75 DF	0.187	lb ai/a	PRE	A		56.7 a	85.0 a	104.0 a	64.9 c
2 Nonionic Surfactant	100 L	0.25	% v/v	PRE	A					
2 EPOST - Fall (2lvs)										
1 Metribuzin.....metribuzin	75 DF	0.094	lb ai/a	PRE	A		0.0 c	105.3 a	104.7 a	83.0 ab
1 Nonionic Surfactant	100 L	0.25	% v/v	PRE	A					
3 Spring - First N application										
2 Metribuzin.....metribuzin	75 DF	0.187	lb ai/a	PRE	A		0.0 c	105.3 a	115.0 a	85.6 a
2 Nonionic Surfactant	100 L	0.25	% v/v	PRE	A					
3 Spring - First N application										
1 Metribuzin.....metribuzin	75 DF	0.094	lb ai/a	PRE	A		2.3 bc	109.3 a	105.7 a	81.1 ab
1 Nonionic Surfactant	100 L	0.25	% v/v	PRE	A					
4 Spring - After Green Up										
2 Metribuzin.....metribuzin	75 DF	0.187	lb ai/a	PRE	A		0.0 c	117.0 a	112.0 a	80.5 ab
2 Nonionic Surfactant	100 L	0.25	% v/v	PRE	A					
4 Spring - After Green Up										

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Crop Code							TRZAW	TRZAW	TRZAW	TRZAW
Weed or Crop Name							Winter	Winter	Winter	Winter
Weed or Crop Name							Wheat	Wheat	Wheat	Wheat
Rating Data Type							Stunting	HeadCt	HeadCt	Yield
Rating Unit							%	5' row	5' row	Bu/A
Rating Date							05/09/14	05/30/14	05/30/14	07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
LSD P=.05								8.09	27.40	25.40	6.54
Standard Deviation								4.62	15.65	14.51	3.74
CV								48.02	14.28	13.24	4.75

Randomized Complete Block (RCB) AOV For TRZAW Winter Wheat Injury % 11/17/13 Missing factor B levels prevents analyzing column 1 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	8	16.888889			
Replicate	2	6.222222	3.111111	2.800	0.1736
Treatment	2	6.222222	3.111111	2.800	0.1736
ERROR	4	4.444444	1.111111		

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Injury % 12/02/13 Analysis will skip factor level B3 for column 2 - all B3 treatments are missing; Analysis will skip factor level B4 for column 2 - all B4 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	11	885.000000				
R	2	21.500000	10.750000	3.617	0.0932	
A	1	363.000000	363.000000	122.131	0.0001	1.7
B	1	481.333333	481.333333	161.944	0.0001	2.4
AB	1	1.333333	1.333333	0.449	0.5279	3.4
ERROR	6	17.833333	2.972222			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 12/28/13 Analysis will skip factor level B3 for column 3 - all B3 treatments are missing; Analysis will skip factor level B4 for column 3 - all B4 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	11	2116.666667				
R	2	54.166667	27.083333	3.545	0.0963	
A	1	533.333333	533.333333	69.818	0.0002	2.8
B	1	1408.333333	1408.333333	184.364	0.0001	3.9
AB	1	75.000000	75.000000	9.818	0.0202	5.5
ERROR	6	45.833333	7.638889			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 04/06/14 Analysis will skip factor level B4 for column 4 - all B4 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	17	13797.777778				
R	2	369.444444	184.722222	4.706	0.0363	
A	1	2640.222222	2640.222222	67.257	0.0001	5.7
B	2	9307.444444	4653.722222	118.549	0.0001	8.1
AB	2	1088.111111	544.055556	13.859	0.0013	11.4
ERROR	10	392.555556	39.255556			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 04/19/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	8911.958333				
R	2	19.083333	9.541667	0.749	0.4907	
A	1	610.041667	610.041667	47.914	0.0001	3.1
B	3	6331.125000	2110.375000	165.752	0.0001	4.4
AB	3	1773.458333	591.152778	46.430	0.0001	6.2
ERROR	14	178.250000	12.732143			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 05/09/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	8223.625000				
R	2	12.250000	6.125000	0.287	0.7550	
A	1	1107.041667	1107.041667	51.820	0.0001	4.0
B	3	4374.458333	1458.152778	68.256	0.0001	5.7
AB	3	2430.791667	810.263889	37.928	0.0001	8.1
ERROR	14	299.083333	21.363095			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat HeadCt 5' row 05/30/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	9699.833333				
R	2	3209.083333	1604.541667	6.552	0.0098	
A	1	368.166667	368.166667	1.503	0.2404	13.7
B	3	1616.833333	538.944444	2.201	0.1333	19.4
AB	3	1077.500000	359.166667	1.467	0.2663	27.4
ERROR	14	3428.250000	244.875000			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat HeadCt 5' row 05/30/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	8543.958333				
R	2	4636.583333	2318.291667	11.017	0.0013	
A	1	260.041667	260.041667	1.236	0.2850	12.7
B	3	664.125000	221.375000	1.052	0.4005	18.0
AB	3	37.125000	12.375000	0.059	0.9805	25.4
ERROR	14	2946.083333	210.434524			

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FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Yield Bu/A 07/01/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	1085.298248				
R	2	93.565224	46.782612	3.353	0.0646	
A	1	45.327794	45.327794	3.249	0.0930	3.3
B	3	521.964833	173.988278	12.471	0.0003	4.6
AB	3	229.119314	76.373105	5.474	0.0106	6.5
ERROR	14	195.321082	13.951506			

University of Delaware

Soybean Re-Crop Tolerance to Finesse in Winter Wheat

Trial ID: SG11-14 Cooperator: Mark VanGessel
Location: Field #18 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: Field #18 City: Georgetown State: DE Zip Code: 19947
Investigator: Mark VanGessel

TRIAL LOCATION

City: Georgetown
State/Prov.: DE

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Winter Wheat TRZAW Variety: USG3555
Planting Date: 10/28/13 Planting Method: Drilled Depth: 1 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Smooth
Soil Temperature: 66 F Soil Moisture: Moist Emergence Date: 11/04/13

Crop 2: Soybean GLXMA Variety: Plenish = P93Y42
Planting Date: 07/14/14 Planting Method: Drilled- Cone System Depth: 1 in
Rate: 220000 Sd/A Row Spacing: 14 in Seed Bed: Firm/Trashy
Soil Temperature: 90 F Soil Moisture: Moist Emergence Date: 07/19/14

Crop 3: Soybean GLXMA Variety: STS = SS4725 NSR2
Planting Date: 07/14/14 Planting Method: Drilled- Cone System Depth: 1 in
Rate: 220000 Sd/A Row Spacing: 14 in Seed Bed: Firm/Trashy
Soil Temperature: 90 F Soil Moisture: Moist Emergence Date: 07/19/14

Crop 4: Soybean GLXMA Variety: Non-STS = Dynagro 39R43
Planting Date: 07/14/14 Planting Method: Drilled- Cone System Depth: 1 in
Rate: 220000 Sd/A Row Spacing: 14 in Seed Bed: Firm/Trashy
Soil Temperature: 90 F Soil Moisture: Moist Emergence Date: 07/19/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 4
Site Type: Field Study Design: FACTORIAL
Tillage Type: No Tillage/Wheat Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	12/02/13	Harmony Extra	50	SG	0.9	oz wt/A
2.	12/02/13	Nonionic Surfactant			0.25	% v/v
3.	12/02/13	30% UAN			1	% v/v
4.	07/14/14	Roundup PowerMax	4.5	AS	1	qt/A
5.	07/14/14	Zidua	85	WG	2	oz wt/A

SOIL DESCRIPTION

% Sand: 81 Texture: loamy sand
% Silt: 12
% Clay: 7 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	11/20/13
Time of Day:	3:20 pm
Application Method:	Spray
Application Timing:	Fall
Applic. Placement:	Brdcst
Air Temp., Unit:	46 F
% Relative Humidity:	56
Wind Velocity, Unit:	6 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	45 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
% Cloud Cover:	20

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	TRZAW
Growth Stage:	2 leaf
Height, Unit:	3.5 in
Crop 2 Code:	GLXMA
Crop 3 Code:	GLXMA
Crop 4 Code:	GLXMA

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

5/09/14: Weed control was good to excellent for all treatments. Wheat was severly stunted by nitrogen stress, so crop injury or stunting not rated, but no treatment appeared to be causing injury.

7/30/14: Planter problems in several plots on left side of trial especially. the following represent half plots where a full stand is 4 passes wide instead of 8 or severe gaps exist and bunching of beans follow: 101, 103, 109, 111, 205, 210, 302, 403. 404 is a low spot.

8/13/14: Rated at 3rd trifoliate.

11/21/14: As noted on July 30, some plots had poor stands and yield was not recorded in those plots. Only one rep for each treatment was affected except treatments 1 and 3 where two replicates were not usable.

University of Delaware

Soybean Re-Crop Tolerance to Finesse in Winter Wheat

Trial ID: SG11-14 Cooperator: Mark VanGessel
Location: Field #18 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW Winter Wheat Stunting % 12/02/13	TRZAW Winter Wheat Stunting % 04/06/14	TRZAW Winter Wheat Stunting % 04/18/14	GLXMA Soybean Stunting % 07/30/14	GLXMA Soybean Stunting % 08/05/14	GLXMA Soybean Stunting % 08/13/14
1	Plenish Soybean							4.3 c	1.7 b	1.3 d	2.5 c	0.0 b	0.0 c
	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A						
	----chlorsulfuron	62.5		0.0156									
	----metsulfuron	12.5		.00312									
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
2	Plenish Soybean							9.3 b	4.7 b	9.3 bc	1.8 c	1.3 b	0.0 c
	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A						
	----chlorsulfuron	62.5		0.0313									
	----metsulfuron	12.5		.00625									
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
3	Plenish Soybean							12.0 ab	14.0 a	16.3 a	13.0 a	9.3 a	5.0 ab
	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A						
	----chlorsulfuron	62.5		0.0625									
	----metsulfuron	12.5		0.0125									
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
4	Plenish Soybean							0.0 d	0.0 b	0.0 d	0.0 c	0.0 b	0.0 c
	Untreated Check												
5	STS Soybean							4.3 c		1.8 d	0.0 c	0.0 b	0.0 c
	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A						
	----chlorsulfuron	62.5		0.0156									
	----metsulfuron	12.5		.00312									
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
6	STS Soybean							11.8 ab		9.8 bc	5.5 bc	4.8 ab	3.0 bc
	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A						
	----chlorsulfuron	62.5		0.0313									
	----metsulfuron	12.5		.00625									
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
7	STS Soybean							11.5 ab		13.8 ab	9.8 ab	9.3 a	6.8 a
	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A						
	----chlorsulfuron	62.5		0.0625									
	----metsulfuron	12.5		0.0125									
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
8	STS Soybean							0.0 d		0.0 d	0.0 c	0.0 b	0.0 c
	Untreated Check												
9	Non-STS Soybean							3.5 c		3.0 d	0.0 c	0.0 b	0.0 c
	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A						
	----chlorsulfuron	62.5		0.0156									
	----metsulfuron	12.5		.00312									
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
10	Non-STS Soybean							11.0 ab		8.5 c	0.0 c	1.8 b	0.0 c
	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A						
	----chlorsulfuron	62.5		0.0313									
	----metsulfuron	12.5		.00625									
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Average=11

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Crop Code							TRZAW	TRZAW	TRZAW	GLXMA	GLXMA	GLXMA
Weed or Crop Name							Winter	Winter	Winter	Soybean	Soybean	Soybean
Weed or Crop Name							Wheat	Wheat	Wheat			
Rating Data Type							Stunting	Stunting	Stunting	Stunting	Stunting	Stunting
Rating Unit							%	%	%	%	%	%
Rating Date							12/02/13	04/06/14	04/18/14	07/30/14	08/05/14	08/13/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code						
11	Non-STS Soybean							12.8 a		16.3 a	9.8 ab	10.0 a	8.3 a
	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A						
	----chlorsulfuron	62.5		0.0625									
	----metsulfuron	12.5		0.0125									
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
12	Non-STS Soybean							0.0 d		0.0 d	0.0 c	0.0 b	0.0 c
	Untreated Check												
LSD P=.05								3.40	4.94	4.74	6.68	5.63	3.61
Standard Deviation								2.37	2.47	3.29	4.65	3.91	2.51
CV								35.38	48.63	49.54	131.95	129.52	130.78
Replicate F								2.088	1.527	1.555	0.866	1.406	0.858
Replicate Prob(F)								0.1207	0.2910	0.2188	0.4685	0.2585	0.4727
Treatment F								19.177	19.177	15.221	4.211	4.485	5.993
Treatment Prob(F)								0.0001	0.0018	0.0001	0.0006	0.0004	0.0001

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							GLXMA Soybean Stunting % 08/20/14	GLXMA Soybean Yield Bu/A 11/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
1	Plenish Soybean							0.0 b	28.9 de
	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A		
	----chlorsulfuron	62.5		0.0156					
	----metsulfuron	12.5		.00312					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
2	Plenish Soybean							0.0 b	23.6 f
	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A		
	----chlorsulfuron	62.5		0.0313					
	----metsulfuron	12.5		.00625					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
3	Plenish Soybean							6.8 a	28.2 ef
	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A		
	----chlorsulfuron	62.5		0.0625					
	----metsulfuron	12.5		0.0125					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
4	Plenish Soybean							0.0 b	23.6 f
	Untreated Check								
5	STS Soybean							0.0 b	37.7 abc
	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A		
	----chlorsulfuron	62.5		0.0156					
	----metsulfuron	12.5		.00312					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
6	STS Soybean							3.5 ab	33.9 bc
	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A		
	----chlorsulfuron	62.5		0.0313					
	----metsulfuron	12.5		.00625					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
7	STS Soybean							6.5 a	37.0 abc
	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A		
	----chlorsulfuron	62.5		0.0625					
	----metsulfuron	12.5		0.0125					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
8	STS Soybean							0.0 b	38.8 a
	Untreated Check								
9	Non-STS Soybean							0.0 b	38.1 ab
	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A		
	----chlorsulfuron	62.5		0.0156					
	----metsulfuron	12.5		.00312					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
10	Non-STS Soybean							1.8 b	33.1 cd
	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A		
	----chlorsulfuron	62.5		0.0313					
	----metsulfuron	12.5		.00625					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		

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Crop Code							GLXMA	GLXMA
Weed or Crop Name							Soybean	Soybean
Weed or Crop Name								
Rating Data Type							Stunting	Yield
Rating Unit							%	Bu/A
Rating Date							08/20/14	11/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
11	Non-STS Soybean							6.0 a	33.7 bc
	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A	
	----chlorsulfuron	62.5		0.0625				
	----metsulfuron	12.5		0.0125				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
12	Non-STS Soybean							0.0 b	34.0 bc
	Untreated Check								
LSD P=.05								3.63	4.76
Standard Deviation								2.52	3.26
CV								123.53	10.01
Replicate F								3.646	3.007
Replicate Prob(F)								0.0224	0.0501
Treatment F								5.094	10.798
Treatment Prob(F)								0.0001	0.0001

University of Delaware

Soybean Re-Crop Tolerance to Finesse in Winter Wheat

Trial ID: SG11-14 Cooperator: Mark VanGessel
Location: Field #18 Investigator: Mark VanGessel

Crop Code							TRZAW	TRZAW	TRZAW	GLXMA	GLXMA	GLXMA
Weed or Crop Name							Winter	Winter	Winter	Soybean	Soybean	Soybean
Weed or Crop Name							Wheat	Wheat	Wheat			
Rating Data Type							Stunting	Stunting	Stunting	Stunting	Stunting	Stunting
Rating Unit							%	%	%	%	%	%
Rating Date							12/02/13	04/06/14	04/18/14	07/30/14	08/05/14	08/13/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code						
TABLE OF R MEANS													
Replicate 1								5.3		8.3	3.3	4.1	2.7
Replicate 2								7.0		5.8	5.3	4.2	2.3
Replicate 3								7.0		5.8	2.8	1.4	1.6
Replicate 4								7.5		6.8	2.6	2.4	1.2
TABLE OF A (Soybean Variety) MEANS													
1	Plenish Soybean							6.4 a		6.7 a	4.3 a	2.6 a	1.3 a
2	STS Soybean							6.9 a		6.3 a	3.8 a	3.5 a	2.4 a
3	Non-STS Soybean							6.8 a		6.9 a	2.4 a	2.9 a	2.1 a
LSD P=.05								1.70		2.37	3.34	2.81	1.80
Standard Deviation								2.37		3.29	4.65	3.91	2.51
CV								35.38		49.54	131.95	129.52	130.78
TABLE OF B (Finesse Rate) MEANS													
1	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A	4.0 b		2.0 c	0.8 b	0.0 b	0.0 b
1	----chlorsulfuron	62.5		0.0156									
1	----metsulfuron	12.5		.00312									
1	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
2	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A	10.7 a		9.2 b	2.4 b	2.6 b	1.0 b
2	----chlorsulfuron	62.5		0.0313									
2	----metsulfuron	12.5		.00625									
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
3	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A	12.1 a		15.4 a	10.8 a	9.5 a	6.7 a
3	----chlorsulfuron	62.5		0.0625									
3	----metsulfuron	12.5		0.0125									
3	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
4	Untreated Check							0.0 c		0.0 c	0.0 b	0.0 b	0.0 b
LSD P=.05								1.96		2.73	3.86	3.25	2.08
Standard Deviation								2.37		3.29	4.65	3.91	2.51
CV								35.38		49.54	131.95	129.52	130.78
TABLE OF A (Soybean Variety) B (Finesse Rate) MEANS													
1	Plenish Soybean							4.3 a	1.7 a	1.3 a	2.5 a	0.0 a	0.0 a
1	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A						
1	----chlorsulfuron	62.5		0.0156									
1	----metsulfuron	12.5		.00312									
1	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
2	STS Soybean							4.3 a	.	1.8 a	0.0 a	0.0 a	0.0 a
1	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A						
1	----chlorsulfuron	62.5		0.0156									
1	----metsulfuron	12.5		.00312									
1	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
3	Non-STS Soybean							3.5 a	.	3.0 a	0.0 a	0.0 a	0.0 a
1	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A						
1	----chlorsulfuron	62.5		0.0156									
1	----metsulfuron	12.5		.00312									
1	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

Crop Code							TRZAW	TRZAW	TRZAW	GLXMA	GLXMA	GLXMA
Weed or Crop Name							Winter	Winter	Winter	Soybean	Soybean	Soybean
Weed or Crop Name							Wheat	Wheat	Wheat			
Rating Data Type							Stunting	Stunting	Stunting	Stunting	Stunting	Stunting
Rating Unit							%	%	%	%	%	%
Rating Date							12/02/13	04/06/14	04/18/14	07/30/14	08/05/14	08/13/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code						
1	Plenish Soybean							9.3 a	4.7 a	9.3 a	1.8 a	1.3 a	0.0 a
2	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A						
2	----chlorsulfuron	62.5		0.0313									
2	----metsulfuron	12.5		.00625									
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
2	STS Soybean							11.8 a	.	9.8 a	5.5 a	4.8 a	3.0 a
2	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A						
2	----chlorsulfuron	62.5		0.0313									
2	----metsulfuron	12.5		.00625									
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
3	Non-STS Soybean							11.0 a	.	8.5 a	0.0 a	1.8 a	0.0 a
2	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A						
2	----chlorsulfuron	62.5		0.0313									
2	----metsulfuron	12.5		.00625									
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
1	Plenish Soybean							12.0 a	14.0 a	16.3 a	13.0 a	9.3 a	5.0 a
3	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A						
3	----chlorsulfuron	62.5		0.0625									
3	----metsulfuron	12.5		0.0125									
3	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
2	STS Soybean							11.5 a	.	13.8 a	9.8 a	9.3 a	6.8 a
3	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A						
3	----chlorsulfuron	62.5		0.0625									
3	----metsulfuron	12.5		0.0125									
3	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
3	Non-STS Soybean							12.8 a	.	16.3 a	9.8 a	10.0 a	8.3 a
3	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A						
3	----chlorsulfuron	62.5		0.0625									
3	----metsulfuron	12.5		0.0125									
3	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A						
1	Plenish Soybean							0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
4	Untreated Check												
2	STS Soybean							0.0 a	.	0.0 a	0.0 a	0.0 a	0.0 a
4	Untreated Check												
3	Non-STS Soybean							0.0 a	.	0.0 a	0.0 a	0.0 a	0.0 a
4	Untreated Check												
LSD P=.05								3.40	4.28	4.74	6.68	5.63	3.61
Standard Deviation								2.37	2.47	3.29	4.65	3.91	2.51
CV								35.38	48.63	49.54	131.95	129.52	130.78

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Crop Code							GLXMA	GLXMA
Weed or Crop Name							Soybean	Soybean
Weed or Crop Name								
Rating Data Type							Stunting	Yield
Rating Unit							%	Bu/A
Rating Date							08/20/14	11/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
1	Plenish Soybean							0.0 a	23.6 a
2	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A		
2	----chlorsulfuron	62.5		0.0313					
2	----metsulfuron	12.5		.00625					
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
2	STS Soybean							3.5 a	33.9 a
2	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A		
2	----chlorsulfuron	62.5		0.0313					
2	----metsulfuron	12.5		.00625					
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
3	Non-STS Soybean							1.8 a	33.1 a
2	Finesse Premix	75	DF	0.0375	lb ai/a	Fall	A		
2	----chlorsulfuron	62.5		0.0313					
2	----metsulfuron	12.5		.00625					
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
1	Plenish Soybean							6.8 a	28.2 a
3	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A		
3	----chlorsulfuron	62.5		0.0625					
3	----metsulfuron	12.5		0.0125					
3	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
2	STS Soybean							6.5 a	37.0 a
3	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A		
3	----chlorsulfuron	62.5		0.0625					
3	----metsulfuron	12.5		0.0125					
3	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
3	Non-STS Soybean							6.0 a	33.7 a
3	Finesse Premix	75	DF	0.075	lb ai/a	Fall	A		
3	----chlorsulfuron	62.5		0.0625					
3	----metsulfuron	12.5		0.0125					
3	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
1	Plenish Soybean							0.0 a	23.6 a
4	Untreated Check								
2	STS Soybean							0.0 a	38.8 a
4	Untreated Check								
3	Non-STS Soybean							0.0 a	34.0 a
4	Untreated Check								
LSD P=.05								3.63	4.76
Standard Deviation								2.52	3.26
CV								123.53	10.01

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 12/02/13

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1400.312500				
R	3	35.062500	11.687500	2.088	0.1207	
A	2	2.375000	1.187500	0.212	0.8099	1.7
B	3	1162.729167	387.576389	69.252	0.0001	2.0
AB	6	15.458333	2.576389	0.460	0.8324	3.4
ERROR	33	184.687500	5.596591			

Randomized Complete Block (RCB) AOV For TRZAW Winter Wheat Stunting % 04/06/14 Missing factor A levels prevents analyzing column 2 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	11	406.916667			
Replicate	2	18.666667	9.333333	1.527	0.2910
Treatment	3	351.583333	117.194444	19.177	0.0018
ERROR	6	36.666667	6.111111		

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 04/18/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	2222.979167				
R	3	50.562500	16.854167	1.555	0.2188	
A	2	3.166667	1.583333	0.146	0.8646	2.4
B	3	1788.395833	596.131944	54.999	0.0001	2.7
AB	6	23.166667	3.861111	0.356	0.9011	4.7
ERROR	33	357.687500	10.839015			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Stunting % 07/30/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1767.979167				
R	3	56.062500	18.687500	0.866	0.4685	
A	2	30.166667	15.083333	0.699	0.5043	3.3
B	3	891.729167	297.243056	13.773	0.0001	3.9
AB	6	77.833333	12.972222	0.601	0.7274	6.7
ERROR	33	712.187500	21.581439			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Stunting % 08/05/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1324.979167				
R	3	64.562500	21.520833	1.406	0.2585	
A	2	6.291667	3.145833	0.205	0.8153	2.8
B	3	725.062500	241.687500	15.788	0.0001	3.2
AB	6	23.875000	3.979167	0.260	0.9516	5.6
ERROR	33	505.187500	15.308712			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Stunting % 08/13/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	637.666667				
R	3	16.166667	5.388889	0.858	0.4727	
A	2	11.791667	5.895833	0.938	0.4014	1.8
B	3	369.000000	123.000000	19.577	0.0001	2.1
AB	6	33.375000	5.562500	0.885	0.5166	3.6
ERROR	33	207.333333	6.282828			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Stunting % 08/20/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	635.916667				
R	3	69.583333	23.194444	3.646	0.0224	
A	2	5.541667	2.770833	0.436	0.6505	1.8
B	3	330.750000	110.250000	17.332	0.0001	2.1
AB	6	20.125000	3.354167	0.527	0.7834	3.6
ERROR	33	209.916667	6.361111			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 11/21/14 Missing values in column 11 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	38	1612.020567				
R	3	95.796825	31.932275	3.007	0.0501	
A	2	1044.022449	522.011224	49.156	0.0001	2.4
B	3	137.925685	45.975228	4.329	0.0142	2.7
AB	6	79.410547	13.235091	1.246	0.3185	4.8
ERROR	24	254.865061	10.619378			

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Winter Wheat Response to PGR Herbicides

Trial ID: SG12-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
3.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
4.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
5.	Whitlowgrass	ERPVE	Draba verna L.

Crop 1: Winter Wheat TRZAW Variety: USG3555
Planting Date: 10/28/13 Planting Method: Drilled Depth: 1 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Smooth
Soil Temperature: 66 F Soil Moisture: Moist Emergence Date: 11/04/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: FACTORIAL
Tillage Type: Chisel Plowed & Disked Twice

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/09/14	Harmony Extra	50	SG	0.75	fl oz/A
2.	04/09/14	Nonionic Surfactant			0.25	% v/v

SOIL DESCRIPTION

% Sand: 81 % OM: 1.5 Texture: loamy sand
% Silt: 12 pH: 5.9
% Clay: 7 CEC: 4.5 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	11/20/13	12/04/13	04/01/14	04/21/14
Time of Day:	2:00 pm	11:50 am	12:15 am	3:00 pm
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	2-leaf	tiller	Spring	LaSpring
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	46 F	54 F	52 F	64 F
% Relative Humidity:	56	75	49	50
Wind Velocity, Unit:	6 mph	1 mph	3 mph	3 mph
Wind Direction:	Northeast	Southwest	West	Northeast
Dew Presence (Y/N):	N	N	N	N
Soil Temp., Unit:	45 F	54 F	50 F	64 F
Soil Surf. Moisture:	Moist	Moist	Moist	Dry
Root Zone Moisture:	Moist	Moist	Wet	Moist
Leaf Surf. Moisture:	Dry	Moist	Dry	Dry
% Cloud Cover:	20	90	30	0

CROP STAGE AT EACH APPLICATION

	A	B	C	D
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:	2-leaf	2-3 leaf	2-3 tiller	3 tiller
Height, Unit:	3.5 in	6 in	6 in	9 in
Crop Health:	Good	Good	Good	Good

WEED STAGE AT EACH APPLICATION

	A	B	C	D
Weed 1 Code:	LAMAM	LAMAM	LAMAM	LAMAM
Growth Stage:		cot-2 leaf	vegetative	vegetative
Height, Unit:		0.5 in	1 in	3 in
Density,Unit:		400 m2	120 m2	0-40 m2
Weed 2 Code:	STEME	STEME	STEME	STEME
Growth Stage:		cot-2 leaf	vegetative	
Height, Unit:		0.5 in	1.5 in	
Density,Unit:		200 m2	0-24 m2	
Weed 3 Code:	HLOUM	HLOUM	HLOUM	HLOUM
Growth Stage:			veg-EaFlwr	seed
Height, Unit:			2 in	6.5 in
Density,Unit:			12-80 m2	0-40 m2
Weed 4 Code:	CERVU	CERVU	CERVU	CERVU
Growth Stage:			vegetative	vegetative
Height, Unit:			1.5 in	2.5 in
Density,Unit:			0-24 m2	0-40 m2
Weed 5 Code:	ERPVE	ERPVE	ERPVE	ERPVE
Growth Stage:			flower	seed
Height, Unit:			2 in	3.5 in
Density,Unit:			160 m2	100 m2

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APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	Backpack	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	21 in	25 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2	CO2

Trial Comments

04/19/14: Leaves exhibiting onion leaf roll in trt 1,5; and less common in trt 9. Wheat is 10" to highest point. Joint 1" above ground.

05/09/14: Wheat in the boot stage.

06/07/14: Rating is delayed/reduced vigor. Very subjective rating. Rating based on noticible effect of treatements. Wheat looked normal; did not observe twisted or mishaped heads.

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Winter Wheat Response to PGR Herbicides

Trial ID: SG12-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW Winter Wheat Stunting % 12/02/14	TRZAW Winter Wheat Stunting % 04/06/14	TRZAW Winter Wheat Stunting % 04/19/14	TRZAW Winter Wheat Stunting % 05/09/14	TRZAW Winter Wheat HeadCt 10' row 06/02/14
1	2,4-D amine 2-leaf stage of wheat	3.8	L	0.475	lb ai/a	2-leaf	A	7.0 a	1.7 cd	28.3 a	23.3 c	314.3 a
2	2,4-D amine Tillering	3.8	L	0.475	lb ai/a	tiller	B		1.7 cd	14.0 bc	46.7 a	290.7 a
3	2,4-D amine Spring	3.8	L	0.475	lb ai/a	Spring	C		1.7 cd	4.7 def	0.0 g	298.7 a
4	2,4-D amine Late Spring	3.8	L	0.475	lb ai/a	LaSpring	D				4.7 fg	302.7 a
5	2,4-D amine 2-leaf stage of wheat	3.8	L	0.237	lb ai/a	2-leaf	A	2.7 b	6.7 abc	15.7 b	11.7 de	306.0 a
6	2,4-D amine Tillering	3.8	L	0.237	lb ai/a	tiller	B		2.3 bcd	6.7 de	31.7 b	299.3 a
7	2,4-D amine Spring	3.8	L	0.237	lb ai/a	Spring	C		2.3 bcd	0.0 f	0.0 g	312.3 a
8	2,4-D amine Late Spring	3.8	L	0.237	lb ai/a	LaSpring	D				4.7 fg	292.3 a
9	Clarity.....dicamba Nonionic Surfactant 2-leaf stage of wheat	4 100	L L	0.125 0.25	lb ai/a % v/v	2-leaf 2-leaf	A A	10.0 a	0.0 d	10.0 bcd	5.7 fg	299.7 a
10	Clarity.....dicamba Nonionic Surfactant Tillering	4 100	L L	0.125 0.25	lb ai/a % v/v	tiller tiller	B B		0.0 d	1.7 ef	0.0 g	268.7 a
11	Clarity.....dicamba Nonionic Surfactant Spring	4 100	L L	0.125 0.25	lb ai/a % v/v	Spring Spring	C C		7.0 abc	4.7 def	15.0 d	289.0 a
12	Clarity.....dicamba Nonionic Surfactant Late Spring	4 100	L L	0.125 0.25	lb ai/a % v/v	LaSpring LaSpring	D D				4.7 fg	294.3 a
13	Starane Ultra...fluroxypyr 2-leaf stage of wheat	2.8	EC	0.14	lb ai/a	2-leaf	A		11.7 a	15.7 b	8.0 ef	279.0 a
14	Starane Ultra...fluroxypyr Tillering	2.8	EC	0.14	lb ai/a	tiller	B	1.7 b	7.3 ab	7.0 de	2.3 fg	298.7 a
15	Starane Ultra...fluroxypyr Spring	2.8	EC	0.14	lb ai/a	Spring	C		8.0 a	8.0 cd	0.0 g	301.7 a
16	Starane Ultra...fluroxypyr Late Spring	2.8	EC	0.14	lb ai/a	LaSpring	D				2.3 fg	301.3 a
17	Untreated Check								0.0 d	0.0 f	0.0 g	276.0 a
18	Untreated Check								0.0 d	0.0 f	0.0 g	292.7 a
	LSD P=.05							3.75	5.54	6.13	5.88	42.48
	Standard Deviation							1.88	3.30	3.65	3.55	25.60
	CV							35.22	91.77	43.99	39.73	8.67
	Replicate F							1.157	1.577	1.248	2.426	4.663
	Replicate Prob(F)							0.3757	0.2257	0.3038	0.1035	0.0162
	Treatment F							12.787	3.935	14.282	39.628	0.641
	Treatment Prob(F)							0.0051	0.0014	0.0001	0.0001	0.8344

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date								TRZAW Winter Wheat Stunting % 06/07/14	TRZAW Winter Wheat Yield Bu/A 07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
1	2,4-D amine 2-leaf stage of wheat	3.8	L	0.475	lb ai/a	2-leaf	A	16.7 b	78.2 bcd
2	2,4-D amine Tillering	3.8	L	0.475	lb ai/a	tiller	B	21.7 a	71.0 d
3	2,4-D amine Spring	3.8	L	0.475	lb ai/a	Spring	C	0.0 g	92.3 a
4	2,4-D amine Late Spring	3.8	L	0.475	lb ai/a	LaSpring	D	2.3 fg	84.9 abc
5	2,4-D amine 2-leaf stage of wheat	3.8	L	0.237	lb ai/a	2-leaf	A	11.3 cd	83.6 abc
6	2,4-D amine Tillering	3.8	L	0.237	lb ai/a	tiller	B	18.3 ab	75.5 cd
7	2,4-D amine Spring	3.8	L	0.237	lb ai/a	Spring	C	0.0 g	90.5 a
8	2,4-D amine Late Spring	3.8	L	0.237	lb ai/a	LaSpring	D	5.7 ef	87.7 ab
9	Clarity.....dicamba Nonionic Surfactant 2-leaf stage of wheat	4 100	L L	0.125 0.25	lb ai/a % v/v	2-leaf 2-leaf	A A	9.7 cd	87.2 ab
10	Clarity.....dicamba Nonionic Surfactant Tillering	4 100	L L	0.125 0.25	lb ai/a % v/v	tiller tiller	B B	12.3 c	85.1 abc
11	Clarity.....dicamba Nonionic Surfactant Spring	4 100	L L	0.125 0.25	lb ai/a % v/v	Spring Spring	C C	0.0 g	91.0 a
12	Clarity.....dicamba Nonionic Surfactant Late Spring	4 100	L L	0.125 0.25	lb ai/a % v/v	LaSpring LaSpring	D D	8.0 de	75.1 cd
13	Starane Ultra...fluroxypyr 2-leaf stage of wheat	2.8	EC	0.14	lb ai/a	2-leaf	A	0.0 g	87.4 ab
14	Starane Ultra...fluroxypyr Tillering	2.8	EC	0.14	lb ai/a	tiller	B	1.7 g	92.3 a
15	Starane Ultra...fluroxypyr Spring	2.8	EC	0.14	lb ai/a	Spring	C	0.0 g	88.1 ab
16	Starane Ultra...fluroxypyr Late Spring	2.8	EC	0.14	lb ai/a	LaSpring	D	0.0 g	91.6 a
17	Untreated Check							0.0 g	94.9 a
18	Untreated Check							0.0 g	87.9 ab
LSD P=.05								3.62	11.51
Standard Deviation								2.18	6.94
CV								36.51	8.09
Replicate F								0.400	10.064
Replicate Prob(F)								0.6735	0.0004
Treatment F								33.949	2.828
Treatment Prob(F)								0.0001	0.0048

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Winter Wheat Response to PGR Herbicides

Trial ID: SG12-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							TRZAW Winter Wheat Stunting % 12/02/14	TRZAW Winter Wheat Stunting % 04/06/14	TRZAW Winter Wheat Stunting % 04/19/14	TRZAW Winter Wheat Stunting % 05/09/14	TRZAW Winter Wheat HeadCt 10' row 06/02/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
TABLE OF R MEANS Replicate 1									3.3	8.6	10.6	311.3
Replicate 2									3.7	9.4	11.1	291.8
Replicate 3									5.7	11.1	8.4	287.3
TABLE OF A (Herbicide) MEANS												
1	2,4-D amine	3.8	L	0.475	lb ai/a	2-leaf	A		1.7 b	15.7 a	18.7 a	301.6 a
2	2,4-D amine	3.8	L	0.237	lb ai/a	2-leaf	A		3.8 b	7.4 bc	12.0 b	302.5 a
3 3	Clarity.....dicamba Nonionic Surfactant	4 100	L L	0.125 0.25	lb ai/a % v/v	2-leaf 2-leaf	A A		2.3 b	5.4 c	6.3 c	287.9 a
4	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	2-leaf	A		9.0 a	10.2 b	3.2 d	295.2 a
LSD P=.05 Standard Deviation CV									3.01 3.55 84.64	3.34 3.94 40.66	3.12 3.74 37.26	22.48 26.96 9.08
TABLE OF B (Timing) MEANS												
1	2-leaf stage of wheat								5.0 a	17.4 a	12.2 b	299.8 a
2	Tillering								2.8 a	7.3 b	20.2 a	289.3 a
3	Spring								4.8 a	4.3 b	3.8 c	300.4 a
4	Late Spring								.	.	4.1 c	297.7 a
LSD P=.05 Standard Deviation CV									3.01 3.55 84.64	3.34 3.94 40.66	3.12 3.74 37.26	22.48 26.96 9.08
TABLE OF A (Herbicide) B (Timing) MEANS												
1 1	2,4-D amine 2-leaf stage of wheat	3.8	L	0.475	lb ai/a	2-leaf	A	7.0 a	1.7 a	28.3 a	23.3 c	314.3 a
2 1	2,4-D amine 2-leaf stage of wheat	3.8	L	0.237	lb ai/a	2-leaf	A	2.7 a	6.7 a	15.7 b	11.7 de	306.0 a
3 3 1	Clarity.....dicamba Nonionic Surfactant 2-leaf stage of wheat	4 100	L L	0.125 0.25	lb ai/a % v/v	2-leaf 2-leaf	A A	10.0 a	0.0 a	10.0 bcd	5.7 efg	299.7 a
4 1	Starane Ultra...fluroxypyr 2-leaf stage of wheat	2.8	EC	0.14	lb ai/a	2-leaf	A	.	11.7 a	15.7 b	8.0 ef	279.0 a
1 2	2,4-D amine Tillering	3.8	L	0.475	lb ai/a	2-leaf	A	.	1.7 a	14.0 bc	46.7 a	290.7 a
2 2	2,4-D amine Tillering	3.8	L	0.237	lb ai/a	2-leaf	A	.	2.3 a	6.7 def	31.7 b	299.3 a
3 3 2	Clarity.....dicamba Nonionic Surfactant Tillering	4 100	L L	0.125 0.25	lb ai/a % v/v	2-leaf 2-leaf	A A	.	0.0 a	1.7 ef	0.0 g	268.7 a
4 2	Starane Ultra...fluroxypyr Tillering	2.8	EC	0.14	lb ai/a	2-leaf	A	1.7 a	7.3 a	7.0 de	2.3 fg	298.7 a
1 3	2,4-D amine Spring	3.8	L	0.475	lb ai/a	2-leaf	A	.	1.7 a	4.7 def	0.0 g	298.7 a
2 3	2,4-D amine Spring	3.8	L	0.237	lb ai/a	2-leaf	A	.	2.3 a	0.0 f	0.0 g	312.3 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							TRZAW Winter Wheat Stunting % 12/02/14	TRZAW Winter Wheat Stunting % 04/06/14	TRZAW Winter Wheat Stunting % 04/19/14	TRZAW Winter Wheat Stunting % 05/09/14	TRZAW Winter Wheat HeadCt 10' row 06/02/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
3	Clarity.....dicamba	4	L	0.125	lb ai/a	2-leaf	A	.	7.0 a	4.7 def	15.0 d	289.0 a
3	Nonionic Surfactant	100	L	0.25	% v/v	2-leaf	A					
3	Spring											
4	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	2-leaf	A	.	8.0 a	8.0 cde	0.0 g	301.7 a
3	Spring											
1	2,4-D amine	3.8	L	0.475	lb ai/a	2-leaf	A	.	.	.	4.7 fg	302.7 a
4	Late Spring											
2	2,4-D amine	3.8	L	0.237	lb ai/a	2-leaf	A	.	.	.	4.7 fg	292.3 a
4	Late Spring											
3	Clarity.....dicamba	4	L	0.125	lb ai/a	2-leaf	A	.	.	.	4.7 fg	294.3 a
3	Nonionic Surfactant	100	L	0.25	% v/v	2-leaf	A					
4	Late Spring											
4	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	2-leaf	A	.	.	.	2.3 fg	301.3 a
4	Late Spring											
LSD P=.05								3.75	6.01	6.67	6.24	44.96
Standard Deviation								1.88	3.55	3.94	3.74	26.96
CV								35.22	84.64	40.66	37.26	9.08

Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							TRZAW Winter Wheat Stunting % 06/07/14	TRZAW Winter Wheat Yield Bu/A 07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code	
TABLE OF R MEANS Replicate 1							6.3	86.3
Replicate 2							7.0	89.7
Replicate 3							6.9	79.3
TABLE OF A (Herbicide) MEANS 1	2,4-D amine	3.8	L	0.475	lb ai/a	2-leaf	A	10.2 a	81.6 b
2	2,4-D amine	3.8	L	0.237	lb ai/a	2-leaf	A	8.8 ab	84.3 b
3 3	Clarity.....dicamba Nonionic Surfactant	4 100	L L	0.125 0.25	lb ai/a % v/v	2-leaf 2-leaf	A A	7.5 b	84.6 b
4	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	2-leaf	A	0.4 c	89.8 a
LSD P=.05 Standard Deviation CV								1.94 2.32 34.50	5.13 6.15 7.22
TABLE OF B (Timing) MEANS 1	2-leaf stage of wheat							9.4 b	84.1 b
2	Tillering							13.5 a	81.0 b
3	Spring							0.0 d	90.5 a
4	Late Spring							4.0 c	84.8 b
LSD P=.05 Standard Deviation CV								1.94 2.32 34.50	5.13 6.15 7.22
TABLE OF A (Herbicide) B (Timing) MEANS 1 1	2,4-D amine 2-leaf stage of wheat	3.8	L	0.475	lb ai/a	2-leaf	A	16.7 b	78.2 bcd
2 1	2,4-D amine 2-leaf stage of wheat	3.8	L	0.237	lb ai/a	2-leaf	A	11.3 cd	83.6 abc
3 3 1	Clarity.....dicamba Nonionic Surfactant 2-leaf stage of wheat	4 100	L L	0.125 0.25	lb ai/a % v/v	2-leaf 2-leaf	A A	9.7 cd	87.2 ab
4 1	Starane Ultra...fluroxypyr 2-leaf stage of wheat	2.8	EC	0.14	lb ai/a	2-leaf	A	0.0 g	87.4 ab
1 2	2,4-D amine Tillering	3.8	L	0.475	lb ai/a	2-leaf	A	21.7 a	71.0 d
2 2	2,4-D amine Tillering	3.8	L	0.237	lb ai/a	2-leaf	A	18.3 ab	75.5 cd
3 3 2	Clarity.....dicamba Nonionic Surfactant Tillering	4 100	L L	0.125 0.25	lb ai/a % v/v	2-leaf 2-leaf	A A	12.3 c	85.1 abc
4 2	Starane Ultra...fluroxypyr Tillering	2.8	EC	0.14	lb ai/a	2-leaf	A	1.7 g	92.3 a
1 3	2,4-D amine Spring	3.8	L	0.475	lb ai/a	2-leaf	A	0.0 g	92.3 a
2 3	2,4-D amine Spring	3.8	L	0.237	lb ai/a	2-leaf	A	0.0 g	90.5 a

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Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date								TRZAW Winter Wheat Stunting % 06/07/14	TRZAW Winter Wheat Yield Bu/A 07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
3	Clarity.....dicamba	4	L	0.125	lb ai/a	2-leaf	A	0.0 g	91.0 a
3	Nonionic Surfactant	100	L	0.25	% v/v	2-leaf	A		
3	Spring								
4	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	2-leaf	A	0.0 g	88.1 ab
3	Spring								
1	2,4-D amine	3.8	L	0.475	lb ai/a	2-leaf	A	2.3 fg	84.9 abc
4	Late Spring								
2	2,4-D amine	3.8	L	0.237	lb ai/a	2-leaf	A	5.7 ef	87.7 ab
4	Late Spring								
3	Clarity.....dicamba	4	L	0.125	lb ai/a	2-leaf	A	8.0 de	75.1 cd
3	Nonionic Surfactant	100	L	0.25	% v/v	2-leaf	A		
4	Late Spring								
4	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	2-leaf	A	0.0 g	91.6 a
4	Late Spring								
LSD P=.05								3.87	10.25
Standard Deviation								2.32	6.15
CV								34.50	7.22

Randomized Complete Block (RCB) AOV For TRZAW Winter Wheat Stunting % 12/02/14 Missing factor A4 B1 levels prevents analyzing column 1 as Factorial design; Missing factor A1 B2 levels prevents analyzing column 1 as Factorial design; Missing factor A2 B2 levels prevents analyzing column 1 as Factorial design; Missing factor A3 B2 levels prevents analyzing column 1 as Factorial design; Missing factor A1 B3 levels prevents analyzing column 1 as Factorial design; Missing factor A2 B3 levels prevents analyzing column 1 as Factorial design; Missing factor A3 B3 levels prevents analyzing column 1 as Factorial design; Missing factor A4 B3 levels prevents analyzing column 1 as Factorial design; Missing factor A1 B4 levels prevents analyzing column 1 as Factorial design; Missing factor A2 B4 levels prevents analyzing column 1 as Factorial design; Missing factor A3 B4 levels prevents analyzing column 1 as Factorial design; Missing factor A4 B4 levels prevents analyzing column 1 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	11	164.666667			
Replicate	2	8.166667	4.083333	1.157	0.3757
Treatment	3	135.333333	45.111111	12.787	0.0051
ERROR	6	21.166667	3.527778		

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 04/06/14 Analysis will skip factor level B4 for column 2 - all B4 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	783.638889				
R	2	40.055556	20.027778	1.589	0.2267	
A	3	298.083333	99.361111	7.884	0.0009	3.0
B	2	33.722222	16.861111	1.338	0.2829	3.0
AB	6	134.500000	22.416667	1.779	0.1501	6.0
ERROR	22	277.277778	12.603535			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 04/19/14 Analysis will skip factor level B4 for column 3 - all B4 treatments are missing

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	2377.638889				
R	2	38.888889	19.444444	1.252	0.3056	
A	3	531.638889	177.212963	11.407	0.0001	3.3
B	2	1127.388889	563.694444	36.285	0.0001	3.3
AB	6	337.944444	56.324074	3.626	0.0118	6.7
ERROR	22	341.777778	15.535354			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 05/09/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	8423.916667				
R	2	68.666667	34.333333	2.452	0.1032	
A	3	1670.916667	556.972222	39.784	0.0001	3.1
B	3	2185.416667	728.472222	52.034	0.0001	3.1
AB	9	4078.916667	453.212963	32.372	0.0001	6.2
ERROR	30	420.000000	14.000000			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat HeadCt 10' row 06/02/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	32923.916667				
R	2	5218.041667	2609.020833	3.589	0.0400	
A	3	1643.416667	547.805556	0.754	0.5289	22.5
B	3	939.416667	313.138889	0.431	0.7324	22.5
AB	9	3316.416667	368.490741	0.507	0.8577	45.0
ERROR	30	21806.625000	726.887500			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 06/07/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	2677.479167				
R	2	4.291667	2.145833	0.398	0.6751	
A	3	680.229167	226.743056	42.065	0.0001	1.9
B	3	1269.562500	423.187500	78.509	0.0001	1.9
AB	9	561.687500	62.409722	11.578	0.0001	3.9
ERROR	30	161.708333	5.390278			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Yield Bu/A 07/01/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	4072.502175				
R	2	908.303892	454.151946	12.018	0.0001	
A	3	425.809135	141.936378	3.756	0.0211	5.1
B	3	568.934606	189.644869	5.019	0.0061	5.1
AB	9	1035.803418	115.089269	3.046	0.0104	10.3
ERROR	30	1133.651124	37.788371			

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Annual Ryegrass Control in Winter Wheat

Trial ID: SG13-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Annual Ryegrass	LOLMU	Lolium multiflorum Lam.
2.	Henbit	LAMAM	Lamium amplexicaule L.
3.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
4.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
5.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
6.	Whitlowgrass	ERPVE	Draba verna L.

Crop 1: Winter Wheat TRZAW Variety: USG3555
Planting Date: 10/28/13 Planting Method: Drilled Depth: 1 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Smooth
Soil Temperature: 66 F Soil Moisture: Moist Emergence Date: 11/04/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage/Corn Stubble

Trial Initiation Comments: Annual ryegrass was broadcast seeded at 5 lb/A on 10-28-14 prior to planting.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.5 Texture: loamy sand
% Silt: 12 pH: 5.9
% Clay: 7 CEC: 4.5 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	11/05/13	12/04/13	04/03/14
Time of Day:	11:05 am	11:30 am	9:10 am
Application Method:	Spray	Spray	Spray
Application Timing:	Spike	Fall	Spring
Applic. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	60 F	54 F	57 F
% Relative Humidity:	57	75	67
Wind Velocity, Unit:	4 mph	1 mph	2 mph
Wind Direction:	East	Southwest	Northeast
Dew Presence (Y/N):	N	N	Y
Soil Temp., Unit:	59 F	54 F	56 F
Soil Surf. Moisture:	Dry	Moist	Moist
Root Zone Moisture:	Moist	Moist	Wet
Leaf Surf. Moisture:	Dry	Moist	Wet
% Cloud Cover:	50	90	95

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	TRZAW	TRZAW	TRZAW
Growth Stage:	Spike	2-3 leaf	1-2 tiller
Height, Unit:	0.7 in	5.5 in	6 in
Crop Health:	Good	Good	Good

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	LOLMU	LOLMU	LOLMU
Growth Stage:	spike	2-leaf	2-3 leaf
Height, Unit:	0.1 in	1.5 in	1.5 in
Density,Unit:	5-15 m2	8-20 m2	0-10 m2
Weed 2 Code:	LAMAM	LAMAM	LAMAM
Growth Stage:	cotyledon	cot-2 leaf	vegetative
Height, Unit:	0.2 in	0.5 in	1 in
Density,Unit:	20-100 m2	400 m2	0-60 m2
Weed 3 Code:	STEME	STEME	STEME
Growth Stage:	cotyledon	cot-2 leaf	vegetative
Height, Unit:	0.2 in	0.5 in	2.5 in
Density,Unit:	20-100 m2	200 m2	0-20 m2
Weed 4 Code:	HLOUM	HLOUM	HLOUM
Growth Stage:	cotyledon	cot-2 leaf	veg-EaFlwr
Height, Unit:	0.2 in	0.5 in	2 in
Density,Unit:	20 m2	0-20 m2	40-80 m2
Weed 5 Code:	CERVU	CERVU	CERVU
Growth Stage:	cotyledon	cot-2 leaf	vegetative
Height, Unit:	0.2 in	0.5 in	2.5 in
Density,Unit:	20 m2	0-20 m2	0-20 m2
Weed 6 Code:	ERPVE	ERPVE	ERPVE
Growth Stage:	cotyledon	cot-2 leaf	flower
Height, Unit:	0.2 in	0.5 in	2 in
Density,Unit:	20 m2	0-20 m2	120 m2

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	22 in	22 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	CO2

Trial Comments

05/09/14: Trt. 4,5,9 was poor for annual bluegrass control (<50). Powerflex (trt. 10) fair to good for annual bluegrass. Trt. 7,6, &8 >80% annual bluegrass control fair (60-80) for powerflex fall (Trt. 2). Olympus flex fall (Trt. 3).

06/08/14: Control based on visible annual ryegrass seed-heads above wheat.

University of Delaware

Annual Ryegrass Control in Winter Wheat

Trial ID: SG13-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	HLOUM Jagged Chickwd Control % 05/09/14	LOLMU Italian Ryegrass Control % 05/09/14	LOLMU Italian Ryegrass Control % 06/08/14	TRZAW Winter Wheat Yield Bu/A 07/01/14
1	Untreated Check							0.0 e	0.0 c	0.0 c	62.7 b
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	B	91.7 b	100.0 a	100.0 a	83.5 a
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B				
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Fall	B				
3	Olympus Flex Premix	11.25	DF	0.0246	lb ai/a	Fall	B	63.3 d	100.0 a	98.0 a	82.5 a
	----mesosulfuron	4.5		0.0098							
	----propoxycarbazone	6.75		0.0148							
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B				
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Fall	B				
4	Olympus.....propoxycarbazone	70	WG	0.0394	lb ai/a	Fall	B	0.0 e	23.3 b	26.7 b	76.7 a
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B				
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Fall	B				
5	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Fall	B	100.0 a	100.0 a	100.0 a	78.5 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	B				
	----thifensulfuron	33		0.0185							
	----tribenuron	17		0.0095							
6	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B	78.3 c	100.0 a	100.0 a	79.4 a
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B				
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Fall	B				
7	Axiom Premix	68	WG	0.17	lb ai/a	Spike	A	100.0 a	100.0 a	100.0 a	79.7 a
	----flufenacet	54		0.135							
	----metribuzin	14		0.035							
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	C				
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	C				
	----thifensulfuron	33		0.0185							
	----tribenuron	17		0.0095							
8	Axiom Premix	68	WG	0.255	lb ai/a	Spike	A	100.0 a	100.0 a	100.0 a	80.9 a
	----flufenacet	54		0.202							
	----metribuzin	14		0.0525							
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	C				
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	C				
	----thifensulfuron	33		0.0185							
	----tribenuron	17		0.0095							
9	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	C	100.0 a	100.0 a	99.0 a	81.0 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	C				
	----thifensulfuron	33		0.0185							
	----tribenuron	17		0.0095							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=7

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Weed Code							HLOUM	LOLMU	LOLMU	
Crop Code										TRZAW
Weed or Crop Name							Jagged	Italian	Italian	Winter
Weed or Crop Name							Chickwd	Ryegrass	Ryegrass	Wheat
Rating Data Type							Control	Control	Control	Yield
Rating Unit							%	%	%	Bu/A
Rating Date							05/09/14	05/09/14	06/08/14	07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
10	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	C	100.0 a	100.0 a	99.7 a	76.8 a
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C				
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	C				
LSD P=.05								7.55	3.13	3.40	10.60
Standard Deviation								4.40	1.83	1.98	6.18
CV								6.0	2.22	2.41	7.91
Replicate F								1.335	1.000	1.075	10.043
Replicate Prob(F)								0.2880	0.3874	0.3621	0.0012
Treatment F								254.450	1275.667	1038.156	2.695
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0351

Weed Code							
Crop Code							TRZAW
Weed or Crop Name							Winter
Weed or Crop Name							Wheat
Rating Data Type							Stunting
Rating Unit							%
Rating Date							01/02/15
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Untreated Check							0.0 e
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	B	15.0 a
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Fall	B	
3	Olympus Flex Premix	11.25	DF	0.0246	lb ai/a	Fall	B	4.7 cd
	----mesosulfuron	4.5		0.0098				
	----propoxycarbazone	6.75		0.0148				
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Fall	B	
4	Olympus.....propoxycarbazone	70	WG	0.0394	lb ai/a	Fall	B	8.0 bc
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Fall	B	
5	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Fall	B	4.7 cd
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	B	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
6	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	B	18.3 a
	Nonionic Surfactant	100	L	0.5	% v/v	Fall	B	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Fall	B	
7	Axiom Premix	68	WG	0.17	lb ai/a	Spike	A	0.0 e
	----flufenacet	54		0.135				
	----metribuzin	14		0.035				
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	C	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
8	Axiom Premix	68	WG	0.255	lb ai/a	Spike	A	2.1 de
	----flufenacet	54		0.202				
	----metribuzin	14		0.0525				
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	C	
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
9	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	Spring	C	15.0 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	C	
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				

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Weed Code	
Crop Code	TRZAW
Weed or Crop Name	Winter
Weed or Crop Name	Wheat
Rating Data Type	Stunting
Rating Unit	%
Rating Date	01/02/15

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
10	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	C	9.7 b
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	C	
	Dry Ammonium Sulfate	100	D	0.9	% w/v	Spring	C	

LSD P=.05	4.24
Standard Deviation	2.46
CV	31.78
Replicate F	4.182
Replicate Prob(F)	0.0333
Treatment F	21.577
Treatment Prob(F)	0.0001

University of Delaware

Vetch Control in Winter Wheat

Trial ID: SG15-14 Cooperator:
Location: Field #22 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Curly Dock	RUMCR	Rumex crispus L.
2.	Hairy Vetch	VICVI	Vicia villosa Roth Ssp.villosa
3.	Hairy Bittercress	CARHI	Cardamine hirsuta L.
4.	Henbit	LAMAM	Lamium amplexicaule L.
5.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
6.	Whitlowgrass	ERPVE	Draba verna L.

Crop 1: Non-Crop

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	10/28/13	Gramoxone SL	2	SL	2	qt/A
2.	10/28/13	Nonionic Surfactant			0.25	% v/v

SOIL DESCRIPTION

% Sand: 79 % OM: 1.0 Texture: sandy loam
% Silt: 12 pH: 5.4
% Clay: 9 CEC: 4.2 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	12/05/13	04/01/14
Time of Day:	10:00 am	12:30 pm
Application Method:	Spray	Spray
Application Timing:	Fall	Spring
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	54 F	52 F
% Relative Humidity:	97	49
Wind Velocity, Unit:	3 mph	3 mph
Wind Direction:	South	West
Dew Presence (Y/N):	Y	N
Soil Temp., Unit:	54 F	50 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Wet
Leaf Surf. Moisture:	Moist	Dry
% Cloud Cover:	100	30

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	RUMCR	RUMCR
Growth Stage:		rosette
Height, Unit:		7 in
Density,Unit:		0-24 m2
Weed 2 Code:	VICVI	VICVI
Growth Stage:		vegetative
Height, Unit:		3 in
Density,Unit:		0-12 m2
Weed 3 Code:	CARHI	CARHI
Growth Stage:		rosette
Height, Unit:		3 in
Density,Unit:		0-20 m2
Weed 4 Code:	LAMAM	LAMAM
Growth Stage:		vegetative
Height, Unit:		3 in
Density,Unit:		0-20 m2
Weed 5 Code:	HLOUM	HLOUM
Growth Stage:		veg-eaFlwr
Height, Unit:		3 in
Density,Unit:		0-20 m2
Weed 6 Code:	ERPVE	ERPVE
Growth Stage:		flower
Height, Unit:		2 in
Density,Unit:		040 m2

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Trial Comments

5/07/14: Weed density was very inconsistant and lack of weeds does not indicate good control- this trial provides more detail on which species are not controled.
Curly dock was not controlled by Harmony Extra in the spring, Powerflex in the fall, Starane in the fall, 2,4-D, or Huskie.
Henbit was not controlled by Starane Ultra, Clarity, or 2,4-D.
Osprey in the fall was weak on field pansy.
Trts 4,6,9 were also weak on dandelions.
Trt 17 was weak on Carolina geranium.

01/02/15: No wheat injury to note.

University of Delaware

Vetch Control in Winter Wheat

Trial ID: SG15-14 Cooperator:
Location: Field #22 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	RUMCR Curly Dock Control % 05/07/14	LAMAM Henbit Control % 05/07/14	TJDPE Venus-lkngglas Control % 05/07/14	VICSS Vetch Species Control % 05/07/14	STEME Common Chickwd Control % 05/07/14
1	Untreated Check							1.000 a	0.0 a	0.0 a	0.333 a	0.0 a
2	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	0.333 ab	0.3 a	0.0 a	0.333 a	0.0 a
	----thifensulfuron	33		0.0154								
	----tribenuron	17		.00796								
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A					
3	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B	0.667 ab	0.3 a	0.0 a	0.000 a	0.0 a
	----thifensulfuron	33		0.0185								
	----tribenuron	17		0.0095								
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B					
4	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	A	0.667 ab	0.0 a	0.0 a	0.000 a	0.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A					
5	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	B	0.000 b	0.0 a	0.0 a	0.000 a	0.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B					
6	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	A	0.000 b	0.0 a	0.0 a	0.333 a	0.0 a
	Nonionic Surfactant	100	L	5	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A					
7	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Fall	A	1.000 a	0.7 a	0.3 a	0.000 a	0.0 a
8	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Fall	A	1.000 a	0.0 a	0.0 a	0.000 a	0.0 a
9	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Spring	B	0.333 ab	0.7 a	0.0 a	0.000 a	0.0 a
10	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	A	0.333 ab	0.7 a	0.0 a	0.000 a	0.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
11	Clarity.....dicamba	4	L	0.125	lb ai/a	Spring	B	0.200 b	0.7 a	0.0 a	0.000 a	0.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
12	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	0.667 ab	0.3 a	0.3 a	0.000 a	0.3 a
13	2,4-D amine	3.8	L	0.237	lb ae/a	Spring	B	0.000 b	0.7 a	0.0 a	0.000 a	0.3 a
14	2,4-D amine	3.8	L	0.475	lb ae/a	Spring	B	0.667 ab	0.7 a	0.3 a	0.000 a	0.3 a
15	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	B	0.667 ab	0.0 a	0.0 a	0.000 a	0.0 a
	----pyrasulfotole	0.3		0.0258								
	----bromoxynil	1.75		0.15								
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B					
16	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	B	0.667 ab	0.0 a	0.0 a	0.083 a	0.0 a
	----pyrasulfotole	0.3		0.0258								
	----bromoxynil	1.75		0.15								
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

Weed Code							RUMCR	LAMAM	TJDPE	VICSS	STEME
Weed or Crop Name							Curly	Henbit	Venus-	Vetch	Common
Weed or Crop Name							Dock		lkngglas	Species	Chickwd
Rating Data Type							Control	Control	Control	Control	Control
Rating Unit							%	%	%	%	%
Rating Date							05/07/14	05/07/14	05/07/14	05/07/14	05/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
17	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	B	1.000 a	0.0 a	0.0 a	0.000 a	0.0 a
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B					
18	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Spring	B	0.083 b	0.0 a	0.0 a	0.000 a	0.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B					
LSD P=.05								0.7024	0.69	0.39	0.3980	0.39
Standard Deviation								0.4233	0.42	0.24	0.2399	0.24
CV								82.08	149.82	424.26	398.53	424.26
Replicate F								0.024	0.321	1.000	0.744	1.000
Replicate Prob(F)								0.9768	0.7278	0.3784	0.4826	0.3784
Treatment F								2.225	1.642	0.882	0.844	0.882
Treatment Prob(F)								0.0232	0.1072	0.5971	0.6366	0.5971

Weed Code							VERHE
Weed or Crop Name							Ivyleaf
Weed or Crop Name							Speedwll
Rating Data Type							Control
Rating Unit							%
Rating Date							05/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Untreated Check							0.0 a
2	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	0.0 a
	----thifensulfuron	33		0.0154				
	----tribenuron	17		.00796				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A	
3	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B	0.0 a
	----thifensulfuron	33		0.0185				
	----tribenuron	17		0.0095				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
4	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Fall	A	0.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A	
5	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	B	0.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
6	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/a	Fall	A	0.0 a
	Nonionic Surfactant	100	L	5	% v/v	Fall	A	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Fall	A	
7	Starane Ultra...fluroxypyr	2.8	EC	0.105	lb ae/a	Fall	A	0.0 a
8	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Fall	A	0.0 a
9	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Spring	B	0.3 a
10	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	A	0.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
11	Clarity.....dicamba	4	L	0.125	lb ai/a	Spring	B	0.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
12	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	0.0 a
13	2,4-D amine	3.8	L	0.237	lb ae/a	Spring	B	0.3 a
14	2,4-D amine	3.8	L	0.475	lb ae/a	Spring	B	0.0 a
15	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	B	0.0 a
	----pyrasulfotole	0.3		0.0258				
	----bromoxynil	1.75		0.15				
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Spring	B	
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
16	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	B	0.0 a
	----pyrasulfotole	0.3		0.0258				
	----bromoxynil	1.75		0.15				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	

University of Delaware

Weed Code	VERHE
Weed or Crop Name	Ivyleaf
Weed or Crop Name	Speedwll
Rating Data Type	Control
Rating Unit	%
Rating Date	05/07/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
17	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	B	0.0 a
	----pyrasulfotole	0.3		0.035				
	----bromoxynil	1.75		0.205				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	
18	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Spring	B	0.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	B	

LSD P=.05	0.32
Standard Deviation	0.20
CV	527.2
Replicate F	0.486
Replicate Prob(F)	0.6195
Treatment F	0.914
Treatment Prob(F)	0.5648

University of Delaware

Vetch Control in Winter Wheat

Trial ID: SG15a-14 Cooperator:
Location: Field #22 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Hairy Vetch	VICVI	Vicia villosa Roth Ssp.villosa
2.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
3.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.

Crop 1: Non-Crop

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

SOIL DESCRIPTION

% Sand: 79 % OM: 1.0 Texture: sandy loam
% Silt: 12 pH: 5.4
% Clay: 9 CEC: 4.2 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	04/09/14
Time of Day:	11:00 am
Application Method:	Spray
Application Timing:	Spring
Applic. Placement:	Brdcst
Air Temp., Unit:	58 F
% Relative Humidity:	39
Wind Velocity, Unit:	4 mph
Wind Direction:	North
Dew Presence (Y/N):	N
Soil Temp., Unit:	57 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	5

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	VICVI
Growth Stage:	vegetative
Height, Unit:	6 in
Density,Unit:	0-20 m2
Weed 2 Code:	OEOLA
Growth Stage:	rosette
Height, Unit:	4 in
Density,Unit:	3-15 m2
Weed 3 Code:	CERVU
Growth Stage:	veg-esFlwr
Height, Unit:	3 in
Density,Unit:	0-20 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

05/09/14:

The following species were not controlled in the treatments indicated.

Speedwell	Filaree	Knawl	Cham.	YWS	RF clover	VenusLG	MC	CA geranium
4,5,6,7,8	3,5,8	6,4	3,5,7	6,5,7,8	6	6,5	6,5,7	5,4,7
7,8,4,6,2	7,8,6	7,5,6	7,6	7,8,6,2,5	.	4,6	4,6,5	7,4,6,5
7,8,4,6,5,2	7,8,6,3	7,4,6,5	7,4,6,3	7,8,6,3,5,2	6	6,5	4,5	7,5

Dicamba- Fair on Knawel & Chamomile, very good on woody plantain, and good on dock.
Huskie- Poor on dock.
Express- Good on woody plantain.
Powerflex- Fair on knawel.
Ratings more of an indication of what did not work rather then what species were successfully controlled.

University of Delaware

Vetch Control in Winter Wheat

Trial ID: SG15a-14 Cooperator:
Location: Field #22 Investigator: Mark VanGessel

Weed Code							ERICA	OEOLA	VICVI	VIORA
Weed or Crop Name							Horse-	Cutleaf	Hairy	Field
Weed or Crop Name							weed	EPrimrse	Vetch	Pansy
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							05/09/14	05/09/14	05/09/14	05/09/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Untreated Check							1.5 c	0.0 d	1.3 d	4.4 c
2	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	A	83.3 a	60.0 c	66.7 c	80.0 a
	----thifensulfuron	33		0.0185							
	----tribenuron	17		0.0095							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	A				
3	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	A	1.5 c	71.0 bc	73.8 bc	96.7 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	A				
4	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ae/a	Spring	A	85.7 a	96.7 a	100.0 a	36.7 b
5	Clarity.....dicamba	4	L	0.125	lb ai/a	Spring	A	100.0 a	93.3 a	100.0 a	43.3 b
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
6	2,4-D amine	3.8	L	0.237	lb ae/a	Spring	A	43.3 b	100.0 a	90.0 ab	43.3 b
7	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	A	90.0 a	10.0 d	83.3 abc	26.7 b
	----pyrasulfotole	0.3		0.035							
	----bromoxynil	1.75		0.205							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	A				
8	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Spring	A	100.0 a	83.3 ab	89.3 ab	91.7 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	Spring	A				
LSD P=.05								22.80	16.77	21.47	18.25
Standard Deviation								12.68	9.42	12.07	10.26
CV								20.08	14.66	15.97	19.41
Replicate F								0.754	0.624	1.273	5.729
Replicate Prob(F)								0.4933	0.5525	0.3153	0.0179
Treatment F								32.913	51.506	21.326	31.098
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,2,3,4

University of Delaware

Henbit Control in Winter Wheat

Trial ID: SG19a-14 Cooperator:
Location: Millsboro Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.

Crop 1: Winter Wheat TRZAW

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: FACTORIAL

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION

	A	B
Application Date:	11/14/13	04/01/14
Time of Day:	11:00 am	4:00 pm
Application Method:	Spray	Spray
Application Timing:	Fall	Spring
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	52 F	57 F
% Relative Humidity:	34	49
Wind Velocity, Unit:	7 mph	5 mph
Wind Direction:	Southwest	East
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	50 F	57 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	10	10

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	TRZAW	TRZAW
Growth Stage:	2 collar	3-4 tiller
Height, Unit:	4 in	4 in
Crop Health:	Good	Good

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	LAMAM	LAMAM
Growth Stage:	4-leaf	vegetative
Height, Unit:	1.5 in	4 in
Density,Unit:	40-200 m2	20-100 m2
Weed 2 Code:	CERVU	CERVU
Growth Stage:	2-4 leaf	vegetative
Height, Unit:	1 in	5 in
Density,Unit:	0-10 m2	0-10 m2

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	22 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Trial Comments

11/21/13: 1-2 tiller 6". Treatment 302 only 1st 10' sparayed.

12/06/13: Injury is mostly stunting but leafburn (metribuzin) and chlorosis (Express and Harmony extra) - nitrogen in treatments may have contributed to the leaf burn with Huskie & injury with Harmony extra.

04/03/14: Trt 5 was stunted and stand loss. Trt. 12 in third rep had much more injury than rep 2. Treatments 6-10 were not sprayed yet. Poor control of jagged chickweed with Huskie in the fall (trt 3 and 13) and Express in the fall. Glory in the spring did not control common groundsel.

04/24/14: Trt 10; more leafburn than other treatments from nitrogen application- about 20% more.

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Henbit Control in Winter Wheat

Trial ID: SG19a-14 Cooperator:
Location: Millsboro Investigator: Mark VanGessel

Weed Code							TRZAW	TRZAW	TRZAW	TRZAW	CERVU
Crop Code							Winter	Winter	Winter	Winter	
Weed or Crop Name							Wheat	Wheat	Wheat	Wheat	Mouseear
Weed or Crop Name											Chickwd
Rating Data Type							Injury	Injury	Injury	Injury	Control
Rating Unit							%	%	%	%	%
Rating Date							11/21/13	12/06/13	04/03/14	04/24/14	04/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Fall							20.0 bc	4.3 c	0.0 e	4.3 c	100.0 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A					
	----thifensulfuron	33		0.0185								
	----tribenuron	17		0.0095								
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
2	Fall							30.0 a	35.7 ab	0.0 e	0.0 c	83.3 ab
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	A					
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A					
	----thifensulfuron	33		0.0185								
	----tribenuron	17		0.0095								
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
3	Fall							10.5 d	15.0 bc	11.3 bc	3.3 c	50.0 cd
	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	A					
	----pyrasulfotole	0.3		0.0258								
	----bromoxynil	1.75		0.15								
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A					
4	Fall							22.7 ab	7.3 c	2.3 de	0.0 c	100.0 a
	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Fall	A					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
5	Fall							17.3 bcd	60.0 a	86.7 a	81.7 a	100.0 a
	Glory.....metribuzin	75	DF	0.187	lb ai/a	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
6	Spring										0.0 c	90.3 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B					
	----thifensulfuron	33		0.0185								
	----tribenuron	17		0.0095								
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
7	Spring										8.3 c	90.0 a
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Spring	B					
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B					
	----thifensulfuron	33		0.0185								
	----tribenuron	17		0.0095								
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
8	Spring										0.0 c	58.9 bcd
	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	B					
	----pyrasulfotole	0.3		0.0258								
	----bromoxynil	1.75		0.15								
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	B					
9	Spring										2.3 c	84.3 ab
	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Spring	B					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=4,11,12,13,14

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	TRZAW Winter Wheat Injury % 11/21/13	TRZAW Winter Wheat Injury % 12/06/13	TRZAW Winter Wheat Injury % 04/03/14	TRZAW Winter Wheat Injury % 04/24/14	CERVU Mouseear Chickwd Control % 04/24/14
10	Spring										11.7 bc	70.0 abc
	Glory.....metribuzin	75	DF	0.187	lb ai/a	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
11	Untreated							0.0 e	0.0 c	0.0 e	0.0 c	0.0 e
12	Glory.....metribuzin	75	DF	0.094	lb ai/a	Fall	A	13.3 cd	36.7 ab	18.3 b	23.3 b	83.3 ab
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
13	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	A	15.0 bcd	18.3 bc	8.0 cd	4.9 c	36.6 d
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A					
14	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	18.3 bcd	4.0 c	1.7 de	0.0 c	100.0 a
	----thifensulfuron	33		0.0123								
	----tribenuron	17		.00636								
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
LSD P=.05								8.42	26.69	7.14	12.46	30.62
Standard Deviation								4.84	15.42	4.13	7.38	18.17
CV								29.58	76.54	28.93	73.85	24.3
Replicate F								1.055	0.257	2.026	1.405	0.327
Replicate Prob(F)								0.3726	0.7768	0.1644	0.2655	0.7246
Treatment F								8.923	5.066	136.974	25.788	7.825
Treatment Prob(F)								0.0002	0.0029	0.0001	0.0001	0.0001

Weed Code								LAMAM	STEME
Crop Code									
Weed or Crop Name								Henbit	Common
Weed or Crop Name									Chickwd
Rating Data Type								Control	Control
Rating Unit								%	%
Rating Date								04/24/14	04/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
1	Fall							71.0 cd	100.0 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A		
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
2	Fall							88.3 ab	100.0 a
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	A		
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A		
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
3	Fall							91.0 a	100.0 a
	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	A		
	----pyrasulfotole	0.3		0.0258					
	----bromoxynil	1.75		0.15					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
4	Fall							77.7 bc	100.0 a
	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Fall	A		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
5	Fall							75.0 cd	93.3 ab
	Glory.....metribuzin	75	DF	0.187	lb ai/a	Fall	A		
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
6	Spring							90.0 a	98.3 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B		
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
7	Spring							86.0 ab	91.0 ab
	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Spring	B		
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	B		
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
8	Spring							88.3 ab	75.0 c
	Huskie Premix	2.05	EC	0.176	lb ai/a	Spring	B		
	----pyrasulfotole	0.3		0.0258					
	----bromoxynil	1.75		0.15					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	B		
9	Spring							90.0 a	100.0 a
	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Spring	B		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	LAMAM	STEME
	Weed Code							LAMAM	STEME
	Crop Code								
	Weed or Crop Name							Henbit	Common Chickwd
	Rating Data Type							Control	Control
	Rating Unit							%	%
	Rating Date							04/24/14	04/24/14
10	Spring							91.3 a	100.0 a
	Glory.....metribuzin	75	DF	0.187	lb ai/a	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
11	Untreated							0.0 e	0.0 d
12	Glory.....metribuzin	75	DF	0.094	lb ai/a	Fall	A	72.3 cd	100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
13	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	A	94.4 a	84.5 bc
	----pyrasulfotole	0.3		0.035					
	----bromoxynil	1.75		0.205					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
14	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	65.0 d	100.0 a
	----thifensulfuron	33		0.0123					
	----tribenuron	17		.00636					
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
	LSD P=.05							10.71	12.99
	Standard Deviation							6.37	7.72
	CV							8.25	8.7
	Replicate F							5.348	0.168
	Replicate Prob(F)							0.0117	0.8460
	Treatment F							42.768	35.660
	Treatment Prob(F)							0.0001	0.0001

University of Delaware

Henbit Control in Winter Wheat

Trial ID: SG19a-14 Cooperator:
Location: Millsboro Investigator: Mark VanGessel

Weed Code							TRZAW	TRZAW	TRZAW	TRZAW	CERVU
Crop Code							Winter	Winter	Winter	Winter	
Weed or Crop Name							Wheat	Wheat	Wheat	Wheat	Mouseear
Weed or Crop Name							Injury	Injury	Injury	Injury	Chickwd
Rating Data Type							%	%	%	%	Control
Rating Unit							11/21/13	12/06/13	04/03/14	04/24/14	%
Rating Date											04/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
TABLE OF R MEANS											
Replicate 1										10.3	78.7
Replicate 2										11.2	84.3
Replicate 3										12.0	85.1
TABLE OF A (Timing) MEANS											
1	Fall									17.9 a	86.7 a
2	Spring									4.5 b	78.7 a
LSD P=.05										3.28	14.67
Standard Deviation										4.24	19.04
CV										37.97	23.03
TABLE OF B (Herbicide Treatments) MEANS											
1	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A			2.2 b	95.2 a
1	----thifensulfuron	33		0.0185							
1	----tribenuron	17		0.0095							
1	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A				
1	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
2	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	A			4.2 b	86.7 a
2	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A				
2	----thifensulfuron	33		0.0185							
2	----tribenuron	17		0.0095							
2	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A				
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
3	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	A			1.7 b	54.5 b
3	----pyrasulfotole	0.3		0.0258							
3	----bromoxynil	1.75		0.15							
3	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A				
4	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Fall	A			1.2 b	92.2 a
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A				
4	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
5	Glory.....metribuzin	75	DF	0.187	lb ai/a	Fall	A			46.7 a	85.0 a
5	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
LSD P=.05										5.19	23.19
Standard Deviation										4.24	19.04
CV										37.97	23.03
TABLE OF A (Timing) B (Herbicide Treatments) MEANS											
1	Fall							20.0 a	4.3 a	0.0 a	4.3 cd	100.0 a
1	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A				
1	----thifensulfuron	33		0.0185							
1	----tribenuron	17		0.0095							
1	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A				
1	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Weed Code															CERVU
Crop Code													TRZAW	TRZAW	TRZAW	TRZAW	
Weed or Crop Name													Winter	Winter	Winter	Winter	Mouseear
Weed or Crop Name													Wheat	Wheat	Wheat	Wheat	Chickwd
Rating Data Type													Injury	Injury	Injury	Injury	Control
Rating Unit													%	%	%	%	%
Rating Date													11/21/13	12/06/13	04/03/14	04/24/14	04/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code										
2	Spring												.	.	.	0.0 d	90.3 a
1	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A										
1	----thifensulfuron	33		0.0185													
1	----tribenuron	17		0.0095													
1	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A										
1	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A										
1	Fall												30.0 a	35.7 a	0.0 a	0.0 d	83.3 a
2	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	A										
2	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A										
2	----thifensulfuron	33		0.0185													
2	----tribenuron	17		0.0095													
2	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A										
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A										
2	Spring												.	.	.	8.3 bc	90.0 a
2	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	A										
2	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A										
2	----thifensulfuron	33		0.0185													
2	----tribenuron	17		0.0095													
2	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A										
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A										
1	Fall												10.5 a	15.0 a	11.3 a	3.3 cd	50.0 a
3	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	A										
3	----pyrasulfotole	0.3		0.0258													
3	----bromoxynil	1.75		0.15													
3	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A										
2	Spring												.	.	.	0.0 d	58.9 a
3	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	A										
3	----pyrasulfotole	0.3		0.0258													
3	----bromoxynil	1.75		0.15													
3	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A										
1	Fall												22.7 a	7.3 a	2.3 a	0.0 d	100.0 a
4	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Fall	A										
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A										
4	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A										
2	Spring												.	.	.	2.3 cd	84.3 a
4	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Fall	A										
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A										
4	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A										
1	Fall												17.3 a	60.0 a	86.7 a	81.7 a	100.0 a
5	Glory.....metribuzin	75	DF	0.187	lb ai/a	Fall	A										
5	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A										
2	Spring												.	.	.	11.7 b	70.0 a
5	Glory.....metribuzin	75	DF	0.187	lb ai/a	Fall	A										
5	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A										
LSD P=.05													8.42	26.69	7.14	7.34	32.80
Standard Deviation													4.84	15.42	4.13	4.24	19.04
CV													24.06	63.03	20.56	37.97	23.03

Weed Code							LAMAM	STEME
Crop Code								
Weed or Crop Name							Henbit	Common
Weed or Crop Name								Chickwd
Rating Data Type							Control	Control
Rating Unit							%	%
Rating Date							04/24/14	04/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
TABLE OF R MEANS								
Replicate 1							89.8	94.8
Replicate 2							82.6	98.0
Replicate 3							82.2	94.5
TABLE OF A (Timing) MEANS								
1	Fall						80.6 b	98.7 a
2	Spring						89.1 a	92.9 b
LSD P=.05							5.62	5.67
Standard Deviation							7.33	7.39
CV							8.64	7.72
TABLE OF B (Herbicide Treatments) MEANS								
1	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A	80.5 a	99.2 a
1	----thifensulfuron	33		0.0185				
1	----tribenuron	17		0.0095				
1	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A	
1	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
2	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	A	87.2 a	95.5 a
2	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A	
2	----thifensulfuron	33		0.0185				
2	----tribenuron	17		0.0095				
2	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A	
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
3	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	A	89.7 a	87.5 a
3	----pyrasulfotole	0.3		0.0258				
3	----bromoxynil	1.75		0.15				
3	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A	
4	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Fall	A	83.8 a	100.0 a
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A	
4	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
5	Glory.....metribuzin	75	DF	0.187	lb ai/a	Fall	A	83.2 a	96.7 a
5	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
LSD P=.05							8.89	8.97
Standard Deviation							7.33	7.39
CV							8.64	7.72
TABLE OF A (Timing) B (Herbicide Treatments) MEANS								
1	Fall						71.0 d	100.0 a
1	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A	
1	----thifensulfuron	33		0.0185				
1	----tribenuron	17		0.0095				
1	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A	
1	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	LAMAM	STEME
	Weed Code							LAMAM	STEME
	Crop Code								
	Weed or Crop Name							Henbit	Common Chickwd
	Weed or Crop Name								
	Rating Data Type							Control	Control
	Rating Unit							%	%
	Rating Date							04/24/14	04/24/14
2	Spring							90.0 ab	98.3 a
1	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A		
1	----thifensulfuron	33		0.0185					
1	----tribenuron	17		0.0095					
1	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
1	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
1	Fall							88.3 ab	100.0 a
2	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	A		
2	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A		
2	----thifensulfuron	33		0.0185					
2	----tribenuron	17		0.0095					
2	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
2	Spring							86.0 abc	91.0 a
2	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	A		
2	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Fall	A		
2	----thifensulfuron	33		0.0185					
2	----tribenuron	17		0.0095					
2	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
1	Fall							91.0 a	100.0 a
3	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	A		
3	----pyrasulfotole	0.3		0.0258					
3	----bromoxynil	1.75		0.15					
3	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
2	Spring							88.3 ab	75.0 b
3	Huskie Premix	2.05	EC	0.176	lb ai/a	Fall	A		
3	----pyrasulfotole	0.3		0.0258					
3	----bromoxynil	1.75		0.15					
3	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
1	Fall							77.7 bcd	100.0 a
4	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Fall	A		
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
4	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
2	Spring							90.0 ab	100.0 a
4	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	Fall	A		
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	Fall	A		
4	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
1	Fall							75.0 cd	93.3 a
5	Glory.....metribuzin	75	DF	0.187	lb ai/a	Fall	A		
5	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
2	Spring							91.3 a	100.0 a
5	Glory.....metribuzin	75	DF	0.187	lb ai/a	Fall	A		
5	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
	LSD P=.05							12.57	12.68
	Standard Deviation							7.33	7.39
	CV							8.64	7.72

Randomized Complete Block (RCB) AOV For TRZAW Winter Wheat Injury % 11/21/13 Missing factor A levels prevents analyzing column 4 as Factorial design; Missing values in column 4 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	25	2070.304688			
Replicate	2	49.370660	24.685330	1.055	0.3726
Treatment	8	1670.010417	208.751302	8.923	0.0002
ERROR	15	350.923611	23.394907		

Randomized Complete Block (RCB) AOV For TRZAW Winter Wheat Injury % 12/06/13 Missing factor A levels prevents analyzing column 9 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	26	13565.407407			
Replicate	2	122.074074	61.037037	0.257	0.7768
Treatment	8	9638.074074	1204.759259	5.066	0.0029
ERROR	16	3805.259259	237.828704		

Randomized Complete Block (RCB) AOV For TRZAW Winter Wheat Injury % 04/03/14 Missing factor A levels prevents analyzing column 10 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	26	18995.185185			
Replicate	2	68.962963	34.481481	2.026	0.1644
Treatment	8	18653.851852	2331.731481	136.974	0.0001
ERROR	16	272.370370	17.023148		

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Injury % 04/24/14 Missing values in column 11 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	27	17293.149871				
R	2	14.570877	7.285439	0.405	0.6734	
A	1	1345.896345	1345.896345	74.878	0.0001	3.3
B	4	9484.080178	2371.020044	131.910	0.0001	5.2
AB	4	6161.010994	1540.252749	85.691	0.0001	7.3
ERROR	16	287.591476	17.974467			

FACTORIAL/POOLED ERROR AOV For CERVU Mouseear Chickwd Control % 04/24/14 Missing values in column 12 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	28	14833.616478				
R	2	244.957291	122.478646	0.338	0.7180	
A	1	473.774405	473.774405	1.307	0.2688	14.7
B	4	6380.172719	1595.043180	4.399	0.0127	23.2
AB	4	1570.760261	392.690065	1.083	0.3959	32.8
ERROR	17	6163.951802	362.585400			

FACTORIAL/POOLED ERROR AOV For LAMAM Henbit Control % 04/24/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	29	2829.466667				
R	2	365.866667	182.933333	3.406	0.0557	
A	1	546.133333	546.133333	10.168	0.0051	5.6
B	4	308.133333	77.033333	1.434	0.2633	8.9
AB	4	642.533333	160.633333	2.991	0.0468	12.6
ERROR	18	966.800000	53.711111			

FACTORIAL/POOLED ERROR AOV For STEME Common Chickwd Control % 04/24/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	29	2781.366667				
R	2	75.266667	37.633333	0.688	0.5151	
A	1	252.300000	252.300000	4.615	0.0456	5.7
B	4	592.200000	148.050000	2.708	0.0631	9.0
AB	4	877.533333	219.383333	4.013	0.0169	12.7
ERROR	18	984.066667	54.670370			

University of Delaware

Henbit Control in Winter Wheat

Trial ID: SG19b-14 Cooperator:
Location: Millsboro Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.

Crop 1: Winter Wheat TRZAW

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Study Design: RANDOMIZED COMPLETE BLOCK

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION

	A
Application Date:	04/01/14
Time of Day:	4:00 pm
Application Method:	Spray
Application Timing:	POST
Applic. Placement:	Brdcst
Air Temp., Unit:	57 F
% Relative Humidity:	49
Wind Velocity, Unit:	5 mph
Wind Direction:	East
Dew Presence (Y/N):	N
Soil Temp., Unit:	57 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	10

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	TRZAW
Growth Stage:	3-4 tiller
Height, Unit:	4 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	LAMAM
Growth Stage:	vegetative
Height, Unit:	4 in
Density,Unit:	0-10 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

04/24/14 Untreated check based on SG19a-14 trial which is adjacent to this trial.

Huskie treatment was poor on mouseear chickweed.

University of Delaware

Henbit Control in Winter Wheat

Trial ID: SG19b-14 Cooperator:
Location: Millsboro Investigator: Mark VanGessel

Weed Code	LAMAM
Weed or Crop Name	Henbit
Rating Data Type	Control
Rating Unit	%
Rating Date	03/14/12

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	
1	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	POST	87.0 a
	30% Urea Ammonium Nitrate	100	L	1	% v/v	POST	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	
2	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	POST	86.7 a
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	POST	
	30% Urea Ammonium Nitrate	100	L	1	% v/v	POST	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	
3	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	POST	91.0 a
	Starane Ultra...fluroxypyr	2.8	EC	0.109	lb ai/a	POST	
	30% Urea Ammonium Nitrate	100	L	1	% v/v	POST	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	
4	Huskie Premix	2.05	EC	0.176	lb ai/a	POST	88.7 a
	----pyrasulfotole	0.3		0.0258			
	----bromoxynil	1.75		0.15			
	30% Urea Ammonium Nitrate	100	L	1	% v/v	POST	
	Nonionic Surfactant	100	L	0.25	% v/v	POST	

LSD P=.05	6.98
Standard Deviation	3.49
CV	3.95
Replicate F	2.385
Replicate Prob(F)	0.1729
Treatment F	0.966
Treatment Prob(F)	0.4677

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

Ivyleaf Speedwell Control in Barley

Trial ID: SG20-14 Cooperator:
Location: Magnolia Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Ivyleaf Speedwell	VERHE	Veronica hederifolia L.
2.	Henbit	LAMAM	Lamium amplexicaule L.

Crop 1: Barley HORVW Variety: unknown

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Vertical Tillage

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION

	A	B
Application Date:	11/22/13	04/02/14
Time of Day:	12:00 pm	11:30 am
Application Method:	Spray	Spray
Application Timing:	Fall	Spring
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	63 F	57 F
% Relative Humidity:	80	61
Wind Velocity, Unit:	8 mph	6 mph
Wind Direction:	Southwest	East
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	62 F	57 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	100	100

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	HORVW	HORVW
Growth Stage:	3 lf-1 til	tillered
Height, Unit:	3 in	4 in
Crop Health:	Good	Good

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	VERHE	VERHE
Growth Stage:	cot-6 leaf	flower
Height, Unit:	2 in	5 in
Density,Unit:	5 m2	6 m2
Weed 2 Code:	LAMAM	LAMAM
Growth Stage:	8-10 leaf	vegetative
Height, Unit:	1.5 in	4 in
Density,Unit:	3 m2	3 m2

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	22 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Trial Comments

12/03/13: Injury = leaf burn and stunting. Treatment 4 had little activity on ivyleaf speedwell at the time of rating. Treatment 5 had some leaf burn on ivyleaf speedwell.

04/02/14: Treatments 10-14 not rated. Barley is winter-stressed but recovering.

04/09/14: Trt. 5 & 2 weak/ poor to no control of LAMAN - henbit density was not very consistent in the plots. Field was no-till; stalks were not cut; lots of fodder on ground and may have interfered with full herbicide application.

05/15/14: additional notes on plots

Plot	Note
103	10% stunting
104	20% stunting
114	Groundsel present
108	ERICA present
201	ERICA present
202	vetch present, not controlled
203	Field pansy not controlled.
209	15% stunting
208	ERICA present
305	25% stunting
312	Groundsel present
311	7% stunting
309	barley stunted, 25%- very uneven
308	ERICA present

University of Delaware

Ivyleaf Speedwell Control in Barley

Trial ID: SG20-14 Cooperator:
Location: Magnolia Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	HORVW Winter Barley Injury % 12/03/13	HORVW Winter Barley Injury % 04/02/14	HORVW Winter Barley Injury % 04/09/14	LAMAM Henbit Control % 04/09/14	VERHE Ivyleaf Speedwll Control % 04/09/14
1	Untreated Check							0.0 d	0.0 b	0.0 d	0.0 c	0.0 d
2	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	A	0.0 d	3.3 b	2.3 cd	55.0 b	56.7 bc
3	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	A	30.0 c	3.3 b	12.3 b	96.7 a	98.3 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
4	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Fall	A	36.7 a	21.7 a	18.3 a	100.0 a	100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
5	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	A	0.0 d	0.0 b	5.0 cd	96.7 a	60.0 bc
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Fall	A					
6	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	A	33.3 b	0.0 b	0.0 d	100.0 a	100.0 a
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	A					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
7	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	0.0 d	0.0 b	0.0 d	50.0 b	53.3 c
	----thifensulfuron	33		0.0154								
	----tribenuron	17		.00796								
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	1	% v/v	Fall	A					
8	Finesse Premix	75	DF	0.0094	lb ai/a	Fall	A	0.0 d	0.0 b	0.0 d	100.0 a	56.7 bc
	----chlorsulfuron	62.5		0.0078								
	----metsulfuron	12.5		.00157								
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	1	% v/v	Fall	A					
9	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A	0.0 d	0.0 b	0.0 d	100.0 a	66.7 b
	----chlorsulfuron	62.5		0.0156								
	----metsulfuron	12.5		.00312								
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A					
	30% Urea Ammonium Nitrate	100	L	1	% v/v	Fall	A					
10	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Spring	B			0.0 d		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					
11	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	B			0.0 d		
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	B					
12	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	B			5.7 c		
	----pyrasulfotole	0.3		0.035								
	----bromoxynil	1.75		0.205								
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Spring	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=7; Average=4

University of Delaware

Weed Code										LAMAM	VERHE
Crop Code							HORVW	HORVW	HORVW		
Weed or Crop Name							Winter	Winter	Winter	Henbit	Ivyleaf
Weed or Crop Name							Barley	Barley	Barley		Speedwll
Rating Data Type							Injury	Injury	Injury	Control	Control
Rating Unit							%	%	%	%	%
Rating Date							12/03/13	04/02/14	04/09/14	04/09/14	04/09/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
13	Finesse Premix	75	DF	0.0187	lb ai/a	Spring	B		2.3 cd		
	----chlorsulfuron	62.5		0.0156							
	----metsulfuron	12.5		.00312							
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B				
	30% Urea Ammonium Nitrate	100	L	1	% v/v	Spring	B				
14	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Spring	B		3.3 cd		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B				
LSD P=.05								2.28	5.27	5.19	6.39	10.83
Standard Deviation								1.32	3.04	3.10	3.62	6.25
CV								11.86	96.66	87.84	4.67	9.51
Replicate F								1.600	0.100	0.778	0.495	0.734
Replicate Prob(F)								0.2326	0.9054	0.4698	0.6209	0.4956
Treatment F								484.800	16.300	9.478	286.954	77.491
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001	0.0001

Weed Code							VERHE	LAMAM
Crop Code								
Weed or Crop Name							Ivyleaf	Henbit
Weed or Crop Name							Speedwll	
Rating Data Type							Control	Control
Rating Unit							%	%
Rating Date							05/15/14	05/15/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Untreated Check							0.0 f	0.0 d
2	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Fall	A	43.3 d	36.7 c
3	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	A	98.3 a	95.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
4	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Fall	A	91.7 ab	100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
5	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	A	46.7 d	90.0 a
	----pyrasulfotole	0.3		0.035					
	----bromoxynil	1.75		0.205					
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Fall	A		
6	Huskie Premix	2.05	EC	0.24	lb ai/a	Fall	A	95.0 a	86.7 a
	----pyrasulfotole	0.3		0.035					
	----bromoxynil	1.75		0.205					
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Fall	A		
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
7	Harmony Extra SG Premix	50	SG	0.0234	lb ai/a	Fall	A	23.3 e	53.3 b
	----thifensulfuron	33		0.0154					
	----tribenuron	17		.00796					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
	30% Urea Ammonium Nitrate	100	L	1	% v/v	Fall	A		
8	Finesse Premix	75	DF	0.0094	lb ai/a	Fall	A	70.0 c	100.0 a
	----chlorsulfuron	62.5		0.0078					
	----metsulfuron	12.5		.00157					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
	30% Urea Ammonium Nitrate	100	L	1	% v/v	Fall	A		
9	Finesse Premix	75	DF	0.0187	lb ai/a	Fall	A	73.3 bc	100.0 a
	----chlorsulfuron	62.5		0.0156					
	----metsulfuron	12.5		.00312					
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
	30% Urea Ammonium Nitrate	100	L	1	% v/v	Fall	A		
10	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	Spring	B	92.3 a	100.0 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		
11	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	B	55.0 cd	100.0 a
	----pyrasulfotole	0.3		0.035					
	----bromoxynil	1.75		0.205					
	Dry Ammonium Sulfate	100	D	0.3	% w/v	Spring	B		
12	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	B	100.0 a	100.0 a
	----pyrasulfotole	0.3		0.035					
	----bromoxynil	1.75		0.205					
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Spring	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B		

University of Delaware

Weed Code							VERHE	LAMAM
Crop Code								
Weed or Crop Name							Ivyleaf	Henbit
Weed or Crop Name							Speedwll	
Rating Data Type							Control	Control
Rating Unit							%	%
Rating Date							05/15/14	05/15/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
13	Finesse Premix	75	DF	0.0187	lb ai/a	Spring	B	71.7 c	100.0 a
	----chlorsulfuron	62.5		0.0156				
	----metsulfuron	12.5		.00312				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
	30% Urea Ammonium Nitrate	100	L	1	% v/v	Spring	B	
14	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	Spring	B	96.7 a	98.3 a
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	B	
LSD P=.05								18.88	14.25
Standard Deviation								11.25	8.44
CV								16.45	10.19
Replicate F								0.026	3.711
Replicate Prob(F)								0.9742	0.0401
Treatment F								22.878	40.114
Treatment Prob(F)								0.0001	0.0001

University of Delaware

Treatments Intended for Cornflower Control in Small Grains
Cornflower was not in the trial site
Trial ID: SG22-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
2.	Mouseear Cress	ARBTH	Arabidopsis thaliana (L.) Heynh.
3.	Henbit	LAMAM	Lamium amplexicaule L.
4.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.

Crop 1: Winter Wheat TRZAW Variety: USG3555
Planting Date: 10/28/13 Planting Method: Drilled Depth: 1 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Smooth
Soil Temperature: 66 F Soil Moisture: Moist Emergence Date: 11/04/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

SOIL DESCRIPTION

% Sand: 81 % OM: 1.5 Texture: loamy sand
% Silt: 12 pH: 5.9
% Clay: 7 CEC: 4.5 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	04/03/14
Time of Day:	2:00 pm
Application Method:	Spray
Application Timing:	Spring
Applic. Placement:	Brdcst
Air Temp., Unit:	59 F
% Relative Humidity:	62
Wind Velocity, Unit:	6 mph
Wind Direction:	East
Dew Presence (Y/N):	N
Soil Temp., Unit:	60 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	70

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	TRZAW
Growth Stage:	3-4 tiller
Height, Unit:	4 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	CERVU
Growth Stage:	vegetative
Height, Unit:	2 in
Density,Unit:	5-7 m2
Weed 2 Code:	ARBTH
Growth Stage:	flower
Height, Unit:	2 in
Density,Unit:	25-40 m2
Weed 3 Code:	LAMAM
Growth Stage:	vegetative
Height, Unit:	2.5 in
Density,Unit:	20 m2
Weed 4 Code:	STEME
Growth Stage:	vegetative
Height, Unit:	2 in
Density,Unit:	2-5 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

04/06/14: Borders had been treated with Harmony Extra (0.75 oz) and metribuzin (4oz) on 4-2-14. Slightly stunted, approximately 7%, and slight yellowing on leaves.

04/19/14: Harmony Extra and metribuzin in borders. Appear taller than untreated plots but height of plants not as uniform. Appears each plant has 1-2 taller leaves with Harmony Extra and metribuzin, whereas untreated check all the plants are the same height. A little leaf burn still evident (less then 7%).

University of Delaware

Treatments Intended for Cornflower Control in Small Grains
Cornflower was not in the trial site

Trial ID:	SG22-14	Cooperator:	
Location:	Field #18	Investigator:	Mark VanGessel

Crop Code							TRZAW	TRZAW
Weed or Crop Name							Winter	Winter
Weed or Crop Name							Wheat	Wheat
Rating Data Type							Stunting	Stunting
Rating Unit							%	%
Rating Date							04/19/14	06/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
1	Untreated Check							0.0 a	0.0 b
2	Clarity.....dicamba	4	L	0.187	lb ai/a	Spring	A	7.0 a	4.5 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	A		
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
3	2,4-D amine	3.8	L	0.356	lb ai/a	Spring	A	5.7 a	6.3 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	A		
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
4	Starane Ultra...fluroxypyr	2.8	EC	0.14	lb ai/a	Spring	A	8.3 a	0.0 b
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	A		
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
5	PowerFlex HL....pyroxsulam	13.1	WG	0.0164	lb ai/a	Spring	A	6.3 a	0.0 b
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	30% Urea Ammonium Nitrate	100	L	1	% v/v	Spring	A		
6	Huskie Premix	2.05	EC	0.24	lb ai/a	Spring	A	4.7 a	0.0 b
	----pyrasulfotole	0.3		0.035					
	----bromoxynil	1.75		0.205					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
	30% Urea Ammonium Nitrate	100	L	1	% v/v	Spring	A		
7	Starane Ultra...fluroxypyr	2.8	EC	0.24	lb ai/a	Spring	A	4.0 a	9.6 a
	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	A		
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
8	Harmony Extra SG Premix	50	SG	0.028	lb ai/a	Spring	A	9.0 a	0.0 b
	----thifensulfuron	33		0.0185					
	----tribenuron	17		0.0095					
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
LSD P=.05								8.02	5.71 - 6.04
Standard Deviation								4.58	3.82t
CV								81.42	68.13t
Replicate F								0.024	1.327
Replicate Prob(F)								0.9765	0.2967
Treatment F								1.151	12.799
Treatment Prob(F)								0.3881	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
t=Mean descriptions are reported in transformed data units, and are not de-transformed.
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

Potential Wheat Injury with Metribuzin and Surfactants

Trial ID: SG23-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Winter Wheat TRZAW Variety: USG3555
Planting Date: 10/28/13 Planting Method: Drilled Depth: 1 in
Rate: 150 lb/A Row Spacing: 7 in Seed Bed: Smooth
Soil Temperature: 66 F Soil Moisture: Moist Emergence Date: 11/04/13

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Disked Twice

MAINTENANCE

Field Prep./Maintenance: Untreated checks sprayed with Harmony Extra 50SG (0.9 oz/A) on 4-9-14.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.5 Texture: loamy sand
% Silt: 12 pH: 5.9
% Clay: 7 CEC: 4.5 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	04/09/14
Time of Day:	11:00 am
Application Method:	Spray
Application Timing:	Spring
Applic. Placement:	Brdcst
Air Temp., Unit:	58 F
% Relative Humidity:	39
Wind Velocity, Unit:	4 mph
Wind Direction:	North
Dew Presence (Y/N):	N
Soil Temp., Unit:	57 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	5

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	TRZAW
Growth Stage:	2-4 tiller
Height, Unit:	6 in
Crop Health:	Good

University of Delaware

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	22 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

University of Delaware

Potential Wheat Injury with Metribuzin and Surfactants

Trial ID: SG23-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

Crop Code							TRZAW	TRZAW	TRZAW
Weed or Crop Name							Winter	Winter	Winter
Weed or Crop Name							Wheat	Wheat	Wheat
Rating Data Type							Stunting	Lf burn	Yield
Rating Unit							%	%	Bu/A
Rating Date							04/22/14	04/22/14	07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Untreated Check							0.0 a	0.0 d	60.2 a
2	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	POST	A	0.0 a	6.7 c	60.7 a
3	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	POST	A	0.0 a	13.3 ab	66.9 a
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A			
4	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	POST	A	0.0 a	15.0 ab	64.4 a
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A			
	30% Urea Ammonium Nitrate	100	L	1.25	% v/v	POST	A			
5	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	POST	A	2.3 a	15.0 ab	65.9 a
	Nonionic Surfactant	100	L	0.5	% v/v	POST	A			
6	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	POST	A	1.7 a	18.0 a	65.3 a
	LI-700	100	L	0.25	% v/v	POST	A			
7	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	POST	A	0.0 a	12.3 b	67.6 a
	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	POST	A			
8	Metribuzin.....metribuzin	75	DF	0.187	lb ai/a	POST	A	0.0 a	16.7 ab	61.1 a
	Crop Oil Concentrate	100	L	1.25	% v/v	POST	A			
LSD P=.05								2.86	5.00	14.87
Standard Deviation								1.63	2.85	8.49
CV								326.6	23.53	13.27
Replicate F								2.250	0.292	1.582
Replicate Prob(F)								0.1421	0.7513	0.2402
Treatment F								1.000	13.167	0.361
Treatment Prob(F)								0.4706	0.0001	0.9104

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

Metribuzin and Axial Applications

Trial ID: SG26-14 Cooperator:
Location: Felton Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Annual Ryegrass	LOLMU	Lolium multiflorum Lam.
2.	Henbit	LAMAM	Lamium amplexicaule L.
3.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.

Crop 1: Barley HORVW Variety: unknown

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 1
Site Type: Field Study Design: COMPLETELY RANDOMIZED
Tillage Type: No Tillage

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION

	A
Application Date:	12/03/13
Time of Day:	1:45 pm
Application Method:	Spray
Application Timing:	Fall
Applic. Placement:	Brdcst
Air Temp., Unit:	58 F
% Relative Humidity:	40
Wind Velocity, Unit:	0 mph
Wind Direction:	N/A
Dew Presence (Y/N):	N
Soil Temp., Unit:	57 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	0

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	HORVW
Growth Stage:	4 collar
Height, Unit:	3 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	LOLMU
Growth Stage:	2 lf-1 til
Height, Unit:	2.5 in
Density,Unit:	200 m2
Weed 2 Code:	LAMAM
Growth Stage:	2-4 leaf
Height, Unit:	1 in
Density,Unit:	5-30 m2
Weed 3 Code:	STEME
Growth Stage:	4-6 leaf
Height, Unit:	1.5 in
Density,Unit:	5-50 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

04/02/14: Heavy feeding from geese. No apparent injury from herbicides. Glory alone proviuded good control of field pansy and all other broadleaf weeds. Glory & Axial not as good as Glory alone, maybe NIS vs. Adjuvants from Axial??

05/02/14: Nearest Rd (Axial) = Heavy henbit, downy brome density, high annual ryegrass also present.

Middle (Axial XL & Metribuzin)= henbit control with 75% no control of field pansy, no grasses observed.

Farthest from Rd (Metribuzin)= sam as axial & metiobuzin.

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Product Rate	Product Rate Unit	Grow Stg
1	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	16.4	fl oz/a	Fall
	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	3	oz wt/a	Fall
2	Metribuzin.....metribuzin	75	DF	0.14	lb ai/a	3	oz wt/a	Fall
	Nonionic Surfactant	100	L	0.25	% v/v	1	qt/100 gal	Fall
3	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/a	16.4	fl oz/a	Fall

University of Delaware

Comparing Different Programs for No-Till Soybeans

Trial ID: DSB2-14 Cooperator: Delaware Soybean Board
Location: Field #32 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Field Pansy	VIORA	Viola rafinesquii Greene
2.	Morningglory Species	IPOSS	Ipomoea sp.
3.	Horsenettle	SOLCA	Solanum carolinense L.
4.	Knawel	SCRAN	Scleranthus annuus L.
5.	Henbit	LAMAM	Lamium amplexicaule L.
6.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
7.	Hairy Bittercress	CARHI	Cardamine hirsuta L.
8.	Woolly Plantain	PLAPR	Plantago patagonica Jacq.
9.	Corn Speedwell	VERAR	Veronica arvensis L.

Crop 1: Soybean GLXMA Variety: Dyn 39RY43
Planting Date: 05/29/14 Planting Method: Row- Unit Planter Depth: 1 in
Rate: 180000 Sd/A Row Spacing: 15 in Seed Bed: Medium/Trashy
Soil Temperature: 60 F Soil Moisture: Moist Emergence Date: 06/06/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: FACTORIAL
Tillage Type: No Tillage/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/09/14	Touchdown Total	4.17	SL	30	fl oz/A
2.	07/09/14	Reflex	2	L	1.5	pt/A

SOIL DESCRIPTION

% Sand: 81 % OM: 1.8 Texture: loamy sand
% Silt: 10 pH: 6.1
% Clay: 9 CEC: 6.0 Fert. Level: Optimum

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	12/02/13	05/02/14	05/20/14	05/30/14
Time of Day:	4:00 PM	11:00 AM	9:30 AM	9:30 AM
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	Fall	4 WPP	10 DPP	Pre
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	53 F	64 F	66 F	59 F
% Relative Humidity:	55	40	54	81
Wind Velocity, Unit:	2 mph	2 mph	1 mph	1 mph
Wind Direction:	NE	NW	NW	NE
Dew Presence (Y/N):	N	Y	N	Y
Soil Temp., Unit:	54 F	62 F	64 F	59 F
Soil Surf. Moisture:	Moist	Moist	Dry	Moist
Root Zone Moisture:	Moist	Wet	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist	Dry	Moist
% Cloud Cover:	70	60	45	100

WEED STAGE AT EACH APPLICATION

	A	B	C	D
Weed 1 Code:	VIORA	VIORA	VIORA	VIORA
Growth Stage:	6-12 lf	flwr	flwr	flwr
Height, Unit:	1 in	5 in	7 in	5.5 in
Density,Unit:	0-120 m2	0-160 m2	8-12 m2	0-10 m2
Weed 2 Code:	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:				coty
Density,Unit:				0-1 m2
Weed 3 Code:	SOLCA	SOLCA	SOLCA	SOLCA
Growth Stage:				veg
Weed 4 Code:	SCRAN	SCRAN	SCRAN	SCRAN
Growth Stage:	veg	veg		
Height, Unit:	1 in	2.5 in		
Density,Unit:	400 m2	0-320 m2		
Weed 5 Code:	LAMAM	LAMAM	LAMAM	LAMAM
Growth Stage:	6-12 lf	ea. flwr	flwr	
Height, Unit:	1 in	6 in	4 in	
Density,Unit:	40-400 m2	0-60 m2	0-10 m2	
Weed 6 Code:	CERVU	CERVU	CERVU	CERVU
Growth Stage:	2-6 lf	late flwr		
Height, Unit:	0.5 in	5 in		
Density,Unit:	0-60 m2	0-160 m2		
Weed 7 Code:	CARHI	CARHI	CARHI	CARHI
Growth Stage:	4-6 lf			
Height, Unit:	0.5 in			
Density,Unit:	0-40 m2			
Weed 8 Code:	PLAPR	PLAPR	PLAPR	PLAPR
Growth Stage:	rosette			
Height, Unit:	0.25 in			
Density,Unit:	0-20 m2			
Weed 9 Code:	VERAR	VERAR	VERAR	VERAR
Growth Stage:		ea flwr		
Height, Unit:		2.5 in		
Density,Unit:		0-200 m2	0-50 m2	

APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	Backpack	Tractor	Tractor	Tractor
Operating Pressure:	31 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	18 in	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	22 in	24 in	24 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	water	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa	20 gpa
Propellant:	CO2	Comp. Air	Comp. Air	Comp. Air

Trial Comments

05/14/14: Winter annual weed ground cover based on all species present; difficult to rate control because untreated check had very high density of weeds. Note trt 1 (No fall and no early spring) and 3 (No fall and 10 day preplant) not treated yet. Treatments 5/7, 9/11, and 13/15 only had fall applications made at this time.

Trt# and species present:
Trt.3: vol. rye, knawel, chamomile, primrose, me chickweed, vetch, pansy
Trt. 5 and 7 poor control of ivyleaf and purslane speedweel

	rep 1	2	3
knawel	70	60	90
henbit	40	40	30
mouseear	70	75	70

Trt. 9 and 11 mostly field pansy and vetch; scattered ivyleaf speedwell,
Trt. 13 and 15 mostly henbit; scattered vetch, field pansy, knawel

05/29/14: PRE application not sprayed yet, so trt 4,8,12,9,16 rated based on 4 weeks pre-plant treatment. Scattered horsenettle plants emerging.
Lots of small grain residue still on the soil surface (>60% ground cover) from rye residue from previous year.
Different weed spectrum in Trt. 9, Trt. 5, and Trt 13, than UTC (Trt. 1). Treatment 5 has lots of henbit but very few henbit observed in untreated check. Treatment 5 has fewer weeds than the untreated check, but individual weeds are larger in treatment 5.Untreated check in rep 1 has very few rye plants, rep 2 and 3 looks like about 15 lbs of rye was seeded.

Poor mayweed chamomile control in treatment 3, 9, 15.
Poor Henbit control in treatment 5, 13, 16.
Poor primrose control in treatment 9, 11, 13.
Poor Venus lookingglass control in treatment 5.
Palmer seedlings present in treatments 6, 8, 9, 11, 12, 13, 16.
Crabgrass control poor in treatment 4,12, 16.
Morningglory seedlings present in treatments 9, 14, 16.
Common ragweed emerging in treatment 4, 9.
Good henbit control with treatment 7, 15.

06/30/14: Where poor or no spring burndown - no soys due to moisture stress and few/no summer annuals.

07/18/14: Soybean stand was very poor in treatments with no spring herbicide application (trts 1, 5, 9, 13) due to lack of soil moisture at time of planting and early plant establishment.

University of Delaware

Comparing Different Programs for No-Till Soybeans

Trial ID: DSB2-14 Cooperator: Delaware Soybean Board
Location: Field #32 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		CERVU	ERICA	SCRAN
	Weed Code								CERVU	ERICA	SCRAN
	Crop Code										
	Weed or Crop Name							Winter weeds	Mouseear Chickwd	Horse-weed	Knawel
	Weed or Crop Name										
	Rating Data Type							GrndCovr	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/14/14	05/29/14	05/29/14	05/29/14
1	Fall__None							73.3 a	0.0 d	0.0 c	0.0 c
	No Spring Burndown										
2	Fall__None								100.0 a	100.0 a	99.0 a
	Early Spring Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
3	Fall__None							73.3 a	96.7 a	100.0 a	92.7 a
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
4	Fall__None								96.7 a	100.0 a	91.0 a
	Spring__Double Knock										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
5	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	26.7 b	50.0 c	50.7 b	13.3 c
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	No Spring Burndown										
6	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A		100.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Early Spring Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
7	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	30.0 b	91.7 a	100.0 a	91.7 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=3,6; Average=8

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	Winter weeds	CERVU Mouseear Chickwd	ERICA Horse-weed	SCRAN Knawel
	Weed Code								CERVU	ERICA	SCRAN
	Crop Code										
	Weed or Crop Name							Winter weeds	Mouseear Chickwd	Horse-weed	Knawel
	Weed or Crop Name										
	Rating Data Type							GrndCovr	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/14/14	05/29/14	05/29/14	05/29/14
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A		100.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Spring__Double Knock										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	3.3 c	76.7 b	80.0 a	91.7 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	No Spring Burndown										
10	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A		100.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	Early Spring Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	1.3 c	98.0 a	100.0 a	97.7 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A		100.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	Spring__Double Knock										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	Weed Code / Crop Code / Weed or Crop Name / Weed or Crop Name	CERVU Mouseear Chickwd	ERICA Horse-weed	SCRAN Knawel
								Winter weeds			
								Rating Data Type: GrndCovr	Control	Control	Control
								Rating Unit: %	%	%	%
								Rating Date: 05/14/14	05/29/14	05/29/14	05/29/14
13	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	4.3 c	100.0 a	100.0 a	68.3 b
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	No Spring Burndown										
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A		100.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	Early Spring Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	3.7 c	100.0 a	100.0 a	97.3 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A		100.0 a	100.0 a	100.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	Spring__Double Knock										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
	LSD P=.05							14.87	12.37	25.12	14.15
	Standard Deviation							8.49	7.42	15.04	8.48
	CV							31.45	8.42	16.82	10.11
	Replicate F							2.433	1.551	1.863	0.466
	Replicate Prob(F)							0.1239	0.2286	0.1734	0.6322
	Treatment F							39.101	39.504	9.762	40.736
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Weed Code							VIORA	AMAPA	ERICA	IPOSS
Crop Code										
Weed or Crop Name							Field	Palmer	Horse-	Mornglry
Weed or Crop Name							Pansy	Amaranth	weed	Species
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							05/29/14	06/30/14	06/30/14	06/30/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Fall__None							0.0 f		23.3 c	
	No Spring Burndown										
2	Fall__None							75.0 bcd	66.7 cd	100.0 a	83.0 a
	Early Spring Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
3	Fall__None							70.0 cde	99.7 a	100.0 a	99.0 a
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
4	Fall__None							53.3 e	100.0 a	100.0 a	95.0 a
	Spring__Double Knock										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
5	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	56.7 de		73.3 b	
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	No Spring Burndown										
6	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	70.0 cd	96.0 a	
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Early Spring Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
7	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	81.0 abc	94.7 a	100.0 a	90.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	VIORA	AMAPA	ERICA	IPOSS
	Weed Code							VIORA	AMAPA	ERICA	IPOSS
	Crop Code										
	Weed or Crop Name							Field	Palmer	Horse-	Morngly
	Weed or Crop Name							Pansy	Amaranth	weed	Species
	Rating Data Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/29/14	06/30/14	06/30/14	06/30/14
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	99.0 a	100.0 a	85.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Spring__Double Knock										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	83.3 abc	0.0 e	86.7 ab	
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	No Spring Burndown										
10	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	55.4 d	100.0 a	
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	Early Spring Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	99.0 a	70.0 cd	100.0 a	75.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	96.7 a	91.7 ab	100.0 a	88.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	Spring__Double Knock										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				

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Weed Code							VIORA	AMAPA	ERICA	IPOSS
Crop Code										
Weed or Crop Name							Field	Palmer	Horse-	Mornglry
Weed or Crop Name							Pansy	Amaranth	weed	Species
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							05/29/14	06/30/14	06/30/14	06/30/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
13	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	93.3 ab	0.0 e	100.0 a	
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	No Spring Burndown										
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	72.9 cd	100.0 a	
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	Early Spring Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	96.7 a	75.0 bc	100.0 a	70.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	Ten Days Pre-Plant										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	97.7 a	100.0 a	88.0 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	Spring__Double Knock										
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
LSD P=.05								20.35	18.42	13.80	29.79
Standard Deviation								12.21	10.91	8.28	8.48
CV								14.97	15.38	8.95	9.87
Replicate F								2.926	0.101	0.293	0.099
Replicate Prob(F)								0.0691	0.9044	0.7481	0.9100
Treatment F								14.561	28.156	17.139	3.447
Treatment Prob(F)								0.0001	0.0001	0.0001	0.2442

Weed Code							DIGSA	
Crop Code								GLXMA
Weed or Crop Name							Large	Soybean
Weed or Crop Name							Crabgras	
Rating Data Type							Control	Yield
Rating Unit							%	Bu/A
Rating Date							06/30/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Fall__None							43.7 cd
	No Spring Burndown							
2	Fall__None							66.7 bc / 53.3 abc
	Early Spring Pre-Plant							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B	
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B	
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B	
	----metribuzin	64.3		0.18				
	----chlorimuron	10.7		0.03				
3	Fall__None							76.3 abc / 57.6 ab
	Ten Days Pre-Plant							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C	
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C	
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C	
	----metribuzin	64.3		0.18				
	----chlorimuron	10.7		0.03				
4	Fall__None							96.3 a / 50.7 bcd
	Spring__Double Knock							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B	
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B	
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D	
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D	
	----metribuzin	64.3		0.18				
	----chlorimuron	10.7		0.03				
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D	
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D	
5	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	29.3 e
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A	
	No Spring Burndown							
6	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	78.3 abc / 53.0 abc
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A	
	Early Spring Pre-Plant							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B	
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B	
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B	
	----metribuzin	64.3		0.18				
	----chlorimuron	10.7		0.03				
7	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	96.3 a / 59.0 ab
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A	
	Ten Days Pre-Plant							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C	
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C	
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C	
	----metribuzin	64.3		0.18				
	----chlorimuron	10.7		0.03				

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Weed Code								DIGSA	
Crop Code									GLXMA
Weed or Crop Name								Large	Soybean
Weed or Crop Name								Crabgras	
Rating Data Type								Control	Yield
Rating Unit								%	Bu/A
Rating Date								06/30/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	99.0 a	60.0 ab
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Spring__Double Knock								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D		
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A		39.0 de
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A		
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	No Spring Burndown								
10	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	56.7 c	52.3 abc
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A		
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	Early Spring Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B		
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	85.7 ab	58.2 ab
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A		
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	Ten Days Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C		
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C		
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	92.3 ab	53.0 abc
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A		
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	Spring__Double Knock								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D		
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		

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Weed Code								DIGSA	
Crop Code									GLXMA
Weed or Crop Name								Large	Soybean
Weed or Crop Name								Crabgras	
Rating Data Type								Control	Yield
Rating Unit								%	Bu/A
Rating Date								06/30/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
13	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	0.0 d	49.3 bcd
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	No Spring Burndown								
14	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	59.0 c	60.7 ab
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	Early Spring Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B		
	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
15	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	97.7 a	63.1 a
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	Ten Days Pre-Plant								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C		
	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C		
	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
16	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	80.0 abc	55.0 abc
	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A		
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A		
	Spring__Double Knock								
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B		
	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B		
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D		
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D		
	----metribuzin	64.3		0.18					
	----chlorimuron	10.7		0.03					
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D		
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D		
LSD P=.05								25.91	12.37
Standard Deviation								15.37	7.42
CV								20.3	14.17
Replicate F								0.300	0.869
Replicate Prob(F)								0.7437	0.4296
Treatment F								9.237	4.201
Treatment Prob(F)								0.0001	0.0004

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Comparing Different Programs for No-Till Soybeans

Trial ID: DSB2-14 Cooperator: Delaware Soybean Board
Location: Field #32 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	CERVU	ERICA	SCRAN	VIORA
	Weed Code							CERVU	ERICA	SCRAN	VIORA
	Crop Code										
	Weed or Crop Name							Mouseear Chickwd	Horse-weed	Knawel	Field Pansy
	Rating Data Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/29/14	05/29/14	05/29/14	05/29/14
	TABLE OF R MEANS										
	Replicate 1							89.4	93.8	84.3	86.3
	Replicate 2							89.5	90.8	82.3	75.9
	Replicate 3							85.4	83.8	85.1	82.5
	TABLE OF A (Fall Treatment) MEANS										
1	Fall__None							73.3 d	75.0 b	70.7 b	49.6 c
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	85.4 c	87.7 a	76.3 b	84.4 b
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	93.7 b	95.0 a	97.3 a	94.8 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	91.4 a	97.5 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
	LSD P=.05							6.19	12.56	7.07	10.18
	Standard Deviation							7.42	15.04	8.48	12.21
	CV							8.42	16.82	10.11	14.97
	TABLE OF B (Burndown Treatments) MEANS										
1	No Spring Burndown							56.7 b	57.7 b	43.3 b	58.3 b
2	Early Spring Pre-Plant							100.0 a	100.0 a	99.8 a	93.8 a
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
3	Ten Days Pre-Plant							96.6 a	100.0 a	94.8 a	86.7 a
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
4	Spring__Double Knock							99.2 a	100.0 a	97.8 a	87.5 a
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
	LSD P=.05							6.19	12.56	7.07	10.18
	Standard Deviation							7.42	15.04	8.48	12.21
	CV							8.42	16.82	10.11	14.97

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Weed Code							CERVU	ERICA	SCRAN	VIORA
Crop Code										
Weed or Crop Name							Mouseear	Horse-	Knawel	Field
Weed or Crop Name							Chickwd	weed		Pansy
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							05/29/14	05/29/14	05/29/14	05/29/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
TABLE OF A (Fall Treatment) B (Burndown Treatments) MEANS										
1	Fall__None							0.0 d	0.0 c	0.0 c	0.0 f
1	No Spring Burndown										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	50.0 c	50.7 b	13.3 c	56.7 de
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
1	No Spring Burndown										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	76.7 b	80.0 a	91.7 a	83.3 abc
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
1	No Spring Burndown										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	68.3 b	93.3 ab
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
1	No Spring Burndown										
1	Fall__None							100.0 a	100.0 a	99.0 a	75.0 bcd
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							

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Weed Code							CERVU	ERICA	SCRAN	VIORA
Crop Code										
Weed or Crop Name							Mouseear	Horse-	Knawel	Field
Weed or Crop Name							Chickwd	weed		Pansy
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							05/29/14	05/29/14	05/29/14	05/29/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Fall__None							96.7 a	100.0 a	92.7 a	70.0 cde
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	91.7 a	100.0 a	91.7 a	81.0 abc
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	98.0 a	100.0 a	97.7 a	99.0 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	97.3 a	96.7 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
1	Fall__None							96.7 a	100.0 a	91.0 a	53.3 e
4	Spring__Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				

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Weed Code							CERVU	ERICA	SCRAN	VIORA
Crop Code										
Weed or Crop Name							Mouseear	Horse-	Knawel	Field
Weed or Crop Name							Chickwd	weed		Pansy
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							05/29/14	05/29/14	05/29/14	05/29/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Spring__Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	96.7 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
4	Spring__Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	100.0 a	100.0 a	100.0 a	100.0 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
4	Spring__Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
LSD P=.05								12.37	25.12	14.15	20.35
Standard Deviation								7.42	15.04	8.48	12.21
CV								8.42	16.82	10.11	14.97

Weed Code						AMAPA	ERICA	DIGSA	
Crop Code									GLXMA
Weed or Crop Name						Palmer	Horse-	Large	Soybean
Weed or Crop Name						Amaranth	weed	Crabgras	
Rating Data Type						Control	Control	Control	Yield
Rating Unit						%	%	%	Bu/A
Rating Date						06/30/14	06/30/14	06/30/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
TABLE OF R MEANS											
Replicate 1									91.8		53.1
Replicate 2									93.8		53.5
Replicate 3									91.9		50.3
TABLE OF A (Fall Treatment) MEANS											
1	Fall__None								80.8 c		51.3 a
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A		92.3 b		50.3 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A		96.7 ab		50.6 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A		100.0 a		57.0 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
LSD P=.05									6.90		6.18
Standard Deviation									8.28		7.42
CV									8.95		14.17
TABLE OF B (Burndown Treatments) MEANS											
1	No Spring Burndown								70.8 b		40.3 b
2	Early Spring Pre-Plant								99.0 a		54.8 a
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
3	Ten Days Pre-Plant								100.0 a		59.5 a
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
4	Spring__Double Knock								100.0 a		54.7 a
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
LSD P=.05									6.90		6.18
Standard Deviation									8.28		7.42
CV									8.95		14.17

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	AMAPA	ERICA	DIGSA	GLXMA
	Weed Code							AMAPA	ERICA	DIGSA	
	Crop Code										GLXMA
	Weed or Crop Name							Palmer Amaranth	Horse-weed	Large Crabgras	Soybean
	Weed or Crop Name										
	Rating Data Type							Control	Control	Control	Yield
	Rating Unit							%	%	%	Bu/A
	Rating Date							06/30/14	06/30/14	06/30/14	10/21/14
	TABLE OF A (Fall Treatment) B (Burndown Treatments) MEANS										
1	Fall__None							.	23.3 c	.	43.7 a
1	No Spring Burndown										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	.	73.3 b	.	29.3 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
1	No Spring Burndown										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	0.0 a	86.7 ab	.	39.0 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
1	No Spring Burndown										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	0.0 a	100.0 a	0.0 a	49.3 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
1	No Spring Burndown										
1	Fall__None							66.7 a	100.0 a	66.7 a	53.3 a
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	70.0 a	96.0 a	78.3 a	53.0 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	55.4 a	100.0 a	56.7 a	52.3 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	72.9 a	100.0 a	59.0 a	60.7 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
2	Early Spring Pre-Plant										
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
2	2,4-D ester	3.8	L	0.95	lb ae/a	4 WPP	B				
2	Canopy Premix	75	DF	0.21	lb ai/a	4 WPP	B				
2	----metribuzin	64.3		0.18							
2	----chlorimuron	10.7		0.03							

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Weed Code							AMAPA	ERICA	DIGSA	GLXMA
Crop Code										Soybean
Weed or Crop Name							Palmer Amaranth	Horse-weed	Large Crabgras	
Weed or Crop Name										
Rating Data Type							Control	Control	Control	Yield
Rating Unit							%	%	%	Bu/A
Rating Date							06/30/14	06/30/14	06/30/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Fall__None							99.7 a	100.0 a	76.3 a	57.6 a
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	94.7 a	100.0 a	96.3 a	59.0 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	70.0 a	100.0 a	85.7 a	58.2 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	75.0 a	100.0 a	97.7 a	63.1 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
3	Ten Days Pre-Plant										
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	10 DPP	C				
3	2,4-D ester	3.8	L	0.475	lb ae/a	10 DPP	C				
3	Canopy Premix	75	DF	0.21	lb ai/a	10 DPP	C				
3	----metribuzin	64.3		0.18							
3	----chlorimuron	10.7		0.03							
1	Fall__None							100.0 a	100.0 a	96.3 a	50.7 a
4	Spring__Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				

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Weed Code							AMAPA	ERICA	DIGSA	
Crop Code										GLXMA
Weed or Crop Name							Palmer	Horse-	Large	Soybean
Weed or Crop Name							Amaranth	weed	Crabgras	
Rating Data Type							Control	Control	Control	Yield
Rating Unit							%	%	%	Bu/A
Rating Date							06/30/14	06/30/14	06/30/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
2	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	99.0 a	100.0 a	99.0 a	60.0 a
2	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Spring__Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
3	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	91.7 a	100.0 a	92.3 a	53.0 a
3	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
3	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Fall	A				
3	----chlorimuron	22.7		0.0312							
3	----tribenuron	6.8		0.0094							
4	Spring__Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	Fall	A	97.7 a	100.0 a	80.0 a	55.0 a
4	2,4-D ester	3.8	L	0.71	lb ae/a	Fall	A				
4	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	Fall	A				
4	Spring__Double Knock										
4	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	4 WPP	B				
4	2,4-D ester	3.8	L	0.71	lb ae/a	4 WPP	B				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	D				
4	Canopy Premix	75	DF	0.21	lb ai/a	PRE	D				
4	----metribuzin	64.3		0.18							
4	----chlorimuron	10.7		0.03							
4	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	D				
4	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	PRE	D				
LSD P=.05								18.42	13.80	25.91	12.37
Standard Deviation								10.91	8.28	15.37	7.42
CV								15.38	8.95	20.30	14.17

FACTORIAL/POOLED ERROR AOV For CERVU Mouseear Chickwd Control % 05/29/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	34450.479167				
R	2	170.791667	85.395833	1.551	0.2286	
A	3	4774.229167	1591.409722	28.902	0.0001	6.2
B	3	15889.229167	5296.409722	96.189	0.0001	6.2
AB	9	11964.354167	1329.372685	24.143	0.0001	12.4
ERROR	30	1651.875000	55.062500			

FACTORIAL/POOLED ERROR AOV For ERICA Horse- weed Control % 05/29/14 Missing values in column 3 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	46	40527.666667				
R	2	842.666667	421.333333	1.863	0.1734	
A	3	4249.000000	1416.333333	6.261	0.0021	12.6
B	3	16129.000000	5376.333333	23.767	0.0001	12.6
AB	9	12747.000000	1416.333333	6.261	0.0001	25.1
ERROR	29	6560.000000	226.206897			

FACTORIAL/POOLED ERROR AOV For SCRAN Knawel Control % 05/29/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	46213.666667				
R	2	67.041667	33.520833	0.466	0.6322	
A	3	5647.166667	1882.388889	26.149	0.0001	7.1
B	3	26498.833333	8832.944444	122.701	0.0001	7.1
AB	9	11841.000000	1315.666667	18.276	0.0001	14.1
ERROR	30	2159.625000	71.987500			

FACTORIAL/POOLED ERROR AOV For VIORA Field Pansy Control % 05/29/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	37885.812500				
R	2	871.875000	435.937500	2.926	0.0691	
A	3	17504.729167	5834.909722	39.159	0.0001	10.2
B	3	8993.229167	2997.743056	20.119	0.0001	10.2
AB	9	6045.854167	671.761574	4.508	0.0008	20.4
ERROR	30	4470.125000	149.004167			

Randomized Complete Block (RCB) AOV For AMAPA Palmer Amaranth Control % 06/30/14 Missing factor A1 B1 levels prevents analyzing column 6 as Factorial design; Missing factor A2 B1 levels prevents analyzing column 6 as Factorial design; Missing values in column 6 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	38	46293.466217			
Replicate	2	23.999398	11.999699	0.101	0.9044
Treatment	13	43533.912054	3348.762466	28.156	0.0001
ERROR	23	2735.554764	118.937164		

FACTORIAL/POOLED ERROR AOV For ERICA Horse- weed Control % 06/30/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	19713.916667				
R	2	40.166667	20.083333	0.293	0.7481	
A	3	2516.916667	838.972222	12.243	0.0001	6.9
B	3	7490.250000	2496.750000	36.434	0.0001	6.9
AB	9	7610.750000	845.638889	12.340	0.0001	13.8
ERROR	30	2055.833333	68.527778			

Randomized Complete Block (RCB) AOV For DIGSA Large Crabgras Control % 06/30/14 Missing factor A1 B1 levels prevents analyzing column 9 as Factorial design; Missing factor A2 B1 levels prevents analyzing column 9 as Factorial design; Missing factor A3 B1 levels prevents analyzing column 9 as Factorial design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	38	32009.897436			
Replicate	2	141.743590	70.871795	0.300	0.7437
Treatment	12	26195.897436	2182.991453	9.237	0.0001
ERROR	24	5672.256410	236.344017		

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 10/21/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	5211.189646				
R	2	95.597555	47.798777	0.869	0.4296	
A	3	356.905830	118.968610	2.163	0.1131	6.2
B	3	2486.324116	828.774705	15.070	0.0001	6.2
AB	9	622.555665	69.172852	1.258	0.2994	12.4
ERROR	30	1649.806480	54.993549			

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Rye Cover Crop Management for NT Soybean

Trial ID: DSB3-14 Cooperator: Delaware Soybean Board
Location: Field #32 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Ivyleaf Speedwell	VERHE	Veronica hederifolia L.
3.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
4.	Corn Speedwell	VERAR	Veronica arvensis L.
5.	Purslane Speedwell	VERPG	Veronica peregrinia L.

Crop 1: Soybean GLXMA Variety: Dyn 39RY43
Planting Date: 05/29/14 Planting Method: Row- Unit Planter Depth: 1 in
Rate: 180000 Sd/A Row Spacing: 15 in Seed Bed: Firm/Very Trashy
Soil Temperature: 60 F Soil Moisture: Moist Emergence Date: 06/06/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: FACTORIAL
Tillage Type: No Tillage/Rye Cover

Trial Initiation Comments: Rye was drilled over the study area at 2 bu/A on 10-25-13.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/09/14	Touchdown Total	4.17	SL	30	fl oz/A
2.	07/09/14	Reflex	2	L	1.5	pt/A

SOIL DESCRIPTION

% Sand: 81 % OM: 1.8 Texture: loamy sand
% Silt: 10 pH: 6.1
% Clay: 9 CEC: 6.0 Fert. Level: Optimum

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	12/02/13	03/11/14	05/20/14
Time of Day:	3:30 AM	11:30 AM	9:00 AM
Application Method:	Spray	Spray	Spray
Application Timing:	Fall	Spring N	10EPP
Applic. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	53 F	65 F	66 F
% Relative Humidity:	55	34	54
Wind Velocity, Unit:	2 mph	3 mph	1 mph
Wind Direction:	NE	NW	NW
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	54 F	64 F	65 F
Soil Surf. Moisture:	Moist	Moist	Dry
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry
% Cloud Cover:	70	80	45

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	LAMAM	LAMAM	LAMAM
Growth Stage:	coty-6 lf		
Height, Unit:	0.5 in		
Density,Unit:	40-240 m2		
Weed 2 Code:	VERHE	VERHE	VERHE
Growth Stage:	coty-2 lf		
Height, Unit:	1 in		
Density,Unit:	0-16 m2		
Weed 3 Code:	CERVU	CERVU	CERVU
Growth Stage:	coty-4 lf		
Height, Unit:	1 in		
Density,Unit:	0-16 m2		
Weed 4 Code:	VERAR	VERAR	VERAR
Growth Stage:	coty-4 lf		
Height, Unit:	0.5 in		
Density,Unit:	0-16 m2		
Weed 5 Code:	VERPG	VERPG	VERPG
Growth Stage:	coty-6 lf		
Height, Unit:	0.5 in		
Density,Unit:	0-16 m2		

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APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Backpack	Backpack	Tractor
Operating Pressure:	31 psi	31 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	18 in	18 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	18 in	18 in	76 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	CO2	CO2	Comp. Air

Trial Comments

12/02/13: Rye cover crop stage at application 3-leaf, 5 inches.

03/11/14: Rye cover at UAN application - 3-5 tiller, 2.5 inches. Has not resumed growth yet.

05/19/14: Limited value with fall herbicide applications. Noticable differences from N application.

05/20/14: Rye cover crop stage at application - pollen shed, 45-60 inches.

05/24/14: Rye with Nitrogen, noticeably taller and thicker. Appears to be about 20% more biomass.

Examining trt 1 & 2: very few winter annuals present (a few speedwells and dead chickweed) not an issue in terms of competition. Seeing little benifit to fall herbicide applications. Horsenettle was in some plots and showed symptoms from glyphosphate but not dead.
In Rep. 3, Trt. 2: 1" IPOSS plant. Cotelydon stage in the entire plot. In Trt. 1 a number (approximatly 25/ plot) in cotelydon stage observed.
No morningglory observed in plots treated with Envive in the spring. (Trt. 9-12).

Rye biomass in kg/0.5m2

plot (label)	Nitrogen
110	0.231
112	0.235
209	0.174
303	0.235
308	0.162
311	0.196
	No Nitrogen
107	0.126
111	0.098
207	0.161
212	0.067
310	0.120
312	0.107

6/30/14: Heavy deer feeding - not able to rate stunting or take soy heights. Weed control based on untreated checks in adjacent trials and border areas without rye.

7/18/14: Soy height is average of 5 ft of row. Rep 3 had significant deer feeding resulting in more variability. No apparent differences in weed control. Plots with poor control at time of POST application ended up with good control from treatments. Palmer amaranth does not appear to be glyphosate-resistant in this study.

University of Delaware

Rye Cover Crop Management for NT Soybean

Trial ID: DSB3-14 Cooperator: Delaware Soybean Board
Location: Field #32 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	AMAPA Palmer amaranth Control % 06/30/14	IPOSS Morngly Species Control % 06/30/14	GGGAN Annual grasses Control % 06/30/14	GLXMA Soybean AvgHght Inches 07/18/14
1	Untreated							26.7 c	26.7 c	46.7 d	15.167 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	No Spring Nitrogen										
2	Untreated							56.7 b	43.3 c	75.0 c	17.000 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	50# Nitrogen					Spring					
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
3	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A				15.333 a
	----thifensulfuron	33		0.0123							
	----tribenuron	17		.00636							
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	No Spring Nitrogen										
4	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	40.0 bc	97.0 a	80.0 bc	15.667 a
	----thifensulfuron	33		0.0123							
	----tribenuron	17		.00636							
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	50# Nitrogen					Spring					
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
5	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A				14.417 a
	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	No Spring Nitrogen										
6	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A				16.167 a
	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	50# Nitrogen					Spring					
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
7	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	33.3 c	40.0 c	53.3 d	16.667 a
	----thifensulfuron	33		0.0123							
	----tribenuron	17		.00636							
	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	No Spring Nitrogen										

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Average=1,2,3

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	AMAPA	IPOSS	GGGAN	GLXMA
	Weed Code							AMAPA	IPOSS	GGGAN	
	Crop Code										GLXMA
	Weed or Crop Name							Palmer	Morngly	Annual	Soybean
	Weed or Crop Name							amaranth	Species	grasses	
	Rating Data Type							Control	Control	Control	AvgHght
	Rating Unit							%	%	%	Inches
	Rating Date							06/30/14	06/30/14	06/30/14	07/18/14
8	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	53.3 b	75.7 b	83.3 abc	16.667 a
	----thifensulfuron	33		0.0123							
	----tribenuron	17		.00636							
	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	50# Nitrogen					Spring					
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
9	Untreated							91.7 a	84.0 ab	94.7 ab	15.333 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C				
	----chlorimuron	9.2		0.0172							
	----flumioxazin	29.2		0.0547							
	----thifensulfuron	2.9		.00543							
	No Spring Nitrogen										
10	Untreated							98.0 a	97.0 a	97.0 a	17.500 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C				
	----chlorimuron	9.2		0.0172							
	----flumioxazin	29.2		0.0547							
	----thifensulfuron	2.9		.00543							
	50# Nitrogen					Spring					
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
11	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	85.7 a	97.0 a	88.0 abc	14.833 a
	----thifensulfuron	33		0.0123							
	----tribenuron	17		.00636							
	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C				
	----chlorimuron	9.2		0.0172							
	----flumioxazin	29.2		0.0547							
	----thifensulfuron	2.9		.00543							
	No Spring Nitrogen										
12	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	94.0 a	94.7 ab	93.0 ab	20.000 a
	----thifensulfuron	33		0.0123							
	----tribenuron	17		.00636							
	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A				
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A				
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C				
	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C				
	----chlorimuron	9.2		0.0172							
	----flumioxazin	29.2		0.0547							
	----thifensulfuron	2.9		.00543							
	50# Nitrogen					Spring					
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
	LSD P=.05							19.53	19.55	14.84	3.3695
	Standard Deviation							11.15	11.17	8.48	1.9899
	CV							17.33	15.33	10.73	12.26
	Replicate F							0.870	0.077	0.756	1.169
	Replicate Prob(F)							0.4403	0.9263	0.4877	0.3291
	Treatment F							19.196	19.373	13.498	1.729
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.1322

Weed Code	
Crop Code	GLXMA
Weed or Crop Name	Soybean
Weed or Crop Name	
Rating Data Type	Yield
Rating Unit	Bu/A
Rating Date	10/21/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Untreated							65.0 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	No Spring Nitrogen							
2	Untreated							66.3 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	50# Nitrogen					Spring		
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
3	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	62.7 a
	----thifensulfuron	33		0.0123				
	----tribenuron	17		.00636				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	No Spring Nitrogen							
4	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	66.9 a
	----thifensulfuron	33		0.0123				
	----tribenuron	17		.00636				
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	50# Nitrogen					Spring		
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
5	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	65.4 a
	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	A	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	No Spring Nitrogen							
6	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	61.4 a
	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	A	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	50# Nitrogen					Spring		
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
7	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	64.4 a
	----thifensulfuron	33		0.0123				
	----tribenuron	17		.00636				
	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	No Spring Nitrogen							

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Weed Code	
Crop Code	GLXMA
Weed or Crop Name	Soybean
Weed or Crop Name	
Rating Data Type	Yield
Rating Unit	Bu/A
Rating Date	10/21/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
8	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	66.0 a
	----thifensulfuron	33		0.0123				
	----tribenuron	17		.00636				
	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	50# Nitrogen					Spring		
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
9	Untreated							63.1 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C	
	----chlorimuron	9.2		0.0172				
	----flumioxazin	29.2		0.0547				
	----thifensulfuron	2.9		.00543				
	No Spring Nitrogen							
10	Untreated							63.1 a
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C	
	----chlorimuron	9.2		0.0172				
	----flumioxazin	29.2		0.0547				
	----thifensulfuron	2.9		.00543				
	50# Nitrogen					Spring		
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
11	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	61.5 a
	----thifensulfuron	33		0.0123				
	----tribenuron	17		.00636				
	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C	
	----chlorimuron	9.2		0.0172				
	----flumioxazin	29.2		0.0547				
	----thifensulfuron	2.9		.00543				
	No Spring Nitrogen							
12	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	65.3 a
	----thifensulfuron	33		0.0123				
	----tribenuron	17		.00636				
	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	
	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C	
	----chlorimuron	9.2		0.0172				
	----flumioxazin	29.2		0.0547				
	----thifensulfuron	2.9		.00543				
	50# Nitrogen					Spring		
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	

LSD P=.05	6.98
Standard Deviation	4.12
CV	6.41
Replicate F	14.599
Replicate Prob(F)	0.0001
Treatment F	0.611
Treatment Prob(F)	0.8002

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Rye Cover Crop Management for NT Soybean

Trial ID: DSB3-14 Cooperator: Delaware Soybean Board
Location: Field #32 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
	Weed Code								
	Crop Code							GLXMA	GLXMA
	Weed or Crop Name							Soybean	Soybean
	Weed or Crop Name								
	Rating Data Type							AvgHght	Yield
	Rating Unit							Inches	Bu/A
	Rating Date							07/18/14	10/21/14
	TABLE OF R MEANS								
	Replicate 1							16.896	68.8
	Replicate 2							16.125	64.3
	Replicate 3							15.667	59.7
	TABLE OF A (Herbcide) MEANS								
1	Untreated							16.083 a	65.7 a
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
2	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	15.500 a	64.8 a
2	----thifensulfuron	33		0.0123					
2	----tribenuron	17		.00636					
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
2	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A		
2	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
3	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	15.292 a	63.4 a
3	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	A		
3	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
3	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
4	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	16.667 a	65.2 a
4	----thifensulfuron	33		0.0123					
4	----tribenuron	17		.00636					
4	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A		
4	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
4	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A		
4	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
5	Untreated							16.417 a	63.1 a
5	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
5	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C		
5	----chlorimuron	9.2		0.0172					
5	----flumioxazin	29.2		0.0547					
5	----thifensulfuron	2.9		.00543					
6	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	17.417 a	63.4 a
6	----thifensulfuron	33		0.0123					
6	----tribenuron	17		.00636					
6	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A		
6	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
6	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A		
6	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
6	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C		
6	----chlorimuron	9.2		0.0172					
6	----flumioxazin	29.2		0.0547					
6	----thifensulfuron	2.9		.00543					
	LSD P=.05							2.3826	4.94
	Standard Deviation							1.9899	4.12
	CV							12.2613	6.41
	TABLE OF B (Spring Nitrogen) MEANS								
1	No Spring Nitrogen							15.292 b	63.7 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
Weed Code									
Crop Code								GLXMA	GLXMA
Weed or Crop Name								Soybean	Soybean
Weed or Crop Name									
Rating Data Type								AvgHght	Yield
Rating Unit								Inches	Bu/A
Rating Date								07/18/14	10/21/14
2	50# Nitrogen					Spring		17.167 a	64.8 a
2	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B		
LSD P=.05								1.3756	2.85
Standard Deviation								1.9899	4.12
CV								12.2613	6.41
TABLE OF A (Herbcide) B (Spring Nitrogen) MEANS									
1	Untreated							15.167 a	65.0 a
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
1	No Spring Nitrogen								
2	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	15.333 a	62.7 a
2	----thifensulfuron	33		0.0123					
2	----tribenuron	17		.00636					
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
2	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A		
2	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
1	No Spring Nitrogen								
3	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	14.417 a	65.4 a
3	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	A		
3	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
3	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
1	No Spring Nitrogen								
4	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	16.667 a	64.4 a
4	----thifensulfuron	33		0.0123					
4	----tribenuron	17		.00636					
4	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A		
4	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
4	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A		
4	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
1	No Spring Nitrogen								
5	Untreated							15.333 a	63.1 a
5	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
5	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C		
5	----chlorimuron	9.2		0.0172					
5	----flumioxazin	29.2		0.0547					
5	----thifensulfuron	2.9		.00543					
1	No Spring Nitrogen								
6	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	14.833 a	61.5 a
6	----thifensulfuron	33		0.0123					
6	----tribenuron	17		.00636					
6	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A		
6	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A		
6	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A		
6	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
6	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C		
6	----chlorimuron	9.2		0.0172					
6	----flumioxazin	29.2		0.0547					
6	----thifensulfuron	2.9		.00543					
1	No Spring Nitrogen								
1	Untreated							17.000 a	66.3 a
1	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C		
2	50# Nitrogen					Spring			
2	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B		

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Weed Code								
Crop Code							GLXMA	GLXMA
Weed or Crop Name							Soybean	Soybean
Weed or Crop Name								
Rating Data Type							AvgHght	Yield
Rating Unit							Inches	Bu/A
Rating Date							07/18/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
2	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	15.667 a	66.9 a
2	----thifensulfuron	33		0.0123				
2	----tribenuron	17		.00636				
2	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
2	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
2	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
2	50# Nitrogen					Spring		
2	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
3	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	16.167 a	61.4 a
3	Clarity.....dicamba	4	L	0.125	lb ai/a	Fall	A	
3	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
3	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
2	50# Nitrogen					Spring		
2	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
4	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	16.667 a	66.0 a
4	----thifensulfuron	33		0.0123				
4	----tribenuron	17		.00636				
4	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	
4	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
4	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
4	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
2	50# Nitrogen					Spring		
2	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
5	Untreated							17.500 a	63.1 a
5	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
5	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C	
5	----chlorimuron	9.2		0.0172				
5	----flumioxazin	29.2		0.0547				
5	----thifensulfuron	2.9		.00543				
2	50# Nitrogen					Spring		
2	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
6	Harmony Extra SG Premix	50	SG	0.0187	lb ai/a	Fall	A	20.000 a	65.3 a
6	----thifensulfuron	33		0.0123				
6	----tribenuron	17		.00636				
6	2,4-D amine	3.8	L	0.237	lb ae/a	Fall	A	
6	Nonionic Surfactant	100	L	0.25	% v/v	Fall	A	
6	Dry Ammonium Sulfate	100	D	2.4	% w/v	Fall	A	
6	Roundup WeatherMax..glyphosate	4.5	AS	1.12	lb ae/a	Spring	C	
6	Envive Premix	41.3	WG	0.0774	lb ai/a	Spring	C	
6	----chlorimuron	9.2		0.0172				
6	----flumioxazin	29.2		0.0547				
6	----thifensulfuron	2.9		.00543				
2	50# Nitrogen					Spring		
2	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
LSD P=.05								3.3695	6.98
Standard Deviation								1.9899	4.12
CV								12.2613	6.41

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FACTORIAL/POOLED ERROR AOV For GLXMA Soybean AvgHght Inches 07/18/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	171.671875				
R	2	9.260417	4.630208	1.169	0.3291	
A	5	18.411458	3.682292	0.930	0.4807	2.383
B	1	31.640625	31.640625	7.991	0.0098	1.376
AB	5	25.244792	5.048958	1.275	0.3099	3.370
ERROR	22	87.114583	3.959754			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 10/21/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	984.308382				
R	2	496.225991	248.112996	14.599	0.0001	
A	5	35.930707	7.186141	0.423	0.8278	4.9
B	1	11.613742	11.613742	0.683	0.4173	2.8
AB	5	66.641164	13.328233	0.784	0.5720	7.0
ERROR	22	373.896779	16.995308			

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Tank mix Partners with Liberty 280 to Improve Residual Control

Trial ID: DSB4-14 Location: Field #14 Trial Year:
Protocol ID: DSB4-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Delaware Soybean Board

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: LL-473N

Planting Date: 05/19/14
Planting Rate, Unit: 220000 S/A
Planting Method: PLANTD planted
Depth, Unit: 1 IN
Planting Equipment: PP Plot Planter
Row Spacing, Unit: 15 IN
Emergence Date: 05/25/14
Harvest Date: 10/27/14
Harvested Width, Unit: 6.25 FT
Soil Temperature, Unit: 73 F
Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate
Harvest Equipment: Plot combine
Seed Bed: MEDIUM medium
% Standard Moisture: 13.0

Pest Description

Pest 1 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth

Pest 2 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morning glory

Pest 3 Type: W Code: AMBEL Ambrosia artemisiifolia
Common Name: Common ragweed

Pest 4 Type: W Code: MOLVE Mollugo verticillata
Common Name: Carpetweed

Site and Design

Treated Plot Width: 10 FT
Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 14
Tillage Type: CONTIL conventional-till
Replications: 3
Study Design: RACOBL Randomized Complete Block (RCB)

Field Prep./Maintenance:
6/30/14: Liberty at 38 oz/A + AMS applied as a total POST.

Soil Description

% Sand: 79 % OM: 1.4 Texture: LS loamy sand
% Silt: 14 pH: 6.1
% Clay: 7 CEC: 5.1 Fert. Level: E excellent
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

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Application Description

	A
Application Date:	06/18/14
Appl. Stop Time:	07:30 AM
Application Method:	SPRAY
Application Timing:	28DAP
Application Placement:	BROADC
Applied By:	Johnson
Air Temperature, Unit:	81 F
% Relative Humidity:	69
Wind Velocity, Unit:	1 MPH
Wind Direction:	W
Dew Presence (Y/N):	N no
Soil Temperature, Unit:	80 F
Soil Moisture:	NORMAL
% Cloud Cover:	0

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	GLXMA BSOY
Stage Scale Used:	DESC
Stage Majority, Percent:	4-trifol 100
Height, Unit:	9 IN
Height Minimum, Maximum:	8.5 9.5

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	AMAPA W
Stage Majority, Percent:	Veg 100
Height, Unit:	9 IN
Height Minimum, Maximum:	6 12
Density, Unit:	10 M2
Pest 2 Code, Type, Scale:	IPOSS W
Stage Majority, Percent:	Veg 100
Height, Unit:	10 IN
Height Minimum, Maximum:	8 12
Density, Unit:	8 M2
Pest 3 Code, Type, Scale:	AMBEL W
Stage Majority, Percent:	Veg 100
Height, Unit:	6 IN
Density, Unit:	1 M2
Pest 4 Code, Type, Scale:	MOLVE W
Stage Majority, Percent:	Flwr 100
Height, Unit:	5 IN
Density, Unit:	20 M2

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Application Equipment

	A
Appl. Equipment:	Tractor
Equipment Type:	TRMOSP
Operation Pressure, Unit:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	10 ft
Boom Height, Unit:	28 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/ac
Mix Size, Unit:	0.7 Gallons
Propellant:	COMAIR

Trial Comments

06/08/14: Some deer feeding; nothing to rate from 101-103 - all 6 ranges.

06/18/14: Some deer damage.

University of Delaware

Tank mix Partners with Liberty 280 to Improve Residual Control

Trial ID: DSB4-14 Location: Field #14 Trial Year:
Protocol ID: DSB4-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Delaware Soybean Board

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA Soybean LeafBrn % 06/23/14	AMAPA PalmerAm Control % 07/02/14	IPOSS mornglry Control % 07/02/14	GLXMA Soybean Yield Bu/A 10/27/14
1	Untreated Check							0.0 e	0.0 f	0.0 c	85.0 a
2	Dual Magnum.....s-metolachlor	7.62	E	0.95	lb ai/a	4 WAP	A	9.7 bcd	77.3 cd	83.0 b	87.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	A				
3	Zidua.....pyroxasulfone	85	WG	0.053	lb ai/a	4 WAP	A	13.0 b	84.3 b	84.0 b	86.4 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	A				
4	Outlook.....dimethenamid-p	6	L	0.56	lb ai/a	4 WAP	A	14.0 b	85.0 b	84.7 b	87.3 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	A				
5	Prowl H2O.....pendimethalin	3.8	CS	0.71	lb ai/a	4 WAP	A	9.7 bcd	80.3 bc	84.0 b	85.1 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	A				
6	Warrant.....acetochlor	3	CS	0.56	lb ai/a	4 WAP	A	7.0 d	80.0 bc	85.3 ab	84.6 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	A				
7	Reflex.....fomesafen	2	L	0.25	lb ai/a	4 WAP	A	24.0 a	93.7 a	84.7 b	80.4 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	A				
8	Dual Magnum.....s-metolachlor	7.62	E	0.95	lb ai/a	4 WAP	A	12.3 bc	72.7 de	84.7 b	86.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
9	Zidua.....pyroxasulfone	85	WG	0.053	lb ai/a	4 WAP	A	9.7 bcd	77.3 cd	84.0 b	86.3 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
10	Outlook.....dimethenamid-p	6	L	0.56	lb ai/a	4 WAP	A	9.7 bcd	83.3 bc	84.3 b	88.7 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
11	Prowl H2O.....pendimethalin	3.8	CS	0.71	lb ai/a	4 WAP	A	8.0 cd	71.0 e	83.3 b	84.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
12	Warrant.....acetochlor	3	CS	0.56	lb ai/a	4 WAP	A	7.3 d	72.3 de	83.7 b	83.7 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
13	Reflex.....fomesafen	2	L	0.25	lb ai/a	4 WAP	A	21.7 a	92.0 a	87.7 a	88.5 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
14	Select Max.....clethodim	1	EC	0.125	lb ai/a	4 WAP	A	25.0 a	85.3 b	85.0 b	82.2 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	4 WAP	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	A				
LSD P=.05								4.61	6.06	2.55	7.09
Standard Deviation								2.75	3.61	1.52	4.22
CV								22.49	4.79	1.94	4.95
Replicate F								0.691	2.054	1.156	0.486
Replicate Prob(F)								0.5101	0.1486	0.3305	0.6205
Treatment F								19.552	119.054	664.436	0.902
Treatment Prob(F)								0.0001	0.0001	0.0001	0.5619

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

Control of Grape Hyacinth for NT Soybean Production

Trial ID: DSB5-14 Location: Easton, MD Trial Year:
Protocol ID: DSB5-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Delaware Soybean Board

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
BBCH Scale: BSOY

Pest Description

Pest 1 Type: W Code: MUSBO Muscari botryoides
Common Name: Common grapehyacinth

Pest 2 Type: W Code: HORVW Hordeum vulgare (winter)
Common Name: Winter barley
Description: planted as cover crop

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 10 Tillage Type: NOTILL no-till
Replications: 3 Study Design: FACTOR Factorial

Trial Initiation Comments:
Corn stalks were not chopped in the fall. A Barley cover crop was planted in the fall.

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal

Application Description

	A	B
Application Date:	04/10/14	05/02/14
Appl. Stop Time:	12:00 PM	12:00 PM
Interval to Prev. Appl., Unit:		22 DAYS
Application Method:	SPRAY	SPRAY
Application Timing:	Spring	10EPP
Application Placement:	BROADC	BROADC
Applied By:	VanGessl	VanGessl
Air Temperature, Unit:	62 F	67 F
% Relative Humidity:	30	34
Wind Velocity, Unit:	6 mph	5 mph
Wind Direction:	SW	SE
Dew Presence (Y/N):	N no	N no
Soil Temperature, Unit:	62 F	66 F
Soil Moisture:	NORMAL	NORMAL
% Cloud Cover:	0	85

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	MUSBO W	MUSBO W
Stage Majority, Percent:	veg 95	flowr 100
Stage Minimum, Percent:	veg 95	
Stage Maximum, Percent:	flowr 5	
Height, Unit:	2.5 in	7 in
Density, Unit:	50 m2	75 m2
Pest 2 Code, Type, Scale:	HORVW W	HORVW W
Stage Majority, Percent:	tiller 100	boot 100
Height, Unit:	5 in	18 in
Density, Unit:	50 m2	50 m2

Application Equipment

	A	B
Appl. Equipment:	Backpack	Backpack
Equipment Type:	SPRBAC	SPRBAC
Operation Pressure, Unit:	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	18 in
Boom Length, Unit:	9 ft	9 ft
Boom Height, Unit:	20 in	35 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac
Mix Size, Unit:	2 Liters	2 Liters
Propellant:	COMCO2	COMCO2

Trial Comments

05/02/14: Other is an overall rating of everything other than grape hyacinth including mouseear chickweed, henbit, and annual bluegrass.

05/21/14: Later applications did not stop seed production. Barley cover crop and other winter annual weeds were controlled with all treatments.

08/27/14: Soybean stunting in treatment 5 is ~60%; soybean stunting in treatment 6 is ~70%; no noticeable stunting observed with treatment 7 at this time; stunting in treatment 8 is ~15%.

Treatments 5 and 6 heavily infested wtih annual grass (mostly large crabgrass). Treatment 8 better grass suppression than trts 5 and 6, but infestation is not acceptable. Some scattered grasses in other plots, but not very competitive with soybeans at this point.

University of Delaware

Control of Grape Hyacinth for NT Soybean Production

Trial ID: DSB5-14 Location: Easton, MD Trial Year:
Protocol ID: DSB5-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Delaware Soybean Board

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	MUSBO GrpHyac	spp	MUSBO GrpHyac	MUSBO GrpHyac
	Pest Code							MUSBO		MUSBO	MUSBO
	Pest Name							GrpHyac	spp	GrpHyac	GrpHyac
	Rating Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/02/14	05/02/14	05/21/14	10/31/14
1	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a	Spring	A	46.7 c	97.0 a	78.3 b	60.0 c
	Early Spring										
2	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a	10EPP	B			43.3 d	56.7 c
	10 days PRE Plant										
3	Touchdown Total...glyphosate	4.17	SL	1.56	lb ae/a	Spring	A	63.3 b	97.0 a	86.7 a	65.0 bc
	Early Spring										
4	Touchdown Total...glyphosate	4.17	SL	1.56	lb ae/a	10EPP	B			56.7 c	56.7 c
	10 days PRE Plant										
5	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a	Spring	A	63.3 b	97.0 a	83.3 ab	63.3 c
	Finesse Premix	75	DF	0.0188	lb ai/a	Spring	A				
	----chlorsulfuron	62.5		0.0157							
	----metsulfuron	12.5		0.00313							
	Early Spring										
6	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a	10EPP	B			50.0 cd	76.7 ab
	Finesse Premix	75	DF	0.0188	lb ai/a	10EPP	B				
	----chlorsulfuron	62.5		0.0157							
	----metsulfuron	12.5		0.00313							
	10 days PRE Plant										
7	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a	Spring	A	50.0 c	97.0 a	85.0 ab	81.7 a
	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a	Spring	A				
	Early Spring										
8	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a	10EPP	B			50.0 cd	80.0 a
	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a	10EPP	B				
	10 days PRE Plant										
9	Untreated Check									0.0 e	0.0 d
10	Touchdown Total...glyphosate	4.17	SL	1.56	lb ae/a	Spring	A	75.0 a	97.0 a	89.3 a	78.3 a
	Touchdown Total...glyphosate	4.17	SL	1.56	lb ae/a	10EPP	B				
	LSD P=.05							9.57	.	7.97	12.05
	Standard Deviation							5.08	0.00	4.65	7.03
	CV							8.52	0.0	7.46	11.36
	Replicate F							0.839	0.000	0.631	2.144
	Replicate Prob(F)							0.4670	1.0000	0.5433	0.1461
	Treatment F							15.226	0.000	109.812	34.501
	Treatment Prob(F)							0.0008	1.0000	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) for columns 2 because error mean square = 0.

Pest Code Pest Name Rating Type Rating Unit Rating Date								MUSBO GrpHyac Control % 04/06/15	MUSBO GrpHyac Control % 04/16/15
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code		
1	Touchdown Total...glyphosate Early Spring	4.17	SL	1.04	lb ae/a	Spring	A	46.7 cde	30.0 d
2	Touchdown Total...glyphosate 10 days PRE Plant	4.17	SL	1.04	lb ae/a	10EPP	B	36.7 e	33.3 d
3	Touchdown Total...glyphosate Early Spring	4.17	SL	1.56	lb ae/a	Spring	A	46.7 cde	50.0 c
4	Touchdown Total...glyphosate 10 days PRE Plant	4.17	SL	1.56	lb ae/a	10EPP	B	40.0 de	50.0 c
5	Touchdown Total...glyphosate Finesse Premix ----chlorsulfuron ----metsulfuron Early Spring	4.17 75 62.5 12.5	SL DF	1.04 0.0188 0.0157 0.00313	lb ae/a lb ai/a	Spring Spring	A A	56.7 abc	50.0 c
6	Touchdown Total...glyphosate Finesse Premix ----chlorsulfuron ----metsulfuron 10 days PRE Plant	4.17 75 62.5 12.5	SL DF	1.04 0.0188 0.0157 0.00313	lb ae/a lb ai/a	10EPP 10EPP	B B	53.3 a-d	50.0 c
7	Touchdown Total...glyphosate Maverick.....sulfosulfuron Early Spring	4.17 75	SL WG	1.04 0.0314	lb ae/a lb ai/a	Spring Spring	A A	66.7 a	56.7 bc
8	Touchdown Total...glyphosate Maverick.....sulfosulfuron 10 days PRE Plant	4.17 75	SL WG	1.04 0.0314	lb ae/a lb ai/a	10EPP 10EPP	B B	63.3 ab	70.0 a
9	Untreated Check							0.0 f	0.0 e
10	Touchdown Total...glyphosate Touchdown Total...glyphosate	4.17 4.17	SL SL	1.56 1.56	lb ae/a lb ae/a	Spring 10EPP	A B	50.0 b-e	65.0 ab
LSD P=.05 Standard Deviation CV Replicate F Replicate Prob(F) Treatment F Treatment Prob(F)								15.16 8.84 19.22 0.384 0.6867 13.441 0.0001	12.32 7.18 15.78 1.018 0.3812 23.557 0.0001

University of Delaware

Control of Grape Hyacinth for NT Soybean Production

Trial ID: DSB5-14 Location: Easton, MD Trial Year:
Protocol ID: DSB5-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Delaware Soybean Board

Pest Code Pest Name Rating Type Rating Unit Rating Date							MUSBO GrpHyac Control % 05/21/14	MUSBO GrpHyac Control % 10/31/14	MUSBO GrpHyac Control % 04/06/15	MUSBO GrpHyac Control % 04/16/15
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
TABLE OF R MEANS Replicate 1								65.6	63.1	50.0	48.1
Replicate 2								67.5	72.5	51.3	51.9
Replicate 3								66.9	66.9	52.5	46.3
TABLE OF A (Herbicides) MEANS											
1	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a			60.8 b	58.3 c	41.7 b	31.7 c
2	Touchdown Total...glyphosate	4.17	SL	1.56	lb ae/a			71.7 a	60.8 c	43.3 b	50.0 b
3	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a			66.7 ab	70.0 b	55.0 a	50.0 b
3	Finesse Premix	75	DF	0.0188	lb ai/a						
3	----chlorsulfuron	62.5		0.0157							
3	----metsulfuron	12.5		0.00313							
4	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a			67.5 a	80.8 a	65.0 a	63.3 a
4	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a						
LSD P=.05								6.36	8.29	11.66	9.08
Standard Deviation								5.13	6.69	9.42	7.33
CV								7.70	9.92	18.38	15.03
TABLE OF B (Timing) MEANS											
1	Early Spring							83.3 a	67.5 a	54.2 a	46.7 a
2	10 days PRE Plant							50.0 b	67.5 a	48.3 a	50.8 a
LSD P=.05								4.49	5.86	8.25	6.42
Standard Deviation								5.13	6.69	9.42	7.33
CV								7.70	9.92	18.38	15.03
TABLE OF A (Herbicides) B (Timing) MEANS											
1 1	Touchdown Total...glyphosate Early Spring	4.17	SL	1.04	lb ae/a			78.3 a	60.0 a	46.7 a	30.0 a
2 1	Touchdown Total...glyphosate Early Spring	4.17	SL	1.56	lb ae/a			86.7 a	65.0 a	46.7 a	50.0 a
3	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a			83.3 a	63.3 a	56.7 a	50.0 a
3	Finesse Premix	75	DF	0.0188	lb ai/a						
3	----chlorsulfuron	62.5		0.0157							
3	----metsulfuron	12.5		0.00313							
1	Early Spring										
4	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a			85.0 a	81.7 a	66.7 a	56.7 a
4	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a						
1	Early Spring										
1 2	Touchdown Total...glyphosate 10 days PRE Plant	4.17	SL	1.04	lb ae/a			43.3 a	56.7 a	36.7 a	33.3 a
2 2	Touchdown Total...glyphosate 10 days PRE Plant	4.17	SL	1.56	lb ae/a			56.7 a	56.7 a	40.0 a	50.0 a

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	MUSBO GrpHyac Control % 05/21/14	MUSBO GrpHyac Control % 10/31/14	MUSBO GrpHyac Control % 04/06/15	MUSBO GrpHyac Control % 04/16/15
	Pest Code							MUSBO	MUSBO	MUSBO	MUSBO
	Pest Name							GrpHyac	GrpHyac	GrpHyac	GrpHyac
	Rating Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/21/14	10/31/14	04/06/15	04/16/15
3	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a			50.0 a	76.7 a	53.3 a	50.0 a
3	Finesse Premix	75	DF	0.0188	lb ai/a						
3	----chlorsulfuron	62.5		0.0157							
3	----metsulfuron	12.5		0.00313							
2	10 days PRE Plant										
4	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a			50.0 a	80.0 a	63.3 a	70.0 a
4	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a						
2	10 days PRE Plant										
	LSD P=.05							8.99	11.72	16.49	12.84
	Standard Deviation							5.13	6.69	9.42	7.33
	CV							7.70	9.92	18.38	15.03

FACTORIAL/POOLED ERROR AOV For MUSBO GrpHyac Control % 05/21/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	7433.333333				
R	2	14.583333	7.291667	0.277	0.7622	
A	3	358.333333	119.444444	4.535	0.0202	6.4
B	1	6666.666667	6666.666667	253.107	0.0001	4.5
AB	3	25.000000	8.333333	0.316	0.8133	9.0
ERROR	14	368.750000	26.339286			

FACTORIAL/POOLED ERROR AOV For MUSBO GrpHyac Control % 10/31/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	3250.000000				
R	2	356.250000	178.125000	3.977	0.0429	
A	3	1875.000000	625.000000	13.953	0.0002	8.3
B	1	0.000000	0.000000	0.000	1.0000	5.9
AB	3	391.666667	130.555556	2.915	0.0713	11.7
ERROR	14	627.083333	44.791667			

FACTORIAL/POOLED ERROR AOV For MUSBO GrpHyac Control % 04/06/15

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	3662.500000				
R	2	25.000000	12.500000	0.141	0.8698	
A	3	2145.833333	715.277778	8.065	0.0023	11.7
B	1	204.166667	204.166667	2.302	0.1515	8.2
AB	3	45.833333	15.277778	0.172	0.9134	16.5
ERROR	14	1241.666667	88.690476			

FACTORIAL/POOLED ERROR AOV For MUSBO GrpHyac Control % 04/16/15

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	4212.500000				
R	2	131.250000	65.625000	1.222	0.3243	
A	3	3045.833333	1015.277778	18.899	0.0001	9.1
B	1	104.166667	104.166667	1.939	0.1855	6.4
AB	3	179.166667	59.722222	1.112	0.3774	12.8
ERROR	14	752.083333	53.720238			

University of Delaware

Herbicide-Resistant Soybeans for Palmer Amaranth Control

Trial ID: DSB6-14 Cooperator: Delaware Soybean Board
Location: Field #32 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Horseweed	ERICA	Erigeron canadensis L.

Crop 1: Soybean GLXMA Variety: RT4996N-STS; LL499N
Planting Date: 06/13/14 Planting Method: Row- Cone System Depth: 1 in
Rate: 5 Sd/row-ft Row Spacing: 14 in Seed Bed: Firm/Trashy
Soil Temperature: 88 F Soil Moisture: Moist Emergence Date: 06/17/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

MAINTENANCE

Field Prep./Maintenance: Roundup at 1 qt/A was applied with PRE treatments.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/21/14	Roundup PowerMax	4.5	AS	2	qt/A
2.	04/21/14	2,4-D ester	3.8	L	1	pt/A

SOIL DESCRIPTION

% Sand: 81 % OM: 1.8 Texture: loamy sand
% Silt: 10 pH: 6.1
% Clay: 9 CEC: 6.0 Fert. Level: Optimum

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	06/13/14	07/10/14	07/30/14
Time of Day:	11:30 am	8:30 am	11:30 am
Application Method:	Spray	Spray	Spray
Application Timing:	PRE	4WAP	6WAP
Applic. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	81 F	77 F	75 F
% Relative Humidity:	69	88	47
Wind Velocity, Unit:	3 mph	2 mph	1 mph
Wind Direction:	South	South	Southeast
Dew Presence (Y/N):	N	Y	Y
Soil Temp., Unit:	81 F	76 F	74 F
Soil Surf. Moisture:	Moist	Moist	Dry
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist	Moist
% Cloud Cover:	60	100	20

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:		V3-4	flower
Height, Unit:		7 in	16 in
Crop Health:		F-G	Good

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:		vegetative	
Height, Unit:		8 in	
Density,Unit:		0-3 m2	
Weed 2 Code:	ERICA	ERICA	ERICA
Growth Stage:		bolting	bolting
Height, Unit:		10 in	24 in
Density,Unit:		0-1 m2	0-1 m2

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	26 in	40 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

Trial Comments

07/10/14: Some deer damage on soybeans. Horseweed plants are scattered.

07/11/14: Palmer amaranth control is based only on PRE treatments. Palmer amaranth density is very low, as a result, data is not very consistant. No stunting observed from PRE treatments.

08/06/14: Trt 11 appears contaminated with PGR. Very low density of Palmer amaranth. Trt 4,5,6,8,12 - poor horseweed control.

09/10/14: Horseweed and Palmer amarnath density was light. Mature horseweed plants were observed in treatment 4, 6, 8, and 12.

University of Delaware

Herbicide-Resistant Soybeans for Palmer Amaranth Control

Trial ID: DSB6-14 Cooperator: Delaware Soybean Board
Location: Field #32 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	AMAPA Palmer Amaranth Control % 07/11/14	GLXMA Soybean Stunting % 07/16/14	AMAPA Palmer Amaranth Control % 08/06/14	AMAPA Palmer Amaranth Control % 09/10/14
1	Roundup Ready Soys Untreated Check							0.0 c	0.0 c	0.0 c	0.0 b
2	Roundup Ready Soys								0.0 c	76.7 b	100.0 a
	Glyphosate	3	L	0.75	lb ae/a	4 WAP	B				
3	Liberty-Link Soys								0.0 c	97.7 a	90.0 a
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	4 WAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	B				
4	Roundup Ready Soys								31.7 a	100.0 a	90.0 a
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE	A				
	Glyphosate	3	L	0.75	lb ae/a	4 WAP	B				
5	Liberty-Link Soys								0.0 c	100.0 a	100.0 a
	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A				
	----s-metolachlor	4.348		1.09							
	----fomesafen	.9518		0.24							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	4 WAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	B				
6	Roundup Ready Soys							93.3 a	0.0 c	100.0 a	100.0 a
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE	A				
	Glyphosate	3	L	0.75	lb ae/a	6 WAP	C				
7	Liberty-Link Soys							100.0 a	0.0 c	100.0 a	100.0 a
	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A				
	----s-metolachlor	4.348		1.09							
	----fomesafen	.9518		0.24							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	6 WAP	C				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	6 WAP	C				
8	Roundup Ready Soys							100.0 a	3.3 c	100.0 a	100.0 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A				
	Glyphosate	3	L	0.75	lb ae/a	4 WAP	B				
9	Liberty-Link Soys							64.6 b	0.0 c	100.0 a	100.0 a
	Prefix Premix	5.3	E	0.86	lb ai/a	PRE	A				
	----s-metolachlor	4.348		0.706							
	----fomesafen	.9518		0.154							
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	4 WAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	B				
10	Liberty-Link Soys								11.7 bc	100.0 a	100.0 a
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE	A				
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	4 WAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	B				
11	Roundup Ready Soys								23.3 ab	100.0 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62	E	0.477	lb ai/a	PRE	A				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	4 WAP	B				
	Select Max.....clethodim	1	EC	0.0625	lb ai/a	4 WAP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1

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Weed Code							AMAPA		AMAPA	AMAPA
Crop Code								GLXMA		
Weed or Crop Name							Palmer	Soybean	Palmer	Palmer
Weed or Crop Name							Amaranth		Amaranth	Amaranth
Rating Data Type							Control	Stunting	Control	Control
Rating Unit							%	%	%	%
Rating Date							07/11/14	07/16/14	08/06/14	09/10/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
12	Roundup Ready Soys							33.3 a	93.3 a	93.3 a
	Dual Magnum.....s-metolachlor	7.62	E	0.477	lb ai/a	PRE	A			
	Cobra.....lactofen	2	EC	0.195	lb ai/a	4 WAP	B			
	Select Max.....clethodim	1	EC	0.0625	lb ai/a	4 WAP	B			
	Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B			
LSD P=.05								7.74	16.34	12.29	13.80
Standard Deviation								4.01	9.65	7.26	8.15
CV								5.6	112.06	8.16	9.11
Replicate F								0.162	1.797	0.073	0.042
Replicate Prob(F)								0.8535	0.1892	0.9295	0.9591
Treatment F								338.858	5.611	47.320	36.578
Treatment Prob(F)								0.0001	0.0003	0.0001	0.0001

Weed Code	
Crop Code	GLXMA
Weed or Crop Name	Soybean
Weed or Crop Name	
Rating Data Type	Yield
Rating Unit	Bu/A
Rating Date	10/27/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Roundup Ready Soys							43.7 a
	Untreated Check							
2	Roundup Ready Soys							47.2 a
	Glyphosate	3	L	0.75	lb ae/a	4 WAP	B	
3	Liberty-Link Soys							41.6 a
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	4 WAP	B	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	B	
4	Roundup Ready Soys							44.2 a
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE	A	
	Glyphosate	3	L	0.75	lb ae/a	4 WAP	B	
5	Liberty-Link Soys							40.3 a
	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	
	----s-metolachlor	4.348		1.09				
	----fomesafen	.9518		0.24				
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	4 WAP	B	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	B	
6	Roundup Ready Soys							45.3 a
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE	A	
	Glyphosate	3	L	0.75	lb ae/a	6 WAP	C	
7	Liberty-Link Soys							41.1 a
	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	
	----s-metolachlor	4.348		1.09				
	----fomesafen	.9518		0.24				
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	6 WAP	C	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	6 WAP	C	
8	Roundup Ready Soys							44.3 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	
	Glyphosate	3	L	0.75	lb ae/a	4 WAP	B	
9	Liberty-Link Soys							35.9 a
	Prefix Premix	5.3	E	0.86	lb ai/a	PRE	A	
	----s-metolachlor	4.348		0.706				
	----fomesafen	.9518		0.154				
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	4 WAP	B	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	B	
10	Liberty-Link Soys							35.2 a
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE	A	
	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	4 WAP	B	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	4 WAP	B	
11	Roundup Ready Soys							35.9 a
	Dual Magnum.....s-metolachlor	7.62	E	0.477	lb ai/a	PRE	A	
	Reflex.....fomesafen	2	L	0.375	lb ai/a	4 WAP	B	
	Select Max.....clethodim	1	EC	0.0625	lb ai/a	4 WAP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B	

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Weed Code	
Crop Code	GLXMA
Weed or Crop Name	Soybean
Weed or Crop Name	
Rating Data Type	Yield
Rating Unit	Bu/A
Rating Date	10/27/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
12	Roundup Ready Soys							33.7 a
	Dual Magnum.....s-metolachlor	7.62	E	0.477	lb ai/a	PRE	A	
	Cobra.....lactofen	2	EC	0.195	lb ai/a	4 WAP	B	
	Select Max.....clethodim	1	EC	0.0625	lb ai/a	4 WAP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	4 WAP	B	

LSD P=.05	10.03
Standard Deviation	5.92
CV	14.54
Replicate F	1.253
Replicate Prob(F)	0.3053
Treatment F	1.744
Treatment Prob(F)	0.1285

University of Delaware

Burndown for Double Cropped Soybeans
Palmer amaranth Management
Trial ID: DSB7-14 Cooperator: DE Soybean Board
Location: Field #22 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.

Crop 1: Soybean GLXMA Variety: H42-13R2-UP
Planting Date: 07/10/14 Planting Method: Row- Unit Planter Depth: 1 in
Rate: 180000 Sd/A Row Spacing: 15 in Seed Bed: Medium
Soil Temperature: 82 F Soil Moisture: Normal Emergence Date: 07/16/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

MAINTENANCE

Field Prep./Maintenance: 8/6/14: Total POST of Touchdown Total + Reflex.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	08/06/14	Touchdown Total	4.17	SL	30	fl oz/A
2.	08/06/14	Reflex	2	L	1.5	pt/A

SOIL DESCRIPTION

% Sand: 80 % OM: 1.3 Texture: sandy loam
% Silt: 10 pH: 5.4
% Clay: 10 CEC: 3.9 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.6 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	07/11/14
Time of Day:	10:00 AM
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	74 F
% Relative Humidity:	85
Wind Velocity, Unit:	1 mph
Wind Direction:	NE
Dew Presence (Y/N):	Y
Soil Temp., Unit:	73 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Wet
Leaf Surf. Moisture:	Moist
% Cloud Cover:	100

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	GLXMA

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	ERICA
Growth Stage:	Bolt
Height, Unit:	9.5 in
Density,Unit:	5-80 m2
Weed 2 Code:	DIGSA
Growth Stage:	Tiller
Height, Unit:	7 in
Density,Unit:	30-100 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	30 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

07/11/14: 80% of weeds present were just below cutter bar height of 8-11 inches, remaining 20% were cut to that height.

07/22/14: Large crabgrass density not uniform - very little in rep 1.

08/22/14: All treatments excellent for palmer control.

09/10/14: Light infestation of horseweed, ratings based on presencen of mature plants.

University of Delaware

Burndown for Double Cropped Soybeans
Palmer amaranth Management
Trial ID: DSB7-14 Cooperator: DE Soybean Board
Location: Field #22 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	ERICA	DIGSA	ERICA	DIGSA	ERICA
	Weed Code						ERICA	DIGSA	ERICA	DIGSA	ERICA
	Crop Code										
	Weed or Crop Name						Horse-weed	Large Crabgras	Horse-weed	Large Crabgras	Horse-weed
	Weed or Crop Name										
	Rating Data Type						Control	Control	Control	Control	Control
	Rating Unit						%	%	%	%	%
	Rating Date						07/22/14	07/22/14	08/05/14	08/05/14	08/22/14
1	Untreated Check						0.0 d	0.0 e	0.0 e	0.0 e	0.0 f
2	Canopy Premix	75	DF	0.187	lb ai/a	PRE	87.0 b	89.5 abc	76.0 c	87.0 ab	81.0 bcd
	----metribuzin	64.3		0.16							
	----chlorimuron	10.7		0.0267							
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE					
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE					
3	Valor XLT Premix	40.3	WG	0.091	lb ai/a	PRE	85.3 b	74.5 d	78.3 bc	78.3 bc	79.3 cd
	----flumioxazin	30		0.068							
	----chlorimuron	10.3		0.0233							
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE					
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE					
4	Authority XL Premix	70	DG	0.21	lb ai/a	PRE	87.7 b	82.0 cd	89.3 ab	60.0 d	85.3 abc
	----sulfentrazone	62.2		0.187							
	----chlorimuron	7.8		0.0234							
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE					
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE					
5	Goal 2XL.....oxyfluorfen	2	E	0.5	lb ai/a	PRE	77.7 bc	87.5 bc	68.3 c	88.3 ab	64.3 de
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE					
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE					
6	Callisto.....mesotrione	4	SC	0.166	lb ai/a	PRE	100.0 a	85.3 cd	100.0 a	75.0 bcd	100.0 a
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE					
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE					
7	Canopy Premix	75	DF	0.187	lb ai/a	PRE	100.0 a	100.0 a	96.7 a	62.5 cd	100.0 a
	----metribuzin	64.3		0.16							
	----chlorimuron	10.7		0.0267							
	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE					
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
8	Canopy Premix	75	DF	0.187	lb ai/a	PRE	66.7 c	100.0 a	71.7 c	99.0 a	78.3 cd
	----metribuzin	64.3		0.16							
	----chlorimuron	10.7		0.0267							
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
9	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	100.0 a	99.0 ab	91.3 a	65.0 cd	97.3 ab
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=2,3; Average=4

University of Delaware

Weed Code						ERICA	DIGSA	ERICA	DIGSA	ERICA
Crop Code										
Weed or Crop Name						Horse-	Large	Horse-	Large	Horse-
Weed or Crop Name						weed	Crabgras	weed	Crabgras	weed
Rating Data Type						Control	Control	Control	Control	Control
Rating Unit						%	%	%	%	%
Rating Date						07/22/14	07/22/14	08/05/14	08/05/14	08/22/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg				
10	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	73.3 c	81.7 cd	53.3 d	67.5 cd	50.0 e
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE					
LSD P=.05							11.04	11.66	11.14	17.51	17.24
Standard Deviation							6.43	6.66	6.47	9.93	10.05
CV							8.27	8.33	8.92	14.54	13.66
Replicate F							0.991	0.270	0.739	0.047	1.166
Replicate Prob(F)							0.3906	0.7670	0.4923	0.9540	0.3341
Treatment F							63.714	58.464	61.112	22.387	27.278
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001

Weed Code						ERICA	
Crop Code							GLXMA
Weed or Crop Name						Horse-	Soybean
Weed or Crop Name						weed	
Rating Data Type						Control	Yield
Rating Unit						%	Bu/A
Rating Date						09/10/14	11/05/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg		
1	Untreated Check						0.0 c	18.1 a
2	Canopy Premix	75	DF	0.187	lb ai/a	PRE	100.0 a	24.5 a
	----metribuzin	64.3		0.16				
	----chlorimuron	10.7		0.0267				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE		
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE		
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE		
3	Valor XLT Premix	40.3	WG	0.091	lb ai/a	PRE	90.0 a	21.7 a
	----flumioxazin	30		0.068				
	----chlorimuron	10.3		0.0233				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE		
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE		
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE		
4	Authority XL Premix	70	DG	0.21	lb ai/a	PRE	100.0 a	21.1 a
	----sulfentrazone	62.2		0.187				
	----chlorimuron	7.8		0.0234				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE		
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE		
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE		
5	Goal 2XL.....oxyfluorfen	2	E	0.5	lb ai/a	PRE	63.3 b	21.4 a
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE		
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE		
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE		
6	Callisto.....mesotrione	4	SC	0.166	lb ai/a	PRE	100.0 a	17.2 a
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE		
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE		
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE		
7	Canopy Premix	75	DF	0.187	lb ai/a	PRE	100.0 a	20.3 a
	----metribuzin	64.3		0.16				
	----chlorimuron	10.7		0.0267				
	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE		
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE		
8	Canopy Premix	75	DF	0.187	lb ai/a	PRE	96.7 a	20.6 a
	----metribuzin	64.3		0.16				
	----chlorimuron	10.7		0.0267				
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE		
9	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	100.0 a	20.6 a
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE		

University of Delaware

Weed Code						ERICA	
Crop Code							GLXMA
Weed or Crop Name						Horse-	Soybean
Weed or Crop Name						weed	
Rating Data Type						Control	Yield
Rating Unit						%	Bu/A
Rating Date						09/10/14	11/05/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg		
10	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	56.7 b	17.0 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE		
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE		
LSD P=.05							17.31	7.96
Standard Deviation							10.09	4.64
CV							12.51	22.91
Replicate F							0.818	1.452
Replicate Prob(F)							0.4570	0.2603
Treatment F							31.404	0.717
Treatment Prob(F)							0.0001	0.6878

University of Delaware

POST Weed Control in Double-Cropped Soybeans

Trial ID: DSB8-14 Cooperator: DE Soybean Board; UPI
Location: Field #10 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Morningglory Species	IPOSS	Ipomoea sp.
3.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.
4.	Horseweed	ERICA	Erigeron canadensis L.

Crop 1: Soybean GLXMA Variety: H42-13R2-UP
Planting Date: 07/10/14 Planting Method: Row- Unit Planter Depth: 1 in
Rate: 180000 Sd/A Row Spacing: 15 in Seed Bed: Medium
Soil Temperature: 82 F Soil Moisture: Normal Emergence Date: 07/16/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

MAINTENANCE

Field Prep./Maintenance: 7/11/14: Trial area received a total PRE treatment of Roundup at 1 qt/A.

SOIL DESCRIPTION

% Sand: 80 % OM: 1.3 Texture: sandy loam
% Silt: 10 pH: 5.4
% Clay: 10 CEC: 3.9 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.6 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	08/08/14
Time of Day:	10:00 AM
Application Method:	Spray
Application Timing:	POST
Applic. Placement:	Brdcst
Air Temp., Unit:	78 F
% Relative Humidity:	60
Wind Velocity, Unit:	1 mph
Wind Direction:	SE
Dew Presence (Y/N):	Y
Soil Temp., Unit:	77 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Moist
% Cloud Cover:	80

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	GLXMA
Growth Stage:	V3
Height, Unit:	9 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	AMAPA
Growth Stage:	vegetative
Height, Unit:	5 in
Density,Unit:	5-20 m2
Weed 2 Code:	IPOSS
Growth Stage:	vining
Height, Unit:	9 in
Density,Unit:	2-10 m2
Weed 3 Code:	DIGSA
Growth Stage:	tiller
Height, Unit:	5 in
Density,Unit:	0-50 m2
Weed 4 Code:	ERICA
Growth Stage:	veg-eaFlwr
Height, Unit:	13.5 in
Density,Unit:	0-5 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	24 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

07/22/14: Good burndown activity.

08/21/14: Horseweed control was excellent in both treatments of Liberty, also crabgrass control was excellent. Synchrony was fair - similar to glyphosate. All others were poor for horseweed control.

09/15/14: Treatments 3 and 4 resulted in the beans being killed due to Liberty application; so no canopy was present to shade or compete with late season growth of Palmer amaranth. KD-104 caused a delay in soybean maturity, these plants were noticably greener than other plants. Poor horseweed control was observed with treatments 5, 6, 7 and 9. No large crabgrass control with treatments 8 and 10; and poor control with 5, 6, and 9.

University of Delaware

POST Weed Control in Double-Cropped Soybeans

Trial ID: DSB8-14 Cooperator: DE Soybean Board; UPI
Location: Field #10 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg				
	Weed Code							AMAPA	AMAPA	
	Crop Code						GLXMA			GLXMA
	Weed or Crop Name						Soybean	Palmer	Palmer	Soybean
	Weed or Crop Name							Amaranth	Amaranth	
	Rating Data Type						Stunting	Control	Control	Yield
	Rating Unit						%	%	%	Bu/A
	Rating Date						08/21/14	08/21/14	10/15/14	11/05/14
1	Untreated Check							0.0 d	0.0 e	14.7 abc
2	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ae/a	POST		92.7 b	86.7 ab	19.1 a
	Dry Ammonium Sulfate	100	D	1.2	% w/v	POST				
3	Liberty 280.....glufosinate	2.34	SL	0.53	lb ai/a	POST		94.3 ab	30.0 d	0.2 d
	Dry Ammonium Sulfate	100	D	1.2	% w/v	POST				
4	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	POST		91.7 b	40.0 d	0.0 d
	Dry Ammonium Sulfate	100	D	1.2	% w/v	POST				
5	Ultra Blazer....acifluorfen	2	L	0.375	lb ai/a	POST	18.3 a	95.0 ab	80.0 bc	13.8 bc
	Nonionic Surfactant	100	L	0.25	% v/v	POST				
6	Storm Premix	4	EC	0.75	lb ai/a	POST	15.0 a	79.3 c	63.3 c	16.0 abc
	----bentazon	2.67		0.5						
	----acifluorfen	1.33		0.25						
	Nonionic Surfactant	100	L	0.25	% v/v	POST				
7	Raptor.....imazamox	1	AS	0.039	lb ai/a	POST	18.3 a	100.0 a	100.0 a	18.4 ab
	Crop Oil Concentrate	100	L	1.25	% v/v	POST				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	POST				
8	Synchrony XP Premix	28.4	DG	0.0133	lb ai/a	POST		81.0 c	78.3 bc	11.3 c
	----chlorimuron	21.5		0.0101						
	----thifensulfuron	6.9		.00323						
	Crop Oil Concentrate	100	L	1.25	% v/v	POST				
	30% Urea Ammonium Nitrate	100	L	2.5	% v/v	POST				
9	Ultra Blazer....acifluorfen	2	L	0.375	lb ai/a	POST		94.0 ab	78.3 bc	14.6 abc
	KFD-104-01	4.23	L	0.1	lb ai/a	POST				
	Nonionic Surfactant	100	L	0.25	% v/v	POST				
10	Storm Premix	4	EC	0.75	lb ai/a	POST		92.7 b	88.3 ab	17.3 ab
	----bentazon	2.67		0.5						
	----acifluorfen	1.33		0.25						
	KFD-104-01	4.23	L	0.1	lb ai/a	POST				
	Nonionic Surfactant	100	L	0.25	% v/v	POST				
	LSD P=.05						3.78	6.90	18.37	4.85
	Standard Deviation						1.67	4.02	10.71	2.83
	CV						9.68	4.9	16.6	22.56
	Replicate F						4.000	2.861	0.087	4.638
	Replicate Prob(F)						0.1111	0.0834	0.9168	0.0237
	Treatment F						4.000	161.769	25.865	18.123
	Treatment Prob(F)						0.1111	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

Burndown for Double Cropped Soybeans
Broad-Spectrum Control
Trial ID: DSB9-14 Cooperator: DE Soybean Board
Location: Field #22 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.

Crop 1: Soybean GLXMA Variety: H42-13R2-UP
Planting Date: 07/10/14 Planting Method: Row- Unit Planter Depth: 1 in
Rate: 180000 Sd/A Row Spacing: 15 in Seed Bed: Medium
Soil Temperature: 82 F Soil Moisture: Normal Emergence Date: 07/16/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

MAINTENANCE

Field Prep./Maintenance: 8/6/14: Trial area received Total POST of Touchdown Total + Reflex.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	08/06/14	Touchdown Total	4.17	SL	30	fl oz/A
2.	08/06/14	Reflex	2	L	1.5	pt/A

SOIL DESCRIPTION

% Sand: 80 % OM: 1.3 Texture: sandy loam
% Silt: 10 pH: 5.4
% Clay: 10 CEC: 3.9 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.6 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	07/11/14
Time of Day:	2:15 PM
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	81 F
% Relative Humidity:	62
Wind Velocity, Unit:	3 mph
Wind Direction:	E
Dew Presence (Y/N):	N
Soil Temp., Unit:	81 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Moist
% Cloud Cover:	40

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	GLXMA

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	ERICA
Growth Stage:	Bolt
Height, Unit:	9.5 in
Density,Unit:	5-80 m2
Weed 2 Code:	DIGSA
Growth Stage:	Tiller
Height, Unit:	7 in
Density,Unit:	30-100 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	30 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

07/11/14: 80% of weeds present were just below cutter bar height of 8-11 inches, remaining 20% were cut to that height.

10/15/14: Palmer amaranth and horseweed pressure was light. Horseweed control is based on presence of mature horseweed plants. Palmer amaranth was in treatments 2-5, 7, 8, 11, and 12; so an effective PRE herbicide is still required for double-cropped soybeans.

University of Delaware

Burndown for Double Cropped Soybeans
Broad-Spectrum Control
Trial ID: DSB9-14 Cooperator: DE Soybean Board
Location: Field #22 Investigator: Mark VanGessel

Weed Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date						ERICA Horse-weed Control % 07/22/14	DIGSA Large crabgras Control % 07/22/14	ERICA Horse-weed Control % 08/05/14	DIGSA Large crabgras Control % 08/05/14	ERICA Horse-weed Control % 08/22/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg				
1	Untreated Check						0.0 d	0.0 b	0.0 f	0.0 e	0.0 g
2	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	100.0 a	100.0 a	100.0 a	76.7 d	100.0 a
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
3	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	100.0 a	100.0 a	97.7 a	78.3 cd	100.0 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
4	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE	43.3 c	100.0 a	56.7 e	82.7 cd	60.0 f
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
5	Roundup PowerMax..glyphosate	4.5	AS	1.5	lb ai/a	PRE	46.7 bc	100.0 a	73.3 c	88.3 a-d	76.7 d
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
6	Canopy Premix	75	DF	0.187	lb ai/a	PRE	58.3 b	100.0 a	66.7 cd	96.7 ab	63.3 ef
	----metribuzin	64.3		0.16							
	----chlorimuron	10.7		0.0267							
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
7	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	100.0 a	100.0 a	97.7 a	88.3 a-d	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
8	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	100.0 a	100.0 a	91.0 ab	88.6 abc	98.3 ab
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
	Methylated Seed Oil	100	L	0.94	% v/v	PRE					
9	Anthem Premix	2.15	SE	0.101	lb ai/a	PRE	43.3 c	100.0 a	60.0 de	100.0 a	68.3 e
	----pyroxasulfone	2.087		0.098							
	----fluthiacet	.0629		.00296							
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE					
10	Anthem Premix	2.15	SE	0.101	lb ai/a	PRE	50.0 bc	100.0 a	63.3 de	100.0 a	68.3 e
	----pyroxasulfone	2.087		0.098							
	----fluthiacet	.0629		.00296							
	Aim.....carfentrazone	2	EW	0.0234	lb ai/a	PRE					
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE					
11	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE	93.3 a	100.0 a	86.7 b	86.7 bcd	90.7 bc
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
	Methylated Seed Oil	100	L	0.94	% v/v	PRE					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,4
Could not calculate LSD (% mean diff) for columns 2 because error mean square = 0.

University of Delaware

Weed Code							ERICA	DIGSA	ERICA	DIGSA	ERICA
Weed or Crop Name							Horse-	Large	Horse-	Large	Horse-
Weed or Crop Name							weed	crabgras	weed	crabgras	weed
Rating Data Type							Control	Control	Control	Control	Control
Rating Unit							%	%	%	%	%
Rating Date							07/22/14	07/22/14	08/05/14	08/05/14	08/22/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg					
12	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE	96.0 a	100.0 a	86.7 b	78.6 cd	89.3 c
	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE					
	Methylated Seed Oil	100	L	0.94	% v/v	PRE					
LSD P=.05							12.29	.	9.91	11.93	7.68
Standard Deviation							7.24	0.00	5.86	7.00	4.53
CV							10.45	0.0	7.99	8.71	5.95
Replicate F							1.786	0.000	6.811	2.190	3.321
Replicate Prob(F)							0.1921	1.0000	0.0050	0.1380	0.0549
Treatment F							63.597	0.000	67.939	43.135	118.488
Treatment Prob(F)							0.0001	1.0000	0.0001	0.0001	0.0001

Weed Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date						ERICA Horse- weed Control % 10/15/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	
1	Untreated Check						0.0 d
2	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	100.0 a
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	
3	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	96.7 a
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	
4	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE	56.7 c
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	
5	Roundup PowerMax..glyphosate	4.5	AS	1.5	lb ai/a	PRE	76.7 b
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	
6	Canopy Premix	75	DF	0.187	lb ai/a	PRE	80.0 b
	----metribuzin	64.3		0.16			
	----chlorimuron	10.7		0.0267			
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	
7	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	
8	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	PRE	100.0 a
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	
	Methylated Seed Oil	100	L	0.94	% v/v	PRE	
9	Anthem Premix	2.15	SE	0.101	lb ai/a	PRE	60.0 c
	----pyroxasulfone	2.087		0.098			
	----fluthiacet	.0629		.00296			
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	
10	Anthem Premix	2.15	SE	0.101	lb ai/a	PRE	53.3 c
	----pyroxasulfone	2.087		0.098			
	----fluthiacet	.0629		.00296			
	Aim.....carfentrazone	2	EW	0.0234	lb ai/a	PRE	
	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	
11	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE	100.0 a
	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	
	Methylated Seed Oil	100	L	0.94	% v/v	PRE	

University of Delaware

Weed Code	ERICA
Weed or Crop Name	Horse-
Weed or Crop Name	weed
Rating Data Type	Control
Rating Unit	%
Rating Date	10/15/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	
12	Roundup PowerMax..glyphosate	4.5	AS	1.12	lb ai/a	PRE	86.7 ab
	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	PRE	
	Methylated Seed Oil	100	L	0.94	% v/v	PRE	

LSD P=.05	14.74
Standard Deviation	8.70
CV	11.48
Replicate F	1.760
Replicate Prob(F)	0.1954
Treatment F	35.210
Treatment Prob(F)	0.0001

University of Delaware

Basis Blend or Canopy + Panoflex in No-Till Soybean

Trial ID: Soy1-14 Cooperator: DuPont
Location: Field #9b Investigator: Mark VanGessel

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Knawel	SCRAN	Scleranthus annuus L.
2.	Vetch species	VICSS	Vicia Ssp.
3.	Henbit	LAMAM	Lamium amplexicaule L.
4.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
5.	Redstem Filaree	EROCI	Erodium cicutarium (L.) L'Her. ex Ait.
6.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill

Crop 1: Soybean GLXMA Variety: RT4725NS R2
Planting Date: 05/29/14 Planting Method: Row- Unit Planter Depth: 1 in
Rate: 180000 Sd/A Row Spacing: 15 in Seed Bed: Medium/Trashy
Soil Temperature: 60 F Soil Moisture: Moist Emergence Date: 06/06/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/30/14	Gramoxone SL	2	SL	2	qt/A
2.	05/30/14	Dual II Magnum	7.64	E	1.25	pt/A
3.	05/30/14	Crop Oil Concentrate			1	% v/v
4.	06/19/14	Roundup PowerMax	4.5	AS	1	qt/A
5.	06/30/14	Reflex	2	L	1.5	pt/A
6.	06/30/14	Nonionic Surfactant			0.25	% v/v

SOIL DESCRIPTION

% Sand: 83 % OM: 2.0 Texture: loamy sand
% Silt: 9 pH: 5.6
% Clay: 8 CEC: 5.1 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.1 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	03/21/14	04/03/14
Time of Day:	10:15 am	9:20 am
Application Method:	Spray	Spray
Application Timing:	Spring	Spr+10dy
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	50 F	57 F
% Relative Humidity:	42	67
Wind Velocity, Unit:	5 mph	2 mph
Wind Direction:	Northwest	Northeast
Dew Presence (Y/N):	N	Y
Soil Temp., Unit:	49 F	56 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Wet
Leaf Surf. Moisture:	Dry	Wet
% Cloud Cover:	40	95

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	SCRAN	SCRAN
Growth Stage:	vegetative	
Height, Unit:	2 in	
Density,Unit:	20-200 m2	
Weed 2 Code:	VICSS	VICSS
Growth Stage:	vegetative	
Height, Unit:	1.5 in	
Density,Unit:	0-40 m2	
Weed 3 Code:	LAMAM	LAMAM
Growth Stage:	vegetative	
Height, Unit:	1.5 in	
Density,Unit:	10-60 m2	
Weed 4 Code:	CERVU	CERVU
Growth Stage:	vegetative	
Height, Unit:	3 in	
Density,Unit:	20-80 m2	
Weed 5 Code:	EROCI	EROCI
Growth Stage:	rosette	
Height, Unit:	5 in	
Density,Unit:	0-8 m2	
Weed 6 Code:	OEOLA	OEOLA
Growth Stage:	rosette	
Height, Unit:	4 in	
Density,Unit:	0-40 m2	

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

Trial Comments

05/14/14: Mouseear chickweed, redstem filaree, and vetch are the most consistent species over the study area. Henbit and fieldpansy density is variable and data is inconsistant. Pigweed seedlings were observed in treatments 1, 2, 3, 5, 6, 8, 9, 11, 12, 13, 14. Treatments 1, 2, 5 thru 8 poor on ivyleaf speedwell. Only treatments 4 and 14 provided acceptable control across all 3 reps.

05/28/14: Palmer amaranth density is low in rep 3. Treatment 4 only one to provide burndown and residual of winter annuals. Trt 11 and12 looks promising but inconsistant for primrose control. Poor redstem filaree with treatments: 2, 3, 10. Poor vetch control with treatments: 1, 2, 7, 8, 9. Poor primrose control with treatments: 10, 12, 13. Poor ragweed control with treatments: 4, 5, 6.

06/28/14: Soybeans at V3 stage.

University of Delaware

Basis Blend or Canopy + Panoflex in No-Till Soybean

Trial ID: Soy1-14 Cooperator: DuPont
Location: Field #9b Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	CERVU	EROCI	LAMAM	OEOLA
	Weed Code							CERVU	EROCI	LAMAM	OEOLA
	Crop Code										
	Weed or Crop Name							Mouseear	Redstem	Henbit	Cutleaf
	Weed or Crop Name							Chickwd	Filaree		EPrimrse
	Rating Data Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/14/14	05/14/14	05/14/14	05/14/14
1	Basis Blend Premix	30	SG	0.0155	lb ai/a	Spring	A	46.7 e	66.7 b	97.0 a	99.0 a
	----rimsulfuron	20		0.0103							
	----thifensulfuron	10		.00517							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
2	Basis Blend Premix	30	SG	0.0155	lb ai/a	Spring	A	80.0 abc	86.7 ab	97.1 a	99.0 a
	----rimsulfuron	20		0.0103							
	----thifensulfuron	10		.00517							
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A				
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A				
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
3	Canopy Premix	75	DF	0.14	lb ai/a	Spring	A	71.7 cd	86.7 ab	97.1 a	99.1 a
	----metribuzin	64.3		0.12							
	----chlorimuron	10.7		0.02							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
4	Canopy Premix	75	DF	0.14	lb ai/a	Spring	A	94.7 ab	98.3 a	97.2 a	99.1 a
	----metribuzin	64.3		0.12							
	----chlorimuron	10.7		0.02							
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A				
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A				
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
5	Basis Blend Premix	30	SG	0.0234	lb ai/a	Spring	A	79.0 bc	100.0 a	97.2 a	99.1 a
	----rimsulfuron	20		0.0156							
	----thifensulfuron	10		0.0078							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
6	Basis Blend Premix	30	SG	0.0234	lb ai/a	Spring	A	86.0 abc	100.0 a	97.3 a	99.2 a
	----rimsulfuron	20		0.0156							
	----thifensulfuron	10		0.0078							
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A				
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A				
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=3,4,5,7,8,10

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	CERVU	EROCI	LAMAM	OEOLA
	Weed Code							CERVU	EROCI	LAMAM	OEOLA
	Crop Code										
	Weed or Crop Name							Mouseear	Redstem	Henbit	Cutleaf
	Weed or Crop Name							Chickwd	Filaree		EPrimrse
	Rating Data Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/14/14	05/14/14	05/14/14	05/14/14
7	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A	53.3 de	88.3 ab	97.3 a	99.2 a
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A				
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
8	Canopy EX Premix	29.5	WG	0.0203	lb ai/a	Spring	A	43.3 e	85.0 ab	98.3 a	100.0 a
	----chlorimuron	22.7		0.0156							
	----tribenuron	6.8		0.0047							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
9	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Spring	A	70.0 cd	100.0 a	95.0 a	97.3 a
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
10	Untreated Check							0.0 f	0.0 c	0.0 c	0.0 c
11	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	93.0 ab	94.0 ab	95.0 a	91.0 ab
	2,4-D ester	3.8	L	0.95	lb ae/a	Spring	A				
12	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Spring	A	100.0 a	98.3 a	95.0 a	86.7 ab
	Metribuzin.....metribuzin	75	DF	0.28	lb ai/a	Spring	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
13	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	100.0 a	93.3 ab	91.7 ab	77.3 b
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Spr+10dy	B				
	Nonionic Surfactant	100	L	0.25	% v/v	Spr+10dy	B				
14	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	93.3 ab	98.3 a	84.8 b	85.0 ab
	Banvel.....dicamba	4	EC	0.25	lb ai/a	Spring	A				
	LSD P=.05							20.50	28.37	9.49	16.79
	Standard Deviation							12.21	16.90	5.53	9.82
	CV							16.91	19.79	6.25	11.17
	Replicate F							6.752	3.201	10.249	0.415
	Replicate Prob(F)							0.0043	0.0572	0.0011	0.6663
	Treatment F							15.910	7.215	64.840	21.443
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Weed Code							SCRAN	VICSA	VIORA	AMAPA
Crop Code										
Weed or Crop Name							Knawel	Vetch	Field	Palmer
Weed or Crop Name								Species	Pansy	Amaranth
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							05/14/14	05/14/14	05/14/14	05/28/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Basis Blend Premix	30	SG	0.0155	lb ai/a	Spring	A	50.0 b	43.3 d	66.7 b	0.9 a
	----rimsulfuron	20		0.0103						
	----thifensulfuron	10		.00517						
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A			
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A			
2	Basis Blend Premix	30	SG	0.0155	lb ai/a	Spring	A	98.3 a	66.7 bcd	100.0 a	26.0 a
	----rimsulfuron	20		0.0103						
	----thifensulfuron	10		.00517						
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A			
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A			
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A			
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A			
3	Canopy Premix	75	DF	0.14	lb ai/a	Spring	A	61.0 b	94.3 ab	100.0 a	21.1 a
	----metribuzin	64.3		0.12						
	----chlorimuron	10.7		0.02						
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A			
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A			
4	Canopy Premix	75	DF	0.14	lb ai/a	Spring	A	98.3 a	100.0 a	100.0 a	36.2 a
	----metribuzin	64.3		0.12						
	----chlorimuron	10.7		0.02						
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A			
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A			
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A			
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A			
5	Basis Blend Premix	30	SG	0.0234	lb ai/a	Spring	A	86.7 a	94.3 ab	71.7 ab	16.3 a
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A			
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A			
6	Basis Blend Premix	30	SG	0.0234	lb ai/a	Spring	A	95.7 a	81.7 abc	86.7 ab	46.3 a
	----rimsulfuron	20		0.0156						
	----thifensulfuron	10		0.0078						
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A			
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A			
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A			
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A			

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	SCRAN	VICSA	VIORA	AMAPA
	Weed Code							SCRAN	VICSA	VIORA	AMAPA
	Crop Code										
	Weed or Crop Name							Knawel	Vetch	Field	Palmer
	Weed or Crop Name								Species	Pansy	Amaranth
	Rating Data Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							05/14/14	05/14/14	05/14/14	05/28/14
7	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A	100.0 a	63.3 cd	84.6 ab	26.4 a
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A				
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
8	Canopy EX Premix	29.5	WG	0.0203	lb ai/a	Spring	A	99.0 a	86.7 abc	100.0 a	21.5 a
	----chlorimuron	22.7		0.0156							
	----tribenuron	6.8		0.0047							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
9	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Spring	A	98.3 a	85.0 abc	100.0 a	20.5 a
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
10	Untreated Check							0.0 c	0.0 e	0.0 c	0.0 a
11	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	99.0 a	100.0 a	100.0 a	41.6 a
	2,4-D ester	3.8	L	0.95	lb ae/a	Spring	A				
12	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Spring	A	96.5 a	80.0 abc	95.0 ab	46.7 a
	Metribuzin.....metribuzin	75	DF	0.28	lb ai/a	Spring	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
13	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	99.0 a	95.0 ab	100.0 a	16.8 a
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Spr+10dy	B				
	Nonionic Surfactant	100	L	0.25	% v/v	Spr+10dy	B				
14	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	99.0 a	100.0 a	96.7 a	1.9 a
	Banvel.....dicamba	4	EC	0.25	lb ai/a	Spring	A				
	LSD P=.05							23.25	28.47	29.85	39.19
	Standard Deviation							13.82	16.96	17.75	22.22
	CV							16.39	21.78	20.69	96.56
	Replicate F							2.654	1.192	4.071	0.487
	Replicate Prob(F)							0.0901	0.3198	0.0295	0.6252
	Treatment F							13.056	8.055	6.989	1.501
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.2371

Weed Code							CERVU	SCRAN		
Crop Code									GLXMA	GLXMA
Weed or Crop Name							ME	Knawel	Soybean	Soybean
Weed or Crop Name							Chickwd			
Rating Data Type							Control	Control	Stunting	Stunting
Rating Unit							%	%	%	%
Rating Date							05/28/14	05/28/14	06/17/14	06/28/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Basis Blend Premix	30	SG	0.0155	lb ai/a	Spring	A	41.7 de	64.3 c	11.3 bc	8.0 a
	----rimsulfuron	20		0.0103							
	----thifensulfuron	10		.00517							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
2	Basis Blend Premix	30	SG	0.0155	lb ai/a	Spring	A	65.0 c	100.0 a	2.3 ef	4.7 abc
	----rimsulfuron	20		0.0103							
	----thifensulfuron	10		.00517							
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A				
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A				
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
3	Canopy Premix	75	DF	0.14	lb ai/a	Spring	A	63.3 cd	81.7 b	0.0 f	0.0 d
	----metribuzin	64.3		0.12							
	----chlorimuron	10.7		0.02							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
4	Canopy Premix	75	DF	0.14	lb ai/a	Spring	A	92.3 ab	100.0 a	14.0 ab	4.7 abc
	----metribuzin	64.3		0.12							
	----chlorimuron	10.7		0.02							
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A				
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A				
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
5	Basis Blend Premix	30	SG	0.0234	lb ai/a	Spring	A	71.7 bc	100.0 a	12.3 bc	8.0 a
	----rimsulfuron	20		0.0156							
	----thifensulfuron	10		0.0078							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
6	Basis Blend Premix	30	SG	0.0234	lb ai/a	Spring	A	66.7 c	100.0 a	17.3 a	3.3 bcd
	----rimsulfuron	20		0.0156							
	----thifensulfuron	10		0.0078							
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A				
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A				
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	CERVU ME Chickwd Control % 05/28/14	SCRAN Knawel Control % 05/28/14	GLXMA Soybean Stunting % 06/17/14	GLXMA Soybean Stunting % 06/28/14
7	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A	30.0 e	98.3 a	11.3 bc	2.3 cd
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A				
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
8	Canopy EX Premix	29.5	WG	0.0203	lb ai/a	Spring	A	56.7 cd	100.0 a	2.3 ef	7.0 ab
	----chlorimuron	22.7		0.0156							
	----tribenuron	6.8		0.0047							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
9	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Spring	A	61.7 cd	100.0 a	9.7 bcd	0.0 d
	----chlorimuron	22.7		0.0312							
	----tribenuron	6.8		0.0094							
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A				
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A				
10	Untreated Check							0.0 f	0.0 d	0.0 f	0.0 d
11	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	94.3 a	100.0 a	0.0 f	0.0 d
	2,4-D ester	3.8	L	0.95	lb ae/a	Spring	A				
12	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Spring	A	100.0 a	100.0 a	5.7 de	8.0 a
	Metribuzin.....metribuzin	75	DF	0.28	lb ai/a	Spring	A				
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A				
13	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	100.0 a	100.0 a	0.0 f	0.0 d
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Spr+10dy	B				
	Nonionic Surfactant	100	L	0.25	% v/v	Spr+10dy	B				
14	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	96.7 a	98.3 a	8.7 cd	5.7 abc
	Banvel.....dicamba	4	EC	0.25	lb ai/a	Spring	A				
LSD P=.05								21.69	14.70	4.98	4.63
Standard Deviation								12.92	8.74	2.97	2.76
CV								19.24	9.85	43.71	74.7
Replicate F								7.940	1.261	0.300	3.801
Replicate Prob(F)								0.0020	0.3009	0.7430	0.0356
Treatment F								15.372	29.740	12.392	4.329
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0007

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	GLXMA Soybean Stunting % 07/17/14	GLXMA Soybean Yield Bu/A 10/21/14
	Weed Code								
	Crop Code							GLXMA	GLXMA
	Weed or Crop Name							Soybean	Soybean
	Weed or Crop Name								
	Rating Data Type							Stunting	Yield
	Rating Unit							%	Bu/A
	Rating Date							07/17/14	10/21/14
1	Basis Blend Premix	30	SG	0.0155	lb ai/a	Spring	A	5.7 a	43.7 a
	----rimsulfuron	20		0.0103					
	----thifensulfuron	10		.00517					
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A		
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A		
2	Basis Blend Premix	30	SG	0.0155	lb ai/a	Spring	A	9.7 a	38.7 a
	----rimsulfuron	20		0.0103					
	----thifensulfuron	10		.00517					
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A		
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A		
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A		
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A		
3	Canopy Premix	75	DF	0.14	lb ai/a	Spring	A	8.0 a	38.1 a
	----metribuzin	64.3		0.12					
	----chlorimuron	10.7		0.02					
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A		
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A		
4	Canopy Premix	75	DF	0.14	lb ai/a	Spring	A	7.3 a	38.0 a
	----metribuzin	64.3		0.12					
	----chlorimuron	10.7		0.02					
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A		
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A		
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A		
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A		
5	Basis Blend Premix	30	SG	0.0234	lb ai/a	Spring	A	4.7 a	39.5 a
	----rimsulfuron	20		0.0156					
	----thifensulfuron	10		0.0078					
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A		
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A		
6	Basis Blend Premix	30	SG	0.0234	lb ai/a	Spring	A	9.7 a	44.5 a
	----rimsulfuron	20		0.0156					
	----thifensulfuron	10		0.0078					
	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A		
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A		
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A		
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A		

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Weed Code									
Crop Code								GLXMA	GLXMA
Weed or Crop Name								Soybean	Soybean
Weed or Crop Name									
Rating Data Type								Stunting	Yield
Rating Unit								%	Bu/A
Rating Date								07/17/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
7	Express TS.....tribenuron	50	SG	0.0075	lb ai/a	Spring	A	12.3 a	43.7 a
	Harmony SG.....thifensulfuron	50	SG	0.0019	lb ai/a	Spring	A		
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A		
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A		
8	Canopy EX Premix	29.5	WG	0.0203	lb ai/a	Spring	A	9.7 a	34.4 a
	----chlorimuron	22.7		0.0156					
	----tribenuron	6.8		0.0047					
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A		
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A		
9	Canopy EX Premix	29.5	WG	0.0406	lb ai/a	Spring	A	4.7 a	37.1 a
	----chlorimuron	22.7		0.0312					
	----tribenuron	6.8		0.0094					
	2,4-D ester	3.8	L	0.475	lb ae/a	Spring	A		
	Crop Oil Concentrate	100	L	1	% v/v	Spring	A		
	Dry Ammonium Sulfate	100	D	1.2	% w/v	Spring	A		
10	Untreated Check							0.0 a	35.5 a
11	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	6.7 a	34.1 a
	2,4-D ester	3.8	L	0.95	lb ae/a	Spring	A		
12	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Spring	A	10.7 a	38.2 a
	Metribuzin.....metribuzin	75	DF	0.28	lb ai/a	Spring	A		
	Nonionic Surfactant	100	L	0.25	% v/v	Spring	A		
13	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	8.3 a	35.0 a
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Spr+10dy	B		
	Nonionic Surfactant	100	L	0.25	% v/v	Spr+10dy	B		
14	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	Spring	A	10.7 a	40.1 a
	Banvel.....dicamba	4	EC	0.25	lb ai/a	Spring	A		
LSD P=.05								7.51	9.51
Standard Deviation								4.47	5.66
CV								57.97	14.67
Replicate F								0.400	52.119
Replicate Prob(F)								0.6744	0.0001
Treatment F								1.548	1.098
Treatment Prob(F)								0.1659	0.4029

University of Delaware

Star of Bethlehem Control in Spring

Trial ID: Soy2-13 Cooperator:
Location: Trappe, MD Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Star of Bethlehem	OTGUM	Ornithogalum umbellatum L.

Crop 1: Non-Crop

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION

	A	B
Application Date:	03/29/13	04/24/13
Time of Day:	2:00 pm	10:30 am
Application Method:	Spray	Spray
Application Timing:	ESpring	Heading
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	53 F	57 F
% Relative Humidity:	35	72
Wind Velocity, Unit:	4 mph	5 mph
Wind Direction:	West	Southwest
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	52 F	55 F
Soil Surf. Moisture:	Dry	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	90	100

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	OTGUM	OTGUM
Growth Stage:	vegetative	vegetative
Height, Unit:	3 in	8 in
Density,Unit:	20-40 m2	20-40 m2

University of Delaware

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Trial Comments

05/17/13: Plants have senescened. Looks like those treatments with some activity were not as senesced as untreated checks.

04/16/15: Some plots were discernible when rating Soy2-14 so an additional rating was taken. If outline of plots was not visible, no rating was taken.

University of Delaware

Star of Bethlehem Control in Spring

Trial ID: Soy2-13 Cooperator:
Location: Trappe, MD Investigator: Mark VanGessel

Weed Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							OTGUM Star of Bethlehm Control % 04/24/13	OTGUM Star of Bethlehm Control % 03/11/14	OTGUM Star of Bethlehm Control % 04/10/14	OTGUM Star of Bethlehm Control % 04/16/15
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Untreated Check							0.0 e	0.0 g	0.0 f	0.0 d
2	Roundup WthrMax	4.5	AS	1	lb ai/a	ESpring	A	26.7 c	50.0 e	15.0 ef	
3	Roundup WthrMax	4.5	AS	2	lb ai/a	ESpring	A	31.7 abc	70.0 c	33.3 cd	
4	Roundup WthrMax	4.5	AS	1	lb ai/a	Heading	B		43.3 e	16.7 e	
5	Roundup WthrMax	4.5	AS	2	lb ai/a	Heading	B		43.3 e	20.0 de	
6	Roundup WthrMax	4.5	AS	1	lb ai/a	ESpring	A	38.3 ab	70.0 c	25.0 cde	
	Banvel	4	EC	0.5	lb ai/a	ESpring	A				
7	Roundup WthrMax	4.5	AS	1	lb ai/a	Heading	B		53.3 de	15.0 ef	13.3 d
	Banvel	4	EC	0.5	lb ai/a	Heading	B				
8	Roundup WthrMax	4.5	AS	1	lb ai/a	ESpring	A	40.0 a	55.0 de	0.0 f	
	2,4-D ester	3.8	L	0.95	lb ai/a	ESpring	A				
9	Roundup WthrMax	4.5	AS	1	lb ai/a	Heading	B		23.3 f	0.0 f	
	2,4-D ester	3.8	L	0.95	lb ai/a	Heading	B				
10	Roundup WthrMax	4.5	AS	2	lb ai/a	Heading	B		63.3 cd	30.0 cde	
	Banvel	4	EC	0.5	lb ai/a	Heading	B				
11	PowerFlex HL	13.1	WG	0.0164	lb ai/a	ESpring	A	33.3 abc	30.0 f	0.0 f	
	Banvel	4	EC	0.125	lb ai/a	ESpring	A				
	Nonionic Surf.	100	L	0.25	% v/v	ESpring	A				
	30% UAN	100	L	1	% v/v	ESpring	A				
12	Maverick	75	WG	0.0314	lb ai/a	ESpring	A	33.3 abc	97.0 a	88.3 a	61.7 a
	Nonionic Surf.	100	L	0.25	% v/v	ESpring	A				
13	Huskie	2.05	EC	0.24	lb ai/a	ESpring	A	30.0 bc	10.0 g	0.0 f	
	----pyrasulfotole	0.3		0.035							
	----bromoxynil	1.75		0.205							
	Nonionic Surf.	100	L	0.25	% v/v	ESpring	A				
	30% UAN	100	L	1	% v/v	ESpring	A				
14	Olympus Flex	11.25	DF	0.0246	lb ai/a	ESpring	A	13.3 d	85.7 ab	60.0 b	35.0 c
	----mesosulfuron	4.5		0.0098							
	----propoxycarbazone	6.75		0.0148							
	Nonionic Surf.	100	L	0.25	% v/v	ESpring	A				
	Ammonium Sulf.	100	D	7.5	lb/100 gal	ESpring	A				
15	Roundup WthrMax	4.5	AS	1	lb ai/a	ESpring	A	26.7 c	63.3 cd	40.0 c	45.0 bc
	Roundup WthrMax	4.5	AS	1	lb ai/a	Heading	B				
16	Roundup WthrMax	4.5	AS	2	lb ai/a	ESpring	A	31.7 abc	83.3 b	60.0 b	58.3 ab
	Roundup WthrMax	4.5	AS	2	lb ai/a	Heading	B				
LSD P=.05								8.98	11.81	15.17	16.16
Standard Deviation								5.27	7.08	9.10	8.88
CV								19.02	13.47	36.09	24.98
Replicate F								2.289	0.652	4.329	5.141
Replicate Prob(F)								0.1273	0.5282	0.0223	0.0291
Treatment F								14.463	43.800	24.643	23.183
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

University of Delaware

Star of Bethlehem Control for NT Soybeans

Trial ID: Soy2-14 Cooperator:
Location: Trappe, MD Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Star of Bethlehem	OTGUM	Ornithogalum umbellatum L.

Crop 1: Non-Crop

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/21/14	Roundup WeatherMax	4.5	AS	1	qt/A
2.	05/21/14	Canopy	75	DF	4	oz wt/A

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown

APPLICATION DESCRIPTION

	A	B
Application Date:	04/10/14	05/02/14
Time of Day:	1:45 pm	10:30 am
Application Method:	Spray	Spray
Application Timing:	ESpring	PrePlant
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	67 F	65 F
% Relative Humidity:	27	38
Wind Velocity, Unit:	11 mph	2 mph
Wind Direction:	Southwest	Southeast
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	66 F	65 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Wet
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	0	10

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	OTGUM	OTGUM
Growth Stage:	vegetative	vegetative
Height, Unit:	6 in	6
Density,Unit:	150 m2	150 m2

University of Delaware

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	31 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	18 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	22 in	22 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Trial Comments

University of Delaware

Star of Bethlehem Control for NT Soybeans

Trial ID: Soy2-14 Cooperator:
Location: Trappe, MD Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	OTGUM Star of Bethlehm Control % 05/02/14	OTGUM Star of Bethlehm Control % 04/06/15
	Weed Code								
	Weed or Crop Name								
	Weed or Crop Name								
	Rating Data Type								
	Rating Unit								
	Rating Date								
1	Untreated Check							0.0 c	0.0 d
2	Touchdown Total...k glyphosate	4.17	SL	1.56	lb ae/a	ESpring	A	0.0 c	48.3 c
3	Touchdown Total...k glyphosate	4.17	SL	1.86	lb ae/a	ESpring	A	0.0 c	45.9 c
4	Touchdown Total...k glyphosate	4.17	SL	1.86	lb ae/a	ESpring	A	0.0 c	76.7 ab
	Touchdown Total...k glyphosate	4.17	SL	1.86	lb ae/a	PrePlant	B		
5	Touchdown Total...k glyphosate	4.17	SL	1.56	lb ae/a	ESpring	A	0.0 c	91.0 a
	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/a	ESpring	A		
6	Touchdown Total...k glyphosate	4.17	SL	1.56	lb ae/a	ESpring	A	0.0 c	71.7 b
	Finesse Premix	75	DF	0.0187	lb ai/a	ESpring	A		
	----chlorsulfuron	62.5		0.0156					
	----metsulfuron	12.5		.00312					
7	Aim.....carfentrazone	2	EW	0.0234	lb ai/a	ESpring	A	93.3 a	36.7 c
	Crop Oil Concentrate	100	L	1.25	% v/v	ESpring	A		
8	Gramoxone SL....paraquat	2	SL	1	lb ai/a	ESpring	A	89.3 b	93.3 a
	Nonionic Surfactant	100	L	0.25	% v/v	ESpring	A		
	LSD P=.05							3.18	17.67
	Standard Deviation							1.82	10.02
	CV							7.96	17.29
	Replicate F							1.677	0.188
	Replicate Prob(F)							0.2223	0.8305
	Treatment F							1624.303	29.614
	Treatment Prob(F)							0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=2

University of Delaware

Soybean Variety Response to Kixor

Trial ID: Soy3-14 Location: Field #14 Trial Year:
Protocol ID: Soy3-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: BASF

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: SS725NR2; Dy.A39RY43; PI 94423 BBCH Scale: BSOY
Description: PI 93Y42

Planting Date: 06/12/14
Planting Rate, Unit: 200000 S/A
Planting Method: PLANTD planted
Depth, Unit: 1 in
Planting Equipment: PP Plot Planter
Row Spacing, Unit: 15 in
Emergence Date: 06/17/14
Harvest Date: 10/27/14
Harvested Width, Unit: 3.75 FT
Soil Temperature, Unit: 76 F
Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate
Harvest Equipment: Plot combine
Seed Bed: SMOOTH smooth
% Standard Moisture: 13.0

Site and Design

Treated Plot Width: 20 FT
Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 500 FT2 Treatments: 4
Tillage Type: CONTIL conventional-till
Replications: 3
Study Design: RACOBL Randomized Complete Block (RCB)

Soil Description

% Sand: 79 % OM: 1.4 Texture: LS loamy sand
% Silt: 14 pH: 6.1
% Clay: 7 CEC: 5.1 Fert. Level: E excellent
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

Application Description

	A
Application Date:	06/13/14
Appl. Stop Time:	11:20 AM
Application Method:	SPRAY
Application Timing:	PRE
Application Placement:	BROADC
Applied By:	Johnson
Air Temperature, Unit:	81 F
% Relative Humidity:	69
Wind Velocity, Unit:	3 mph
Wind Direction:	S
Dew Presence (Y/N):	N no
Soil Temperature, Unit:	81 F
Soil Moisture:	NORMAL
% Cloud Cover:	60

University of Delaware

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	GLXMA BSOY

Application Equipment

	A
Appl. Equipment:	Tractor
Equipment Type:	TRMOSP
Operation Pressure, Unit:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	10 ft
Boom Height, Unit:	18 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/ac
Mix Size, Unit:	0.7 Gallons
Propellant:	COMAIR

Trial Comments

University of Delaware

Soybean Variety Response to Kixor

Trial ID: Soy3-14 Location: Field #14 Trial Year:
Protocol ID: Soy3-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: BASF

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
	Crop Code						GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
	Crop Name						Soybean	Soybean	Soybean	Soybean	Soybean
	Crop Variety						SS725NSR2	Dyn39RY43	PI94Y23	PI93Y42	SS725NSR2
	Rating Type						Stunting	Stunting	Stunting	Stunting	Stunting
	Rating Unit						%	%	%	%	%
	Rating Date						06/28/14	06/28/14	06/28/14	06/28/14	07/01/14
1	Untreated Check						0.0 c	0.0 b	0.0 c	0.0 b	0.0 c
2	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	30.0 b	14.0 a	25.0 b	15.0 a	28.3 b
3	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	56.7 a	17.3 a	26.7 b	16.7 a	53.3 a
4	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	53.3 a	16.7 a	40.0 a	21.7 a	50.0 a
	Authority XL Premix	70	DG	0.263	lb ai/a	PRE					
	----sulfentrazone	62.2		0.234							
	----chlorimuron	7.8		0.0293							
	LSD P=.05						7.45	6.15	5.77	7.26	11.65
	Standard Deviation						3.73	3.08	2.89	3.63	5.83
	CV						10.65	25.65	12.6	27.24	17.72
	Replicate F						1.800	4.144	1.000	0.158	4.102
	Replicate Prob(F)						0.2441	0.0741	0.4219	0.8574	0.0754
	Treatment F						148.000	20.927	100.250	19.789	53.286
	Treatment Prob(F)						0.0001	0.0014	0.0001	0.0016	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Due to missing data, larger LSD values (col. 29: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.
Could not calculate LSD (% mean diff) for columns 29 because error mean square = 0.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
	Crop Code						GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
	Crop Name						Soybean	Soybean	Soybean	Soybean	Soybean
	Crop Variety						Dyn39RY43	PI94Y23	PI93Y42	SS725NSR2	Dyn39RY43
	Rating Type						Stunting	Stunting	Stunting	Stunting	Stunting
	Rating Unit						%	%	%	%	%
	Rating Date						07/01/14	07/01/14	07/01/14	07/09/14	07/09/14
1	Untreated Check						0.0 c	0.0 b	0.0 c	0.0 d	0.0 c
2	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	8.0 bc	20.0 a	14.0 b	30.0 c	2.3 c
3	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	14.0 ab	26.7 a	18.3 ab	43.3 b	8.7 b
4	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	20.0 a	28.3 a	20.0 a	60.0 a	18.3 a
	Authority XL Premix	70	DG	0.263	lb ai/a	PRE					
	----sulfentrazone	62.2		0.234							
	----chlorimuron	7.8		0.0293							
	LSD P=.05						8.05	11.04	5.74	5.77	4.30
	Standard Deviation						4.03	5.53	2.87	2.89	2.15
	CV						38.39	29.48	21.95	8.66	29.37
	Replicate F						1.677	0.818	1.404	1.000	4.114
	Replicate Prob(F)						0.2639	0.4851	0.3161	0.4219	0.0750
	Treatment F						13.477	16.614	29.990	232.000	43.449
	Treatment Prob(F)						0.0045	0.0026	0.0005	0.0001	0.0002

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
	Crop Code						GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
	Crop Name						Soybean	Soybean	Soybean	Soybean	Soybean
	Crop Variety						PI94Y23	PI93Y42	SS725NSR2	Dyn39RY43	PI94Y23
	Rating Type						Stunting	Stunting	Stunting	Stunting	Stunting
	Rating Unit						%	%	%	%	%
	Rating Date						07/09/14	07/09/14	07/17/14	07/17/14	07/17/14
1	Untreated Check						0.0 c	0.0 b	0.0 c	0.0 b	0.0 c
2	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	10.0 b	0.0 b	21.7 b	4.7 b	14.0 b
3	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	18.3 ab	7.3 ab	33.3 b	2.3 b	21.7 b
4	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	25.0 a	14.0 a	50.0 a	14.0 a	40.0 a
	Authority XL Premix	70	DG	0.263	lb ai/a	PRE					
	----sulfentrazone	62.2		0.234							
	----chlorimuron	7.8		0.0293							
	LSD P=.05						9.56	10.17	14.03	6.09	7.72
	Standard Deviation						4.79	5.09	7.02	3.05	3.86
	CV						35.9	95.45	26.75	58.1	20.42
	Replicate F						1.727	0.254	3.930	0.833	1.112
	Replicate Prob(F)						0.2556	0.7836	0.0811	0.4795	0.3884
	Treatment F						15.273	5.248	26.859	12.140	55.916
	Treatment Prob(F)						0.0032	0.0409	0.0007	0.0059	0.0001

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
	Crop Code						GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
	Crop Name						Soybean	Soybean	Soybean	Soybean	Soybean
	Crop Variety						PI9Y342	SS725NSR2	Dyn39RY43	PI94Y23	PI93Y42
	Rating Type						Stunting	Stunting	Stunting	Stunting	Stunting
	Rating Unit						%	%	%	%	%
	Rating Date						07/17/14	07/22/14	07/22/14	07/22/14	07/22/14
1	Untreated Check						0.0 c	0.0 d	0.0 b	0.0 b	0.0 b
2	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	14.0 ab	12.3 c	0.0 b	4.0 b	0.0 b
3	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	12.3 b	25.0 b	0.0 b	13.0 b	6.3 ab
4	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	18.0 a	36.7 a	11.3 a	35.7 a	10.3 a
	Authority XL Premix	70	DG	0.263	lb ai/a	PRE					
	----sulfentrazone	62.2		0.234							
	----chlorimuron	7.8		0.0293							
	LSD P=.05						4.04	7.20	4.04	16.14	6.76
	Standard Deviation						2.02	3.60	2.02	8.08	3.38
	CV						18.23	19.47	71.32	61.35	81.19
	Replicate F						0.020	6.996	1.000	2.783	0.903
	Replicate Prob(F)						0.9799	0.0270	0.4219	0.1396	0.4541
	Treatment F						44.265	58.013	23.592	11.704	6.767
	Treatment Prob(F)						0.0002	0.0001	0.0010	0.0064	0.0236

University of Delaware

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
	Crop Code						GLXMA	GLXMA	GLXMA	GLXMA
	Crop Name						Soybean	Soybean	Soybean	Soybean
	Crop Variety						SS725NSR2	Dyn39RY43	PI94Y23	PI93Y42
	Rating Type						Yield	Yield	Yield	Yield
	Rating Unit						Bu/A	Bu/A	Bu/A	Bu/A
	Rating Date						10/27/14	10/27/14	10/27/14	10/27/14
1	Untreated Check						105.8	96.2 a	103.1 a	89.2 a
2	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	107.9	101.4 a	97.4 bc	91.6 a
3	Sharpen.....saflufenacil	2.85	SC	0.0445	lb ai/a	PRE	101.4	102.2 a	100.3 ab	95.2 a
4	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	99.3	104.5 a	92.7 c	93.6 a
	Authority XL Premix	70	DG	0.263	lb ai/a	PRE				
	----sulfentrazone	62.2		0.234						
	----chlorimuron	7.8		0.0293						
	LSD P=.05						.	8.40	5.61	11.92
	Standard Deviation						.	4.20	2.81	5.97
	CV						.	4.16	2.86	6.46
	Replicate F							2.185	1.528	1.943
	Replicate Prob(F)							0.1937	0.2909	0.2236
	Treatment F							2.070	7.518	0.563
	Treatment Prob(F)							0.2057	0.0186	0.6591

University of Delaware

Application Timing for POST Herbicides

Trial ID: Soy4-14 Cooperator:
Location: Field #4 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Morningglory Species	IPOSS	Ipomoea sp.
3.	Crabgrass Species	DIGSS	Digitaria sp.
4.	Carpetweed	MOLVE	Mollugo verticillata L.
5.	Common Ragweed	AMBEL	Ambrosia artemisifolia L.
6.	Common Lambsquarters	CHEAL	Chenopodium album L.

Crop 1: Non-Crop

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: FACTORIAL
Tillage Type: Disked Twice

SOIL DESCRIPTION

% Sand: 79 % OM: 2.0 Texture: sandy loam
% Silt: 11 pH: 5.6
% Clay: 10 CEC: 6.0 Fert. Level: Optimum

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	06/17/14	06/27/14	07/10/14
Time of Day:	11:15 am	9:00 am	8:00 am
Application Method:	Spray	Spray	Spray
Application Timing:	20DAP	30DAP	40DAP
Applic. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	88 F	74 F	77 F
% Relative Humidity:	54	80	88
Wind Velocity, Unit:	2 mph	4 mph	2 mph
Wind Direction:	South	Northeast	South
Dew Presence (Y/N):	N	Y	Y
Soil Temp., Unit:	87 F	74 F	76 F
Soil Surf. Moisture:	Dry	Moist	Moist
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist	Moist
% Cloud Cover:	30	85	100

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:	vegetative	veg-eaFlwr	eaFlowr
Height, Unit:	2 in	9 in	24 in
Density,Unit:	30 m2	2-15 m2	15-20 m2
Weed 2 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:	2-leaf	vegetative	running
Height, Unit:	2 in	6 in	15 in
Density,Unit:	0-3 m2	4-8 m2	0-4 m2
Weed 3 Code:	DIGSS	DIGSS	DIGSS
Growth Stage:	2-3 leaf		
Height, Unit:	1 in		
Density,Unit:	10-30 m2		
Weed 4 Code:	MOLVE	MOLVE	MOLVE
Growth Stage:		flower	flower
Height, Unit:		2 in	8 in
Density,Unit:		30 m2	15-30 m2
Weed 5 Code:	AMBEL	AMBEL	AMBEL
Growth Stage:		vegetative	vegetative
Height, Unit:		6 in	14 in
Density,Unit:		0-2 m2	0-6 m2
Weed 6 Code:	CHEAL	CHEAL	CHEAL
Growth Stage:		vegetative	vegetative
Height, Unit:		8 in	10 in
Density,Unit:		0-2 m2	5-15 m2

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	30 in	46 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air	Comp. Air

Trial Comments

06/27/14: Palmer hieght ranges from 6 to 14 inches; Average 9 inches.

07/10/14: Palmer height ranges from 14 to 34 inches; Average 24 inches.

07/14/14: Ratings are based on area between tractor tires; so plants rated were not injured by tractor. Palmer amaranth plants in the tire tracks were not effectively control with treatments 3, 5; only "suppression" with treatments 2, 6, 7, and 10.

07/22/14: Palmer amarnath and common ragweed ratings were based on plants between the tire tracks and plants damaged by tire tracks seperately.

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Application Timing for POST Herbicides

Trial ID: Soy4-14 Cooperator:
Location: Field #4 Investigator: Mark VanGessel

Weed Code							AMAPA	AMBEL	CHEAL	IPOSS
Crop Code										
Weed or Crop Name							Palmer	Common	Common	Mornglry
Weed or Crop Name							Amaranth	Ragweed	Lambqtrs	Species
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							07/17/14	07/17/14	07/17/14	07/17/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	20 DAP							100.0 a	100.0 a	100.0 a	100.0 a
	Engenia	5	SL	1.25	lb ai/a	20DAP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A				
2	20 DAP							98.3 a	100.0 a	100.0 a	100.0 a
	2,4-D choline	3.8	SL	0.95	lb ae/a	20DAP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A				
3	20 DAP							100.0 a	100.0 a	56.7 b	91.0 ab
	Reflex.....fomesafen	2	L	0.375	lb ai/a	20DAP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A				
4	20 DAP							100.0 a	100.0 a	100.0 a	100.0 a
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	20DAP	A				
	Atrazine 4L	4	L	0.5	lb ai/a	20DAP	A				
	Crop Oil Concentrate	100	L	1.25	% v/v	20DAP	A				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	20DAP	A				
5	20 DAP							92.7 ab	100.0 a	100.0 a	91.0 ab
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	20DAP	A				
	Dry Ammonium Sulfate	100	D	3	lb ai/a	20DAP	A				
6	30 DAP							91.3 abc	100.0 a	100.0 a	100.0 a
	Engenia	5	SL	1.25	lb ai/a	30DAP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	30DAP	B				
7	30 DAP							88.3 a-d	100.0 a	100.0 a	100.0 a
	2,4-D choline	3.8	SL	0.95	lb ae/a	30DAP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	30DAP	B				
8	30 DAP							80.0 cde	100.0 a	40.0 bc	90.0 ab
	Reflex.....fomesafen	2	L	0.375	lb ai/a	30DAP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	30DAP	B				
9	30 DAP							99.0 a	100.0 a	100.0 a	100.0 a
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	30DAP	B				
	Atrazine 4L	4	L	0.5	lb ai/a	30DAP	B				
	Crop Oil Concentrate	100	L	1.25	% v/v	30DAP	B				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	30DAP	B				
10	30 DAP							84.3 b-e	100.0 a	100.0 a	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	30DAP	B				
	Dry Ammonium Sulfate	100	D	3	lb ai/a	30DAP	B				
11	40 DAP							72.7 ef	85.0 b	87.7 a	71.7 c
	Engenia	5	SL	1.25	lb ai/a	40DAP	C				
	Nonionic Surfactant	100	L	0.25	% v/v	40DAP	C				
12	40 DAP							65.0 fg	75.0 c	80.0 a	84.0 bc
	2,4-D choline	3.8	SL	0.95	lb ae/a	40DAP	C				
	Nonionic Surfactant	100	L	0.25	% v/v	40DAP	C				
13	40 DAP							76.0 def		20.0 cd	85.0 bc
	Reflex.....fomesafen	2	L	0.375	lb ai/a	40DAP	C				
	Nonionic Surfactant	100	L	0.25	% v/v	40DAP	C				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,5; Average=2,3,4,6,7,8,9
Could not calculate LSD (% mean diff) for columns 2,7 because error mean square = 0.

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Weed Code							AMAPA	AMBEL	CHEAL	IPOSS
Crop Code										
Weed or Crop Name							Palmer	Common	Common	Morngly
Weed or Crop Name							Amaranth	Ragweed	Lambqtrs	Species
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							07/17/14	07/17/14	07/17/14	07/17/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
14	40 DAP							57.8 g			
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	40DAP	C			
	Atrazine 4L	4	L	0.5	lb ai/a	40DAP	C			
	Crop Oil Concentrate	100	L	1.25	% v/v	40DAP	C			
	30% Urea Ammonium Nitrate	100	L	2	% v/v	40DAP	C			
15	40 DAP							74.3 ef	100.0 a	96.0 a	89.3 ab
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	40DAP	C			
	Dry Ammonium Sulfate	100	D	3	lb ai/a	40DAP	C			
16	Untreated							0.0 h	0.0 d	0.0 d	0.0 d
LSD P=.05								12.58	.	20.12	14.71
Standard Deviation								7.53	0.00	11.94	8.75
CV								9.42	0.0	15.17	10.08
Replicate F								1.504	0.000	2.721	1.366
Replicate Prob(F)								0.2391	1.0000	0.0861	0.2735
Treatment F								33.473	0.000	23.510	25.317
Treatment Prob(F)								0.0001	1.0000	0.0001	0.0001

Weed Code							AMAPA	AMAPA	AMBEL	AMBEL
Crop Code							b/w tire	damaged	b/w tire	damaged
Weed or Crop Name							Palmer	Palmer	Common	Common
Weed or Crop Name							Amaranth	Amaranth	Ragweed	Ragweed
Rating Data Type							Control	Control	Control	Control
Rating Unit							%	%	%	%
Rating Date							07/22/14	07/22/14	07/22/14	07/22/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	20 DAP							100.0 a	96.7 ab	100.0 a	100.0 a
	Engenia	5	SL	1.25	lb ai/a	20DAP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A				
2	20 DAP							100.0 a	92.7 ab	100.0 a	91.7 b
	2,4-D choline	3.8	SL	0.95	lb ae/a	20DAP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A				
3	20 DAP							100.0 a	63.3 cde	100.0 a	100.0 a
	Reflex.....fomesafen	2	L	0.375	lb ai/a	20DAP	A				
	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A				
4	20 DAP							100.0 a	98.3 a	100.0 a	100.0 a
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	20DAP	A				
	Atrazine 4L	4	L	0.5	lb ai/a	20DAP	A				
	Crop Oil Concentrate	100	L	1.25	% v/v	20DAP	A				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	20DAP	A				
5	20 DAP							100.0 a	40.0 e	100.0 a	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	20DAP	A				
	Dry Ammonium Sulfate	100	D	3	lb ai/a	20DAP	A				
6	30 DAP							93.3 ab	88.3 abc	100.0 a	100.0 a
	Engenia	5	SL	1.25	lb ai/a	30DAP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	30DAP	B				
7	30 DAP							90.7 ab	84.3 a-d	100.0 a	100.0 a
	2,4-D choline	3.8	SL	0.95	lb ae/a	30DAP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	30DAP	B				
8	30 DAP							80.0 bcd	70.0 bcd	100.0 a	100.0 a
	Reflex.....fomesafen	2	L	0.375	lb ai/a	30DAP	B				
	Nonionic Surfactant	100	L	0.25	% v/v	30DAP	B				
9	30 DAP							97.7 a	100.0 a	100.0 a	100.0 a
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	30DAP	B				
	Atrazine 4L	4	L	0.5	lb ai/a	30DAP	B				
	Crop Oil Concentrate	100	L	1.25	% v/v	30DAP	B				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	30DAP	B				
10	30 DAP							87.7 abc	60.0 de	100.0 a	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	30DAP	B				
	Dry Ammonium Sulfate	100	D	3	lb ai/a	30DAP	B				
11	40 DAP							74.3 cde	70.0 bcd		
	Engenia	5	SL	1.25	lb ai/a	40DAP	C				
	Nonionic Surfactant	100	L	0.25	% v/v	40DAP	C				
12	40 DAP							66.0 def			
	2,4-D choline	3.8	SL	0.95	lb ae/a	40DAP	C				
	Nonionic Surfactant	100	L	0.25	% v/v	40DAP	C				
13	40 DAP							53.3 fg			
	Reflex.....fomesafen	2	L	0.375	lb ai/a	40DAP	C				
	Nonionic Surfactant	100	L	0.25	% v/v	40DAP	C				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	AMAPA b/w tire Palmer Amaranth	AMAPA damaged Palmer Amaranth	AMBEL b/w tire Common Ragweed	AMBEL damaged Common Ragweed
	Weed Code							AMAPA	AMAPA	AMBEL	AMBEL
	Crop Code							b/w tire	damaged	b/w tire	damaged
	Weed or Crop Name							Palmer	Palmer	Common	Common
	Weed or Crop Name							Amaranth	Amaranth	Ragweed	Ragweed
	Rating Data Type							Control	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							07/22/14	07/22/14	07/22/14	07/22/14
14	40 DAP							65.5 ef			
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	40DAP	C				
	Atrazine 4L	4	L	0.5	lb ai/a	40DAP	C				
	Crop Oil Concentrate	100	L	1.25	% v/v	40DAP	C				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	40DAP	C				
15	40 DAP							50.0 g		100.0 a	100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	40DAP	C				
	Dry Ammonium Sulfate	100	D	3	lb ai/a	40DAP	C				
16	Untreated							0.0 h	0.0 f	0.0 b	0.0 c
	LSD P=.05							14.01	28.04	.	7.44
	Standard Deviation							8.39	16.46	0.00	4.37
	CV							10.67	22.87	0.0	4.8
	Replicate F							2.325	1.919	0.000	0.909
	Replicate Prob(F)							0.1158	0.1728	1.0000	0.4189
	Treatment F							31.473	9.427	0.000	129.835
	Treatment Prob(F)							0.0001	0.0001	1.0000	0.0001

Weed Code	CHEAL
Crop Code	
Weed or Crop Name	Common
Weed or Crop Name	Lambqtrs
Rating Data Type	Control
Rating Unit	%
Rating Date	07/22/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	20 DAP							100.0 a
	Engenia	5	SL	1.25	lb ai/a	20DAP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A	
2	20 DAP							100.0 a
	2,4-D choline	3.8	SL	0.95	lb ae/a	20DAP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A	
3	20 DAP							40.0 b
	Reflex.....fomesafen	2	L	0.375	lb ai/a	20DAP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A	
4	20 DAP							100.0 a
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	20DAP	A	
	Atrazine 4L	4	L	0.5	lb ai/a	20DAP	A	
	Crop Oil Concentrate	100	L	1.25	% v/v	20DAP	A	
	30% Urea Ammonium Nitrate	100	L	2	% v/v	20DAP	A	
5	20 DAP							100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	20DAP	A	
	Dry Ammonium Sulfate	100	D	3	lb ai/a	20DAP	A	
6	30 DAP							100.0 a
	Engenia	5	SL	1.25	lb ai/a	30DAP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	30DAP	B	
7	30 DAP							100.0 a
	2,4-D choline	3.8	SL	0.95	lb ae/a	30DAP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	30DAP	B	
8	30 DAP							40.0 b
	Reflex.....fomesafen	2	L	0.375	lb ai/a	30DAP	B	
	Nonionic Surfactant	100	L	0.25	% v/v	30DAP	B	
9	30 DAP							100.0 a
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	30DAP	B	
	Atrazine 4L	4	L	0.5	lb ai/a	30DAP	B	
	Crop Oil Concentrate	100	L	1.25	% v/v	30DAP	B	
	30% Urea Ammonium Nitrate	100	L	2	% v/v	30DAP	B	
10	30 DAP							100.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	30DAP	B	
	Dry Ammonium Sulfate	100	D	3	lb ai/a	30DAP	B	
11	40 DAP							97.0 a
	Engenia	5	SL	1.25	lb ai/a	40DAP	C	
	Nonionic Surfactant	100	L	0.25	% v/v	40DAP	C	
12	40 DAP							
	2,4-D choline	3.8	SL	0.95	lb ae/a	40DAP	C	
	Nonionic Surfactant	100	L	0.25	% v/v	40DAP	C	
13	40 DAP							0.0 c
	Reflex.....fomesafen	2	L	0.375	lb ai/a	40DAP	C	
	Nonionic Surfactant	100	L	0.25	% v/v	40DAP	C	

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Weed Code	CHEAL
Crop Code	
Weed or Crop Name	Common
Weed or Crop Name	Lambqtrs
Rating Data Type	Control
Rating Unit	%
Rating Date	07/22/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
14	40 DAP							
	Callisto.....mesotrione	4	SC	0.312	lb ai/a	40DAP	C	
	Atrazine 4L	4	L	0.5	lb ai/a	40DAP	C	
	Crop Oil Concentrate	100	L	1.25	% v/v	40DAP	C	
	30% Urea Ammonium Nitrate	100	L	2	% v/v	40DAP	C	
15	40 DAP							97.0 a
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	40DAP	C	
	Dry Ammonium Sulfate	100	D	3	lb ai/a	40DAP	C	
16	Untreated							0.0 c

LSD P=.05	7.26
Standard Deviation	4.25
CV	5.54
Replicate F	1.583
Replicate Prob(F)	0.2312
Treatment F	250.997
Treatment Prob(F)	0.0001

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Application Timing for POST Herbicides

Trial ID: Soy4-14 Cooperator:
Location: Field #4 Investigator: Mark VanGessel

Weed Code							AMAPA	AMAPA
Crop Code								b/w tire
Weed or Crop Name							Palmer	Palmer
Weed or Crop Name							Amaranth	Amaranth
Rating Data Type							Control	Control
Rating Unit							%	%
Rating Date							07/17/14	07/22/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
TABLE OF R MEANS								
Replicate 1							86.0	85.0
Replicate 2							82.6	80.1
Replicate 3							87.4	86.6
TABLE OF A (Timing) MEANS								
1	20 DAP						98.2 a	100.0 a
2	30 DAP						88.6 b	89.9 b
3	40 DAP						69.2 c	61.8 c
LSD P=.05							5.83	6.48
Standard Deviation							7.78	8.65
CV							9.12	10.31
TABLE OF B (Treatment) MEANS								
1	Engenia	5	SL	1.25	lb ai/a	20DAP A	88.0 a	89.2 a
1	Nonionic Surfactant	100	L	0.25	% v/v	20DAP A		
2	2,4-D choline	3.8	SL	0.95	lb ae/a	20DAP A	83.9 a	85.6 ab
2	Nonionic Surfactant	100	L	0.25	% v/v	20DAP A		
3	Reflex.....fomesafen	2	L	0.375	lb ai/a	20DAP A	85.3 a	77.8 b
3	Nonionic Surfactant	100	L	0.25	% v/v	20DAP A		
4	Callisto.....mesotrione	4	SC	0.312	lb ai/a	20DAP A	85.6 a	87.7 a
4	Atrazine 4L	4	L	0.5	lb ai/a	20DAP A		
4	Crop Oil Concentrate	100	L	1.25	% v/v	20DAP A		
4	30% Urea Ammonium Nitrate	100	L	2	% v/v	20DAP A		
5	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	20DAP A	83.8 a	79.2 b
5	Dry Ammonium Sulfate	100	D	3	lb ai/a	20DAP A		
LSD P=.05							7.52	8.37
Standard Deviation							7.78	8.65
CV							9.12	10.31
TABLE OF A (Timing) B (Treatment) MEANS								
1	20 DAP						100.0 a	100.0 a
1	Engenia	5	SL	1.25	lb ai/a	20DAP A		
1	Nonionic Surfactant	100	L	0.25	% v/v	20DAP A		
2	30 DAP						91.3 ab	93.3 a
1	Engenia	5	SL	1.25	lb ai/a	20DAP A		
1	Nonionic Surfactant	100	L	0.25	% v/v	20DAP A		
3	40 DAP						72.7 de	74.3 a
1	Engenia	5	SL	1.25	lb ai/a	20DAP A		
1	Nonionic Surfactant	100	L	0.25	% v/v	20DAP A		
1	20 DAP						98.3 a	100.0 a
2	2,4-D choline	3.8	SL	0.95	lb ae/a	20DAP A		
2	Nonionic Surfactant	100	L	0.25	% v/v	20DAP A		
2	30 DAP						88.3 abc	90.7 a
2	2,4-D choline	3.8	SL	0.95	lb ae/a	20DAP A		
2	Nonionic Surfactant	100	L	0.25	% v/v	20DAP A		

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Weed Code							AMAPA	AMAPA
Crop Code								b/w tire
Weed or Crop Name							Palmer	Palmer
Weed or Crop Name							Amaranth	Amaranth
Rating Data Type							Control	Control
Rating Unit							%	%
Rating Date							07/17/14	07/22/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
3	40 DAP							65.0 ef	66.0 a
2	2,4-D choline	3.8	SL	0.95	lb ae/a	20DAP	A	
2	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A	
1	20 DAP							100.0 a	100.0 a
3	Reflex.....fomesafen	2	L	0.375	lb ai/a	20DAP	A	
3	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A	
2	30 DAP							80.0 bcd	80.0 a
3	Reflex.....fomesafen	2	L	0.375	lb ai/a	20DAP	A	
3	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A	
3	40 DAP							76.0 cde	53.3 a
3	Reflex.....fomesafen	2	L	0.375	lb ai/a	20DAP	A	
3	Nonionic Surfactant	100	L	0.25	% v/v	20DAP	A	
1	20 DAP							100.0 a	100.0 a
4	Callisto.....mesotrione	4	SC	0.312	lb ai/a	20DAP	A	
4	Atrazine 4L	4	L	0.5	lb ai/a	20DAP	A	
4	Crop Oil Concentrate	100	L	1.25	% v/v	20DAP	A	
4	30% Urea Ammonium Nitrate	100	L	2	% v/v	20DAP	A	
2	30 DAP							99.0 a	97.7 a
4	Callisto.....mesotrione	4	SC	0.312	lb ai/a	20DAP	A	
4	Atrazine 4L	4	L	0.5	lb ai/a	20DAP	A	
4	Crop Oil Concentrate	100	L	1.25	% v/v	20DAP	A	
4	30% Urea Ammonium Nitrate	100	L	2	% v/v	20DAP	A	
3	40 DAP							57.8 f	65.5 a
4	Callisto.....mesotrione	4	SC	0.312	lb ai/a	20DAP	A	
4	Atrazine 4L	4	L	0.5	lb ai/a	20DAP	A	
4	Crop Oil Concentrate	100	L	1.25	% v/v	20DAP	A	
4	30% Urea Ammonium Nitrate	100	L	2	% v/v	20DAP	A	
1	20 DAP							92.7 ab	100.0 a
5	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	20DAP	A	
5	Dry Ammonium Sulfate	100	D	3	lb ai/a	20DAP	A	
2	30 DAP							84.3 bcd	87.7 a
5	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	20DAP	A	
5	Dry Ammonium Sulfate	100	D	3	lb ai/a	20DAP	A	
3	40 DAP							74.3 de	50.0 a
5	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	20DAP	A	
5	Dry Ammonium Sulfate	100	D	3	lb ai/a	20DAP	A	
LSD P=.05								13.03	14.49
Standard Deviation								7.78	8.65
CV								9.12	10.31

FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 07/17/14 Missing values in column 1 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	43	9823.952000				
R	2	182.016000	91.008000	1.504	0.2403	
A	2	6566.976000	3283.488000	54.266	0.0001	5.8
B	4	105.187556	26.296889	0.435	0.7824	7.5
AB	8	1336.081778	167.010222	2.760	0.0229	13.0
ERROR	27	1633.690667	60.507062			

FACTORIAL/POOLED ERROR AOV For AMAPA b/w tire Palmer Amaranth Control % 07/22/14 Missing values in column 5 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	43	15817.329778				
R	2	349.260444	174.630222	2.334	0.1162	
A	2	11721.820444	5860.910222	78.322	0.0001	6.5
B	4	946.120889	236.530222	3.161	0.0297	8.4
AB	8	779.681778	97.460222	1.302	0.2840	14.5
ERROR	27	2020.446222	74.831342			

University of Delaware

Residual Herbicides for Soybeans

Trial ID: Soy5-14 Location: Field #36 Trial Year:
Protocol ID: Soy5-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Monsanto

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: Dyn39RY43 BBCH Scale: BSOY
Description: RR

Planting Rate, Unit: 180000 S/A
Depth, Unit: 1 in
Row Spacing, Unit: 15 in

Soil Temperature, Unit: 80 F
Soil Moisture: NORMAL normal, adequate
Seed Bed: MEDTRA medium/trashy

Planting Date: 05/28/14
Planting Method: PLANTD planted
Planting Equipment: PP Plot Planter
Emergence Date: 06/05/14
Harvest Date: 10/21/14
Harvested Width, Unit: 6.25 FT
Harvested Length, Unit: 25 FT
Harvest Equipment: Plot combine
% Standard Moisture: 13.0

Pest Description

Pest 1 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morningglory

Site and Design

Treated Plot Width: 10 FT
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 18
Replications: 3

Site Type: FIELD field
Tillage Type: REDTIL reduced-till
Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/21/14	Roundup	4.5	AS	32	FL OZ/A
2.	04/21/14	2,4-D Ester	3.8	L	16	FL OZ/A

Field Prep./Maintenance:
Site area was turbotilled prior to planting on 5/28/14.

Soil Description

% Sand: 77 % OM: 2.3 Texture: SL sandy loam
% Silt: 12 pH: 6.2
% Clay: 11 CEC: 7.5 Fert. Level: E excellent
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.6 mi

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Application Description

	A	B	C
Application Date:	05/30/14	06/18/14	06/30/14
Appl. Stop Time:	02:00 PM	10:00 AM	02:00 PM
Interval to Prev. Appl., Unit:		19 DAYS	12 DAYS
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	4"wds	if needed
Application Placement:	BROADC	BROADC	BROADC
Applied By:	Johnson	Johnson	VanGessl
Air Temperature, Unit:	65 F	89 F	87 F
% Relative Humidity:	65	48	37
Wind Velocity, Unit:	2 mph	2.5 mph	3 mph
Wind Direction:	NE	SW	SE
Dew Presence (Y/N):	N no	N no	N no
Soil Temperature, Unit:	64 F	87 F	86 F
Soil Moisture:	NORMAL	DRY	NORMAL
% Cloud Cover:	95	0	20

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		DESC	DESC
Stage Majority, Percent:		2-trifol 100	5-trifol 100
Height, Unit:		5.5 in	9 in
Height Minimum, Maximum:		5 6	8 10

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent:		veg 70	vine 100
Stage Minimum, Percent:		veg 70	
Stage Maximum, Percent:		vine 30	
Height, Unit:		4 in	7 in
Height Minimum, Maximum:		3 5	6 9
Density, Unit:		3 m2	2 m2

Application Equipment

	A	B	C
Appl. Equipment:	Tractor	Tractor	Backpack
Equipment Type:	TRMOSP	TRMOSP	SPRBAC
Operation Pressure, Unit:	40 psi	40 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	18 in
Boom Length, Unit:	10 ft	10 ft	9 ft
Boom Height, Unit:	18 in	22 in	26 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	WATER	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons	2 Liters
Propellant:	COMAIR	COMAIR	COMCO2

University of Delaware

Residual Herbicides for Soybeans

Trial ID: Soy5-14 Location: Field #36 Trial Year:
Protocol ID: Soy5-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Monsanto

Trial Comments

06/19/14: Only residual activity was rated; weed density is very light; data is not very consistent; very heavy deer feeding made injury ratings not possible to rate injury in rep 3. Note that POST treatments were made on June 18, so leaf burn is only initial injury.

07/01/14: IPOSS only species consistent to rate; appears drought stress may have influenced POST activity of herbicides; heavy deer feeding in rep 3, stunting difficult to rate.

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Residual Herbicides for Soybeans

Trial ID: Soy5-14 Location: Field #36 Trial Year:
Protocol ID: Soy5-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Monsanto

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA Soybean Stunting % 06/19/14	GLXMA Soybean LeafBrn % 06/19/14	AMBEL C.ragwd Control % 06/19/14
	Pest Code									
	Crop Code									
	Rating Date									
1	Untreated Check							0.0 e	0.0 d	0.0 e
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	if needed	C			
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	3.5 de	1.7 d	0.0 e
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	3.5 de	22.3 a	25.0 de
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
	Cobra.....lactofen	2	EC	0.0625	lb ai/a	4" wds	B			
4	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	11.0 bc	0.0 d	91.7 ab
	----flumioxazin	30		0.056						
	----chlorimuron	10.3		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
5	Verdict Premix	5.57	EC	0.217	lb ai/a	PRE	A	0.0 e	0.0 d	
	----saflufenacil	0.57		0.0222						
	----dimethenamid	5		0.195						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
6	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	PRE	A	3.5 de	0.0 d	40.0 cd
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
7	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	7.0 cd	1.7 d	25.0 de
	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	4" wds	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
8	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	15.0 b	0.0 d	60.0 bcd
	----flumioxazin	33.5		0.0785						
	----pyroxasulfone	42.5		0.1						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
9	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	4.5 cde	0.0 d	70.0 abc
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
10	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	11.0 bc	0.0 d	90.0 ab
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
11	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	22.5 a	0.0 d	
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
12	Anthem Premix	2.153	SE	0.168	lb ai/a	PRE	A	0.0 e	0.0 d	60.0 bcd
	----pyroxasulfone	2.09		0.163						
	----fluthiacet	0.06300001		0.0049						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=4,5; Average=1,3,7

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Pest Code										AMBEL
Pest Name										C.ragwd
Crop Code								GLXMA	GLXMA	
Crop Name								Soybean	Soybean	
Rating Type								Stunting	LeafBrn	Control
Rating Unit								%	%	%
Rating Date								06/19/14	06/19/14	06/19/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
13	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	0.0 e	0.0 d	0.0 e
	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A			
	----sulfentrazone	68		0.298						
	----chlorimuron	4		0.0175						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
14	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A	0.0 e	1.7 d	100.0 a
	----sulfentrazone	68		0.298						
	----chlorimuron	4		0.0175						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
15	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	0.0 e	0.0 d	100.0 a
	----s-metolachlor	4.35		1.09						
	----fomesafen	0.95		0.238						
	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a	4" wds	B			
16	Dual II Magnum..s-metolachlor	7.64	E	0.955	lb ai/a	PRE	A	0.0 e	6.3 c	30.0 de
	Flexstar GT Premix	3.3	L	1.44	lb ai/a	4" wds	B			
	----fomesafen	0.66		0.288						
	----glyphosate	2.64		1.15						
17	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	0.0 e	9.7 b	70.0 abc
	----metribuzin	64.3		0.161						
	----chlorimuron	10.7		0.0268						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Reflex.....fomesafen	2	L	0.25	lb ai/a	4" wds	B			
18	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	10.0 bcd	9.7 b	95.0 ab
	----flumioxazin	33.5		0.0785						
	----pyroxasulfone	42.5		0.1						
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Reflex.....fomesafen	2	L	0.25	lb ai/a	4" wds	B			
LSD P=.05								6.69	2.71	38.87
Standard Deviation								3.15	1.63	20.64
CV								62.04	55.53	38.56
Replicate F								0.137	5.570	0.185
Replicate Prob(F)								0.7163	0.0081	0.8349
Treatment F								8.447	38.160	9.578
Treatment Prob(F)								0.0001	0.0001	0.0016

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	IPOSS mornglry	PANDI F.panicm	GLXMA Soybean LeafBrn
	Crop Code									
	Crop Name									
	Rating Type							Control	Control`	
	Rating Unit							%	%	%
	Rating Date							06/19/14	06/19/14	06/24/14
1	Untreated Check							0.0 f	0.0 g	0.0 f
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	if needed	C			
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	66.7 d	33.3 def	5.0 e
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	68.3 cd	31.6 ef	33.3 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
	Cobra.....lactofen	2	EC	0.0625	lb ai/a	4" wds	B			
4	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	82.0 a-d	53.3 bc	5.7 de
	----flumioxazin	30		0.056						
	----chlorimuron	10.3		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
5	Verdict Premix	5.57	EC	0.217	lb ai/a	PRE	A	85.0 a-d	65.0 abc	0.0 f
	----saflufenacil	0.57		0.0222						
	----dimethenamid	5		0.195						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
6	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	PRE	A	63.3 d	80.0 a	0.0 f
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
7	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	85.0 a-d	50.0 cd	23.3 b
	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	4" wds	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
8	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	83.3 a-d	73.3 a	0.0 f
	----flumioxazin	33.5		0.0785						
	----pyroxasulfone	42.5		0.1						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
9	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	71.7 a-d	23.3 f	0.0 f
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
10	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	84.3 a-d	77.7 a	0.0 f
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
11	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	92.0 a	81.7 a	0.0 f
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
12	Anthem Premix	2.153	SE	0.168	lb ai/a	PRE	A	69.9 bcd	71.0 ab	0.0 f
	----pyroxasulfone	2.09		0.163						
	----fluthiacet	0.06300001		0.0049						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	IPOSS mornglry	PANDI F.panicm	GLXMA Soybean LeafBrn
	Crop Code									
	Crop Name									
	Rating Type							Control	Control`	
	Rating Unit							%	%	%
	Rating Date							06/19/14	06/19/14	06/24/14
13	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	75.7 a-d	53.3 bc	0.0 f
	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A			
	----sulfentrazone	68		0.298						
	----chlorimuron	4		0.0175						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
14	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A	91.0 ab	46.7 cde	3.3 e
	----sulfentrazone	68		0.298						
	----chlorimuron	4		0.0175						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
15	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	92.1 a	73.3 a	0.0 f
	----s-metolachlor	4.35		1.09						
	----fomesafen	0.95		0.238						
	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a	4" wds	B			
16	Dual II Magnum..s-metolachlor	7.64	E	0.955	lb ai/a	PRE	A	30.0 e	71.7 ab	8.7 d
	Flexstar GT Premix	3.3	L	1.44	lb ai/a	4" wds	B			
	----fomesafen	0.66		0.288						
	----glyphosate	2.64		1.15						
17	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	91.0 ab	47.2 cde	16.3 c
	----metribuzin	64.3		0.161						
	----chlorimuron	10.7		0.0268						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Reflex.....fomesafen	2	L	0.25	lb ai/a	4" wds	B			
18	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	89.3 abc	80.0 a	15.7 c
	----flumioxazin	33.5		0.0785						
	----pyroxasulfone	42.5		0.1						
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Reflex.....fomesafen	2	L	0.25	lb ai/a	4" wds	B			
	LSD P=.05							21.74	18.35	3.15
	Standard Deviation							13.07	11.03	1.90
	CV							17.82	19.61	30.68
	Replicate F							0.110	5.318	0.314
	Replicate Prob(F)							0.8960	0.0101	0.7328
	Treatment F							9.909	12.992	79.529
	Treatment Prob(F)							0.0001	0.0001	0.0001

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Pest Code Pest Name Crop Code Crop Name Rating Type Rating Unit Rating Date								GLXMA Soybean Stunting % 07/01/14	IPOSS mornglry Control % 07/01/14	GLXMA Soybean Yield Bu/A 10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
1	Untreated Check							0.0 h	0.0 c	53.5 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	if needed	C			
2	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	9.5 b-e	89.3 a	54.0 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	15.7 a	82.7 ab	53.0 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
	Cobra.....lactofen	2	EC	0.0625	lb ai/a	4" wds	B			
4	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	3.5 fgh	96.0 a	53.4 a
	----flumioxazin	30		0.056						
	----chlorimuron	10.3		0.0193						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
5	Verdict Premix	5.57	EC	0.217	lb ai/a	PRE	A	0.0 h	99.0 a	61.1 a
	----saflufenacil	0.57		0.0222						
	----dimethenamid	5		0.195						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
6	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	PRE	A	2.5 gh	85.3 a	52.4 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
7	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	2.3 gh	89.3 a	57.0 a
	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	4" wds	B			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
8	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	14.0 ab	91.0 a	57.8 a
	----flumioxazin	33.5		0.0785						
	----pyroxasulfone	42.5		0.1						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
9	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	9.5 b-e	90.0 a	47.5 a
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
10	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	0.0 h	79.3 ab	64.7 a
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
11	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	12.3 abc	90.0 a	61.0 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
12	Anthem Premix	2.153	SE	0.168	lb ai/a	PRE	A	11.0 a-d	87.7 a	57.9 a
	----pyroxasulfone	2.09		0.163						
	----fluthiacet	0.06300001		0.0049						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA Soybean Stunting % 07/01/14	IPOSS mornglry Control % 07/01/14	GLXMA Soybean Yield Bu/A 10/21/14
	Pest Code									
	Pest Name									
	Crop Code									
	Crop Name									
	Rating Type									
	Rating Unit									
	Rating Date									
13	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	8.5 c-f	96.0 a	59.5 a
	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A			
	----sulfentrazone	68		0.298						
	----chlorimuron	4		0.0175						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
14	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A	6.0 d-g	97.0 a	61.5 a
	----sulfentrazone	68		0.298						
	----chlorimuron	4		0.0175						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	4" wds	B			
15	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	3.5 fgh	96.7 a	62.5 a
	----s-metolachlor	4.35		1.09						
	----fomesafen	0.95		0.238						
	Touchdown Total...glyphosate	4.17	SL	1.04	lb ae/a	4" wds	B			
16	Dual II Magnum..s-metolachlor	7.64	E	0.955	lb ai/a	PRE	A	4.7 e-h	96.7 a	62.0 a
	Flexstar GT Premix	3.3	L	1.44	lb ai/a	4" wds	B			
	----fomesafen	0.66		0.288						
	----glyphosate	2.64		1.15						
17	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	8.5 c-f	92.0 a	60.7 a
	----metribuzin	64.3		0.161						
	----chlorimuron	10.7		0.0268						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Reflex.....fomesafen	2	L	0.25	lb ai/a	4" wds	B			
18	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	13.5 abc	63.0 b	59.1 a
	----flumioxazin	33.5		0.0785						
	----pyroxasulfone	42.5		0.1						
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A			
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	4" wds	B			
	Reflex.....fomesafen	2	L	0.25	lb ai/a	4" wds	B			
	LSD P=.05							5.20	21.33	11.75
	Standard Deviation							3.06	12.85	7.08
	CV							43.99	15.21	12.27
	Replicate F							0.214	0.424	2.751
	Replicate Prob(F)							0.8089	0.6578	0.0781
	Treatment F							8.465	9.374	1.222
	Treatment Prob(F)							0.0001	0.0001	0.3001

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Trivence Preemergence in Soybeans

Trial ID: Soy6-14 Location: Field #36 Trial Year:
Protocol ID: Soy6-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: DuPont

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: Dyn39RY43 BBCH Scale: BSOY
Description: RR

Planting Date: 05/28/14
Planting Rate, Unit: 180000 S/A Planting Method: PLANTD planted
Depth, Unit: 1 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 15 in Emergence Date: 06/05/14
Harvest Date: 10/21/14
Harvested Width, Unit: 6.25 FT
Soil Temperature, Unit: 80 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDTRA medium/trashy % Standard Moisture: 13.0

Pest Description

Pest 1 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth

Pest 2 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morning glory

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 12 Tillage Type: NOTILL no-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/21/14	Roundup	4.5	AS	32	FL OZ/A
2.	04/21/14	2,4-D Ester	3.8	L	16	FL OZ/A

Field Prep./Maintenance:
Site area was turbotilled prior to planting on 5/28/14.

Soil Description

% Sand: 77 % OM: 2.3 Texture: SL sandy loam
% Silt: 12 pH: 6.2
% Clay: 11 CEC: 7.5 Fert. Level: E excellent
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.6 mi

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Application Description

	A	B
Application Date:	05/30/14	06/27/14
Appl. Stop Time:	10:20 AM	10:00 AM
Interval to Prev. Appl., Unit:		28 DAYS
Application Method:	SPRAY	SPRAY
Application Timing:	PRE	28DAP
Application Placement:	BROADC	BROADC
Applied By:	Johnson	Johnson
Air Temperature, Unit:	62 F	74 F
% Relative Humidity:	72	80
Wind Velocity, Unit:	2 mph	4 mph
Wind Direction:	NE	ENE
Dew Presence (Y/N):	Y yes	Y yes
Soil Temperature, Unit:	61 F	73 F
Soil Moisture:	NORMAL	NORMAL
% Cloud Cover:	100	85

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		DESC
Stage Majority, Percent:		14 100
Height, Unit:		8 in

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	AMAPA W	AMAPA W
Height, Unit:		9 in
Height Minimum, Maximum:		6 12
Density, Unit:		1 PLOT
Pest 2 Code, Type, Scale:	IPOSS W	IPOSS W
Height, Unit:		10 in
Height Minimum, Maximum:		8 12
Density, Unit:		1 PLOT

Application Equipment

	A	B
Appl. Equipment:	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	10 ft	10 ft
Boom Height, Unit:	18 in	26 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR

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Trivence Preemergence in Soybeans

Trial ID: Soy6-14 Location: Field #36 Trial Year:
Protocol ID: Soy6-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: DuPont

Trial Comments

06/19/14: Weed pressure was quite variable. Ranges from very heavy to very light.

07/01/14: All treatments had 7-10% stunting; early-season grass pressure (not "burned down") influenced weed growth and increased variability.

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Trivence Preemergence in Soybeans

Trial ID: Soy6-14 Location: Field #36 Trial Year:
Protocol ID: Soy6-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: DuPont

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA Soybean Stunting % 06/19/14	AMAPA PalmerAm Control % 06/19/14	IPOSS mornglry Control % 06/19/14	PANDI F.panicm Control % 06/19/14
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	0.0 a	60.0 e	79.0 ab	36.7 c
	----chlorimuron	9.199999		0.02							
	----flumioxazin	29.2		.0636							
	----thifensulfuron	2.9		0.0063							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
2	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	3.3 a	98.0 ab	80.0 ab	79.3 a
	----chlorimuron	9.199999		0.02							
	----flumioxazin	29.2		.0636							
	----thifensulfuron	2.9		0.0063							
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
3	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	0.0 a	77.7 b-e	85.0 ab	84.3 a
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
4	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	0.0 a	92.3 ab	90.7 a	66.3 ab
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	28DAP	B				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
5	Trivence Premix	61.3	WG	0.23	lb ai/a	PRE	A	2.3 a	82.3 a-d	90.7 a	69.7 ab
	----chlorimuron	3.9		0.0146							
	----metribuzin	44.6		0.167							
	----flumioxazin	12.8		0.048							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,2,3,4; Average=6

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA Soybean Stunting % 06/19/14	AMAPA PalmerAm Control % 06/19/14	IPOSS mornglry Control % 06/19/14	PANDI F.panicm Control % 06/19/14
6	Trivence Premix	61.3	WG	0.23	lb ai/a	PRE	A	2.3 a	100.0 a	90.7 a	71.7 ab
	----chlorimuron	3.9		0.0146							
	----metribuzin	44.6		0.167							
	----flumioxazin	12.8		0.048							
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
7	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	1.0 a	67.8 cde	72.5 ab	51.7 bc
	----s-metolachlor	5.25		0.99							
	----metribuzin	1.25		0.235							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
8	Fierce Premix	76	WG	0.143	lb ai/a	PRE	A	0.0 a	91.7 ab	77.7 ab	68.3 ab
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
9	Untreated Check							0.0 a	0.0 f	0.0 c	0.0 d
10	Linex.....linuron	4	L	0.75	lb ai/a	PRE	A	3.3 a	85.7 abc	81.2 ab	72.7 ab
	Classic.....chlorimuron	25	WG	0.0266	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
11	Dual II Magnum..s-metolachlor	7.64	E	0.86	lb ai/a	PRE	A	3.3 a	63.3 de	70.0 b	63.3 ab
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A				
	Reflex.....fomesafen	2	L	0.167	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
12	Dual II Magnum..s-metolachlor	7.64	E	0.86	lb ai/a	PRE	A	3.3 a	85.4 a-d	76.0 ab	73.3 a
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A				
	Reflex.....fomesafen	2	L	0.312	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
LSD P=.05								5.95	22.03	19.74	21.25
Standard Deviation								3.50	12.94	11.59	12.48
CV								221.3	17.17	15.57	20.31
Replicate F								3.265	2.668	4.719	1.074
Replicate Prob(F)								0.0583	0.0940	0.0209	0.3605
Treatment F								0.583	13.119	13.350	10.232
Treatment Prob(F)								0.8214	0.0001	0.0001	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm Control % 07/01/14	CHEAL C.lmsqtr Control % 07/01/14	PANDI F.panicm Control % 07/01/14	GLXMA Soybean Yield Bu/A 10/21/14
1	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	94.3 a	98.7 a	93.3 a	71.9 a
	----chlorimuron	9.199999		0.02							
	----flumioxazin	29.2		.0636							
	----thifensulfuron	2.9		0.0063							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
2	Envive Premix	41.3	WG	0.09	lb ai/a	PRE	A	99.3 a	99.3 a	94.7 a	69.1 a
	----chlorimuron	9.199999		0.02							
	----flumioxazin	29.2		.0636							
	----thifensulfuron	2.9		0.0063							
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
3	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	94.3 a	98.7 a	94.7 a	68.7 a
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
4	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	98.7 a	99.3 a	96.3 a	69.2 a
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Cinch.....s-metolachlor	7.64	E	0.955	lb ai/a	28DAP	B				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
5	Trivence Premix	61.3	WG	0.23	lb ai/a	PRE	A	95.7 a	96.0 a	97.0 a	70.4 a
	----chlorimuron	3.9		0.0146							
	----metribuzin	44.6		0.167							
	----flumioxazin	12.8		0.048							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	CHEAL C.lmsqtr	PANDI F.panicm	GLXMA Soybean
	Pest Code							AMAPA	CHEAL	PANDI	
	Pest Name							PalmerAm	C.lmsqtr	F.panicm	
	Crop Code										GLXMA
	Crop Name										Soybean
	Rating Type							Control	Control	Control	Yield
	Rating Unit							%	%	%	Bu/A
	Rating Date							07/01/14	07/01/14	07/01/14	10/21/14
6	Trivence Premix	61.3	WG	0.23	lb ai/a	PRE	A	95.3 a	99.3 a	96.3 a	69.8 a
	----chlorimuron	3.9		0.0146							
	----metribuzin	44.6		0.167							
	----flumioxazin	12.8		0.048							
	Zidua.....pyroxasulfone	85	WG	0.08	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
7	Boundary Premix	6.5	EC	1.22	lb ai/a	PRE	A	93.3 a	94.3 a	93.3 a	71.9 a
	----s-metolachlor	5.25		0.99							
	----metribuzin	1.25		0.235							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
8	Fierce Premix	76	WG	0.143	lb ai/a	PRE	A	99.3 a	96.3 a	96.3 a	68.3 a
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
9	Untreated Check							0.0 b	0.0 b	0.0 b	56.1 a
10	Linex.....linuron	4	L	0.75	lb ai/a	PRE	A	92.7 a	99.3 a	97.0 a	76.4 a
	Classic.....chlorimuron	25	WG	0.0266	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
11	Dual II Magnum..s-metolachlor	7.64	E	0.86	lb ai/a	PRE	A	92.7 a	98.7 a	96.3 a	79.2 a
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A				
	Reflex.....fomesafen	2	L	0.167	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
12	Dual II Magnum..s-metolachlor	7.64	E	0.86	lb ai/a	PRE	A	93.0 a	96.0 a	95.7 a	74.1 a
	Metribuzin.....metribuzin	75	DF	0.188	lb ai/a	PRE	A				
	Reflex.....fomesafen	2	L	0.312	lb ai/a	PRE	A				
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	28DAP	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	28DAP	B				
	LSD P=.05							10.46	6.14	4.37	14.71
	Standard Deviation							6.18	3.60	2.58	8.69
	CV							7.07	4.02	2.95	12.34
	Replicate F							5.162	1.084	9.377	0.410
	Replicate Prob(F)							0.0145	0.3573	0.0011	0.6685
	Treatment F							60.075	184.804	342.684	1.253
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.3124

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Residual Activity from Burndown Herbicides

Trial ID: Soy7-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Non-Crop

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

MAINTENANCE

Field Prep./Maintenance: A total EPP burndown application was made on 5-9-14.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/09/14	Roundup WeatherMax	4.5	AS	1	qt/A

SOIL DESCRIPTION

% Sand: 83 % OM: 1.4 Texture: loamy sand
% Silt: 10 pH: 5.8
% Clay: 7 CEC: 4.5 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.6 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	05/14/14
Time of Day:	3:30 pm
Application Method:	Spray
Application Timing:	EPP
Applic. Placement:	Brdcst
Air Temp., Unit:	63 F
% Relative Humidity:	90
Wind Velocity, Unit:	2 mph
Wind Direction:	East
Dew Presence (Y/N):	N
Soil Temp., Unit:	62 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Moist
% Cloud Cover:	100

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APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

06/07/14: Due to inconsistent results with treatments 10 and 5, suspect some ERICA might be ALS-resistant. Only treatments that provided consistent residual control of summer annual weeds is treatment 10; Treatmetns 4, 5, 6, 7, and 8 were good for two out of three reps. Summer annual species are Palmer amaranth, common lambsquarters, morningglory species, and large crabgrass.

Authority MTZ provided poor control of field pansy. Fierce provided poor control of cutleaf eneving primrose. All other treatments provided >90% control of field pansy and primrose.

06/28/14: Authority MTZ provided very poor control of field pansy. Study was laid out over a study area from 2013. Some plots had less weed pressure due to treatments from last year, which increased variaibility of data.

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Residual Activity from Burndown Herbicides

Trial ID: Soy7-14 Cooperator:
Location: Field #18 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	ERICA Horse-weed	ERICA Horse-weed	OEOLA Cutleaf EPrimrse	AMAPA Palmer Amaranth	CHEAL Common Lambqtrs	IPOSS Mornglry Species
	Weed Code						ERICA	ERICA	OEOLA	AMAPA	CHEAL	IPOSS
	Weed or Crop Name						Horse-weed	Horse-weed	Cutleaf EPrimrse	Palmer Amaranth	Common Lambqtrs	Mornglry Species
	Rating Data Type						Control	Control	Control	Control	Control	Control
	Rating Unit						%	%	%	%	%	%
	Rating Date						06/07/14	06/28/14	06/28/14	06/28/14	06/28/14	06/28/14
1	Untreated Check						71.9 b	0.0 d	0.0 c	0.0 e	0.0 c	0.0 d
2	Engenia	5	SL	0.5	lb ai/a	EPP	99.0 a	100.0 a	100.0 a	35.3 d	26.7 b	30.0 c
3	2,4-D ester	3.8	L	1	lb ae/a	EPP	100.0 a	100.0 a	100.0 a	36.7 d	0.0 c	
4	Valor XLT Premix	40.3	WG	0.086	lb ai/a	EPP	75.0 b	60.0 b	95.0 a	100.0 a	100.0 a	95.0 a
	----flumioxazin	30		0.064								
	----chlorimuron	10.3		0.022								
5	Canopy Premix	75	DF	0.21	lb ai/a	EPP	81.7 ab	56.9 bc	100.0 a	75.3 b	90.0 a	100.0 a
	----metribuzin	64.3		0.18								
	----chlorimuron	10.7		0.03								
6	Fierce Premix	76	WG	0.178	lb ai/a	EPP	76.7 b	43.3 bc	66.7 b	100.0 a	100.0 a	60.0 b
	----flumioxazin	33.5		0.0785								
	----pyroxasulfone	42.5		0.1								
7	Authority XL Premix	70	DG	0.21	lb ai/a	EPP	66.7 b	43.3 bc	90.0 a	100.0 a	100.0 a	100.0 a
	----sulfentrazone	62.2		0.187								
	----chlorimuron	7.8		0.0234								
8	Authority MTZ Premix	45	DF	0.394	lb ai/a	EPP	76.0 b	46.9 bc	100.0 a	92.7 a	100.0 a	100.0 a
	----sulfentrazone	18		0.158								
	----metribuzin	27		0.236								
9	Boundary Premix	6.5	EC	1.02	lb ai/a	EPP	70.0 b	33.3 c	100.0 a	45.2 c	18.3 b	93.5 a
	----s-metolachlor	5.25		0.82								
	----metribuzin	1.25		0.196								
10	Sonic Premix	70	DF	0.235	lb ai/a	EPP	73.3 b	60.0 b	96.7 a	100.0 a	100.0 a	97.0 a
	----sulfentrazone	62.1		0.208								
	----cloransulam	7.9		0.0265								
	LSD P=.05						19.58	24.96	22.85	8.30	17.94	14.05
	Standard Deviation						11.31	14.42	13.27	4.74	10.46	4.41
	CV						14.31	26.52	15.64	6.92	16.47	5.88
	Replicate F						1.432	2.864	0.829	0.360	0.983	0.824
	Replicate Prob(F)						0.2678	0.0864	0.4535	0.7039	0.3934	0.4309
	Treatment F						3.112	12.719	16.947	177.188	57.383	140.855
	Treatment Prob(F)						0.0230	0.0001	0.0001	0.0001	0.0001	0.0009

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,2,3,4,7; Average=6

Weed Code	DIGSA
Weed or Crop Name	Large
Weed or Crop Name	Crabgras
Rating Data Type	Control
Rating Unit	%
Rating Date	06/28/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	
1	Untreated Check						0.0 c
2	Engenia	5	SL	0.5	lb ai/a	EPP	10.0 bc
3	2,4-D ester	3.8	L	1	lb ae/a	EPP	40.9 abc
4	Valor XLT Premix	40.3	WG	0.086	lb ai/a	EPP	63.5 a
	----flumioxazin	30		0.064			
	----chlorimuron	10.3		0.022			
5	Canopy Premix	75	DF	0.21	lb ai/a	EPP	48.5 ab
	----metribuzin	64.3		0.18			
	----chlorimuron	10.7		0.03			
6	Fierce Premix	76	WG	0.178	lb ai/a	EPP	85.0 a
	----flumioxazin	33.5		0.0785			
	----pyroxasulfone	42.5		0.1			
7	Authority XL Premix	70	DG	0.21	lb ai/a	EPP	60.0 a
	----sulfentrazone	62.2		0.187			
	----chlorimuron	7.8		0.0234			
8	Authority MTZ Premix	45	DF	0.394	lb ai/a	EPP	46.7 ab
	----sulfentrazone	18		0.158			
	----metribuzin	27		0.236			
9	Boundary Premix	6.5	EC	1.02	lb ai/a	EPP	53.5 ab
	----s-metolachlor	5.25		0.82			
	----metribuzin	1.25		0.196			
10	Sonic Premix	70	DF	0.235	lb ai/a	EPP	68.5 a
	----sulfentrazone	62.1		0.208			
	----cloransulam	7.9		0.0265			

LSD P=.05	46.27
Standard Deviation	26.23
CV	55.05
Replicate F	0.886
Replicate Prob(F)	0.4357
Treatment F	2.909
Treatment Prob(F)	0.0396

University of Delaware

Liberty timing for Palmer Amaranth Control

Trial ID: Soy8-14 Location: Field #14 Trial Year:
Protocol ID: Soy8-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Bayer

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: LL473N BBCH Scale: BSOY
Planting Date: 05/19/14
Planting Rate, Unit: 220000 S/A Planting Method: PLANTD planted
Depth, Unit: 1 IN Planting Equipment: PP Plot Planter
Row Spacing, Unit: 15 IN Emergence Date: 05/25/14
Harvest Date: 10/27/14
Harvested Width, Unit: 6.25 FT
Soil Temperature, Unit: 73 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDIUM medium % Standard Moisture: 13.0

Pest Description

Pest 1 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth

Pest 2 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morning glory

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 4 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/19/14	Command	3	ME	2.7	PT/A

Field Prep./Maintenance:
5-19-14: Total Preemergence.

Soil Description

% Sand: 79 % OM: 1.4 Texture: LS loamy sand
% Silt: 14 pH: 6.1
% Clay: 7 CEC: 5.1 Fert. Level: E excellent
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

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Application Description

	A	B	C
Application Date:	06/09/14	06/18/14	06/23/14
Appl. Stop Time:	11:00 AM	07:40 AM	11:00 AM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	3" palmer	8" palmer	14" palmer
Application Placement:	BROADC	BROADC	BROADC
Applied By:	Johnson	Johnson	Johnson
Air Temperature, Unit:	80 F	81 F	79 F
% Relative Humidity:	63	69	38
Wind Velocity, Unit:	3 MPH	1 MPH	8.5 MPH
Wind Direction:	S	W	SE
Dew Presence (Y/N):	N no	N no	N no
Soil Temperature, Unit:	79 F	80 F	80 F
Soil Moisture:	NORMAL	NORMAL	NORMAL
% Cloud Cover:	30	0	0

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:	DESC	DESC	DESC
Stage Majority, Percent:	1-trifol 55	3-trifol 100	4-trifol 55
Stage Minimum, Percent:	1-trifol 55		4-trifol 55
Stage Maximum, Percent:	2-trifol 45		5-trifol 45
Height, Unit:	3 IN	9 IN	11 IN
Height Minimum, Maximum:	3 4	8 10	11 12

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent:	veg 100	veg 100	veg 100
Height, Unit:	3 in	10 in	13 in
Height Minimum, Maximum:	2 6	8 12	12 14
Density, Unit:	6 m2	6 m2	6 m2
Pest 2 Code, Type, Scale:	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent:	veg 100	veg 100	vine 100
Stage Minimum, Percent:		veg 30	
Stage Maximum, Percent:		vine 70	
Height, Unit:	4 in	6 in	7 in
Height Minimum, Maximum:	3 5	5 8	6 10
Density, Unit:	6 m2	6 m2	6 m2

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Application Equipment

	A	B	C
Appl. Equipment:	Tractor	Tractor	Backpack
Equipment Type:	TRMOSP	TRMOSP	SPRBAC
Operation Pressure, Unit:	40 psi	40 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	18 in
Boom Length, Unit:	10 ft	10 ft	9 ft
Boom Height, Unit:	20 in	28 in	30 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	WATER	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons	2 Liters
Propellant:	COMAIR	COMAIR	COMCO2

Trial Comments

07/01/14: Trt 4- Palmer amaranth all leaves burn off but stems are still greens whereas trt3 plants have new green tissue; trt 2 did not observe new Palmer amaranth seedlings; but morningglory seedlings were present.

University of Delaware

Liberty timing for Palmer Amaranth Control

Trial ID: Soy8-14 Location: Field #14 Trial Year:
Protocol ID: Soy8-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Bayer

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Pest Code								AMAPA	IPOSS	AMAPA
	Pest Name								PalmerAm	mornglry	PalmerAm
	Crop Code							GLXMA			
	Crop Name							Soybean			
	Rating Type							Stunting	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/23/14	06/23/14	06/23/14	07/01/14
1	Untreated Check							1.2 a	0.6 c	0.8 c	0.0 d
2	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	3" palmer	A	0.0 a	100.0 a	100.0 a	100.0 a
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3" palmer	A				
3	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	8" palmer	B	2.3 a	82.7 b	81.7 b	65.0 c
	Dry Ammonium Sulfate	100	D	1.02	% w/v	8" palmer	B				
4	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	14" palmer	C				79.0 b
	Dry Ammonium Sulfate	100	D	1.02	% w/v	14" palmer	C				
	LSD P=.05							6.06	6.78	4.33	10.62
	Standard Deviation							2.33	2.61	1.67	5.32
	CV							200.0	4.27	2.74	8.71
	Replicate F							2.250	1.050	2.250	1.177
	Replicate Prob(F)							0.2530	0.4512	0.2530	0.3705
	Treatment F							0.750	1243.234	3006.750	197.593
	Treatment Prob(F)							0.5443	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,2,3

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Pest Code							IPOSS	
Pest Name							mornglry	
Crop Code								GLXMA
Crop Name								Soybean
Rating Type							Control	Yield
Rating Unit							%	Bu/A
Rating Date							07/01/14	10/27/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
1	Untreated Check							0.0 d	81.9 a
2	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	3" palmer	A	100.0 a	86.8 a
	Dry Ammonium Sulfate	100	D	1.02	% w/v	3" palmer	A		
3	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	8" palmer	B	63.3 c	84.0 a
	Dry Ammonium Sulfate	100	D	1.02	% w/v	8" palmer	B		
4	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	14" palmer	C	88.3 b	86.2 a
	Dry Ammonium Sulfate	100	D	1.02	% w/v	14" palmer	C		
LSD P=.05								7.26	5.42
Standard Deviation								3.63	2.71
CV								5.77	3.2
Replicate F								0.158	4.903
Replicate Prob(F)								0.8574	0.0547
Treatment F								453.211	2.054
Treatment Prob(F)								0.0001	0.2079

University of Delaware

Warrant TM Partners in Soybeans

Trial ID: Soy9-14 Location: Field #14 Trial Year:
Protocol ID: Soy9-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Monsanto

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: Dyn 39RY43 BBCH Scale: BSOY
Description: RR

Planting Rate, Unit: 220000 S/A
Depth, Unit: 1 in
Row Spacing, Unit: 15 IN

Soil Temperature, Unit: 88 F
Soil Moisture: NORMAL normal, adequate
Seed Bed: MEDIUM medium

Planting Date: 05/12/14
Planting Method: PLANTD planted
Planting Equipment: PP Plot Planter
Emergence Date: 05/19/14
Harvest Date: 10/27/14
Harvested Width, Unit: 6.25 FT
Harvested Length, Unit: 25 FT
Harvest Equipment: Plot combine
% Standard Moisture: 13.0

Site and Design

Treated Plot Width: 10 FT
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 16
Replications: 3

Site Type: FIELD field
Tillage Type: CONTIL conventional-till
Study Design: FACTOR Factorial

Soil Description

% Sand: 79 % OM: 1.4 Texture: LS loamy sand
% Silt: 14 pH: 6.1
% Clay: 7 CEC: 5.1 Fert. Level: E excellent
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

Application Description

	A
Application Date:	05/13/14
Appl. Stop Time:	08:00 AM
Application Method:	SPRAY
Application Timing:	PRE
Application Placement:	BROADC
Applied By:	Johnson
Air Temperature, Unit:	72 F
% Relative Humidity:	81
Wind Velocity, Unit:	0 mph
Wind Direction:	N/A
Dew Presence (Y/N):	N no
Soil Temperature, Unit:	72 F
Soil Moisture:	NORMAL
% Cloud Cover:	30

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Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	GLXMA BSOY

Application Equipment

	A
Appl. Equipment:	Tractor
Equipment Type:	TRMOSP
Operation Pressure, Unit:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	10 ft
Boom Height, Unit:	18 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/ac
Mix Size, Unit:	0.7 Gallons
Propellant:	COMAIR

Trial Comments

06/01/14: Beans at unifoliate stage. No other annual broadleaves observed in treated plots. Some lambsquarters and ragweed in untreated check, but density was low and not consistant, and not observed in treated plots.

06/21/14: Common ragweed density is light in these plots

07/02/14: Rating based on observations from edge of plot - soys are canopied over and I did not wade through the plots to rate.

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Warrant TM Partners in Soybeans

Trial ID: Soy9-14 Location: Field #14 Trial Year:
Protocol ID: Soy9-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Monsanto

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA Soybean Stunting % 06/01/14	AMAPA PalmerAm Control % 06/01/14	DIGSA L.crbgrs Control % 06/01/14	IPOSS morngIry Control % 06/01/14	GLXMA Soybean Stunting % 06/10/14
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	5.7 def	100.0 a	100.0 a	82.7 bcd	6.7 cd
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	10.0 bcd	100.0 a	100.0 a	86.7 a-d	6.7 cd
	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
3	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	9.0 cde	100.0 a	100.0 a	87.7 a-d	2.3 de
	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
	----flumioxazin	30		0.056								
	----chlorimuron	10.3		0.0193								
4	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	9.7 bcd	100.0 a	99.0 a	90.0 abc	16.3 ab
	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
	----flumioxazin	30		0.084								
	----chlorimuron	10.3		0.029								
5	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	14.0 ab	100.0 a	100.0 a	93.7 a	5.7 de
	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
	----sulfentrazone	68		0.298								
	----chlorimuron	4		0.0175								
6	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	3.3 fg	100.0 a	100.0 a	43.3 e	0.0 e
	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
7	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	2.3 fg	100.0 a	98.3 a	43.3 e	0.0 e
	No TankMix Partner											
8	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		0.0 g	100.0 a	86.7 c	79.3 d	0.0 e
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
9	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		3.3 fg	100.0 a	92.7 b	81.0 cd	2.3 de
	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
10	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		13.3 abc	100.0 a	100.0 a	94.3 a	16.3 ab
	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
	----flumioxazin	30		0.056								
	----chlorimuron	10.3		0.0193								
11	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		11.7 abc	100.0 a	99.0 a	94.3 a	20.0 a
	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
	----flumioxazin	30		0.084								
	----chlorimuron	10.3		0.029								
12	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		15.0 a	100.0 a	100.0 a	92.7 ab	12.3 bc
	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
	----sulfentrazone	68		0.298								
	----chlorimuron	4		0.0175								
13	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		0.0 g	88.3 b	83.3 d	40.0 e	0.0 e
	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
14	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		0.0 g	0.0 c	0.0 e	0.0 f	0.0 e
	No TankMix Partner											

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=14,15

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Pest Code								AMAPA	DIGSA	IPOSS	
Pest Name								PalmerAm	L.crbgrs	mornglry	
Crop Code							GLXMA				GLXMA
Crop Name							Soybean				Soybean
Rating Type							Stunting	Control	Control	Control	Stunting
Rating Unit							%	%	%	%	%
Rating Date							06/01/14	06/01/14	06/01/14	06/01/14	06/10/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
15	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	6.3 def	100.0 a	100.0 a	86.0 a-d	8.0 cd
	----flumioxazin	33.5		0.0785							
	----pyroxasulfone	42.5		0.1							
16	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	4.7 ef	100.0 a	100.0 a	36.7 e	2.3 de
	----s-metolachlor	4.35		1.09							
	----fomesafen	0.95		0.238							
LSD P=.05								4.57	3.18	2.57	10.60	6.34
Standard Deviation								2.74	1.91	1.54	6.36	3.80
CV								40.44	2.05	1.69	8.99	61.43
Replicate F								2.470	1.000	0.738	0.025	0.160
Replicate Prob(F)								0.1016	0.3798	0.4867	0.9751	0.8528
Treatment F								10.602	513.286	781.676	60.319	9.337
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	IPOSS mornglry	DIGSA L.crbgrs	GLXMA Soybean Stunting	AMAPA PalmerAm
	Pest Code							AMAPA	IPOSS	DIGSA		AMAPA
	Pest Name							PalmerAm	mornglry	L.crbgrs		PalmerAm
	Crop Code										GLXMA	
	Crop Name										Soybean	
	Rating Type							Control	Control	Control	Stunting	Control
	Rating Unit							%	%	%	%	%
	Rating Date							06/10/14	06/10/14	06/10/14	06/21/14	06/21/14
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	75.7 cde	92.3 bc	0.0 e	100.0 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	77.7 cde	97.3 abc	6.3 de	100.0 a
	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
3	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	82.0 bcd	100.0 a	6.3 de	100.0 a
	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
	----flumioxazin	30		0.056								
	----chlorimuron	10.3		0.0193								
4	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	86.0 abc	100.0 a	7.0 de	100.0 a
	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
	----flumioxazin	30		0.084								
	----chlorimuron	10.3		0.029								
5	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	89.7 abc	98.3 ab	16.3 bc	100.0 a
	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
	----sulfentrazone	68		0.298								
	----chlorimuron	4		0.0175								
6	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	53.3 ghi	98.3 ab	2.3 e	100.0 a
	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
7	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	88.3 ab	46.7 hi	95.0 abc	2.3 e	83.3 b
	No TankMix Partner											
8	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		70.0 b	66.7 efg	96.0 abc	2.3 e	95.0 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
9	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	68.3 def	91.7 c	4.0 e	100.0 a
	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
10	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	96.3 ab	100.0 a	25.0 a	100.0 a
	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
	----flumioxazin	30		0.056								
	----chlorimuron	10.3		0.0193								
11	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	96.7 a	100.0 a	25.0 a	100.0 a
	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
	----flumioxazin	30		0.084								
	----chlorimuron	10.3		0.029								
12	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	97.0 a	99.0 a	20.7 ab	100.0 a
	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
	----sulfentrazone	68		0.298								
	----chlorimuron	4		0.0175								
13	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		87.0 ab	40.0 i	84.3 d	2.3 e	60.0 c
	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
14	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		0.0 c	0.0 j	0.0 e	0.0 e	0.0 d
	No TankMix Partner											

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	IPOSS mornglry	DIGSA L.crbgrs	GLXMA Soybean Stunting	AMAPA PalmerAm
	Crop Code										GLXMA	
	Crop Name										Soybean	
	Rating Type							Control	Control	Control	Stunting	Control
	Rating Unit							%	%	%	%	%
	Rating Date							06/10/14	06/10/14	06/10/14	06/21/14	06/21/14
15	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	100.0 a	82.7 a-d	100.0 a	11.7 cd	100.0 a
	----flumioxazin	33.5		0.0785								
	----pyroxasulfone	42.5		0.1								
16	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	98.3 a	60.0 fgh	99.0 a	5.0 de	100.0 a
	----s-metolachlor	4.35		1.09								
	----fomesafen	0.95		0.238								
	LSD P=.05							21.84	14.60	6.18	7.05	7.28
	Standard Deviation							13.10	8.75	3.70	4.23	4.37
	CV							14.52	12.52	4.08	49.51	4.86
	Replicate F							0.847	0.155	1.614	1.329	1.175
	Replicate Prob(F)							0.4386	0.8569	0.2160	0.2798	0.3227
	Treatment F							11.281	25.859	131.860	12.355	107.743
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMBEL C.ragwd Control % 06/21/14	IPOSS mornglry Control % 06/21/14	PANDI F.panicm Control % 06/21/14	AMAPA PalmerAm Control % 07/02/14	IPOSS mornglry Control % 07/02/14
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	76.7 ab	56.7 bcd	87.7 ab	99.0 a	60.7 bcd
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	91.7 a	65.0 bcd	94.0 ab	99.0 a	53.3 c-f
	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
3	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	66.7 bc	98.0 a	99.0 a	56.7 cde
	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
	----flumioxazin	30		0.056								
	----chlorimuron	10.3		0.0193								
4	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	71.7 bc	99.7 a	99.0 a	65.0 bc
	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
	----flumioxazin	30		0.084								
	----chlorimuron	10.3		0.029								
5	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	98.0 a	96.7 ab	99.0 a	97.0 a
	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
	----sulfentrazone	68		0.298								
	----chlorimuron	4		0.0175								
6	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	85.0 ab	30.0 ef	99.0 a	99.0 a	36.7 ef
	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
7	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	63.3 b	23.3 f	78.3 b	63.3 b	33.3 f
	No TankMix Partner											
8	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	55.0 cd	84.3 ab	96.0 a	50.0 c-f
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
9	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		86.7 ab	60.0 bcd	81.7 ab	99.0 a	46.7 c-f
	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
10	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	96.7 a	97.3 a	99.0 a	78.3 ab
	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
	----flumioxazin	30		0.056								
	----chlorimuron	10.3		0.0193								
11	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	98.7 a	97.0 ab	99.0 a	97.0 a
	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
	----flumioxazin	30		0.084								
	----chlorimuron	10.3		0.029								
12	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	99.0 a	97.0 ab	99.0 a	97.0 a
	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
	----sulfentrazone	68		0.298								
	----chlorimuron	4		0.0175								
13	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		88.3 ab	30.0 ef	23.3 c	60.0 c	36.7 ef
	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
14	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		0.0 c	0.0 g	0.0 d	0.0 d	0.0 g
	No TankMix Partner											

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMBEL C.ragwd	IPOSS mornglry	PANDI F.panicm	AMAPA PalmerAm	IPOSS mornglry
	Pest Code							AMBEL	IPOSS	PANDI	AMAPA	IPOSS
	Pest Name							C.ragwd	mornglry	F.panicm	PalmerAm	mornglry
	Crop Code											
	Crop Name											
	Rating Type							Control	Control	Control	Control	Control
	Rating Unit							%	%	%	%	%
	Rating Date							06/21/14	06/21/14	06/21/14	07/02/14	07/02/14
15	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	100.0 a	76.0 b	100.0 a	99.0 a	63.3 bcd
	----flumioxazin	33.5		0.0785								
	----pyroxasulfone	42.5		0.1								
16	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	92.7 a	46.7 de	98.3 a	99.0 a	43.3 def
	----s-metolachlor	4.35		1.09								
	----fomesafen	0.95		0.238								
	LSD P=.05							27.30	19.99	18.84	3.24	20.02
	Standard Deviation							16.37	11.99	11.30	1.94	11.99
	CV							18.92	19.71	13.57	2.21	20.96
	Replicate F							0.125	0.909	1.154	1.497	0.186
	Replicate Prob(F)							0.8829	0.4137	0.3289	0.2406	0.8315
	Treatment F							7.198	18.389	19.863	564.882	14.425
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001

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Pest Code	
Pest Name	
Crop Code	GLXMA
Crop Name	Soybean
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	10/27/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	81.2 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	
2	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	80.4 a
	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A	
3	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	82.8 a
	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	
	----flumioxazin	30		0.056				
	----chlorimuron	10.3		0.0193				
4	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	84.0 a
	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A	
	----flumioxazin	30		0.084				
	----chlorimuron	10.3		0.029				
5	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	79.7 a
	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A	
	----sulfentrazone	68		0.298				
	----chlorimuron	4		0.0175				
6	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	78.8 a
	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	
7	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	76.2 a
	No TankMix Partner							
8	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		79.8 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	
9	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		78.3 a
	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A	
10	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		82.5 a
	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	
	----flumioxazin	30		0.056				
	----chlorimuron	10.3		0.0193				
11	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		81.5 a
	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A	
	----flumioxazin	30		0.084				
	----chlorimuron	10.3		0.029				
12	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		82.7 a
	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A	
	----sulfentrazone	68		0.298				
	----chlorimuron	4		0.0175				
13	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		74.0 a
	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	
14	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		73.2 a
	No TankMix Partner							

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Pest Code	
Pest Name	
Crop Code	GLXMA
Crop Name	Soybean
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	10/27/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
15	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	80.0 a
	----flumioxazin	33.5		0.0785				
	----pyroxasulfone	42.5		0.1				
16	Prefix Premix	5.3	E	1.33	lb ai/a	PRE	A	79.3 a
	----s-metolachlor	4.35		1.09				
	----fomesafen	0.95		0.238				

LSD P=.05	7.21
Standard Deviation	4.33
CV	5.43
Replicate F	0.210
Replicate Prob(F)	0.8120
Treatment F	1.505
Treatment Prob(F)	0.1658

University of Delaware

Warrant TM Partners in Soybeans

Trial ID: Soy9-14 Location: Field #14 Trial Year:
Protocol ID: Soy9-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Monsanto

Pest Code Pest Name							AMAPA PalmerAm	DIGSA L.crbgrs	IPOSS mornglry	
Crop Code Crop Name Rating Type Rating Unit Rating Date						GLXMA Soybean Stunting % 06/01/14	Control % 06/01/14	Control % 06/01/14	Control % 06/01/14	GLXMA Soybean Stunting % 06/10/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
TABLE OF R MEANS Replicate 1								6.2	91.4	90.4	72.1	6.3
Replicate 2								8.6	92.1	89.8	72.1	6.6
Replicate 3								6.0	92.5	89.6	72.1	6.1
TABLE OF A (Herbicide Warrant) MEANS												
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	7.7 a	100.0 a	99.6 a	75.3 a	5.4 a
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		6.2 a	84.0 b	80.2 b	68.8 b	7.3 a
LSD P=.05								1.60	1.29	1.05	4.21	2.48
Standard Deviation								2.53	2.04	1.65	6.63	3.91
CV								36.38	2.22	1.83	9.20	61.78
TABLE OF B (Herbicide TM Partner) MEANS												
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	2.8 d	100.0 a	93.3 c	81.0 c	3.3 d
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A	6.7 c	100.0 a	96.3 b	83.8 bc	4.5 cd
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	11.2 b	100.0 a	100.0 a	91.0 ab	9.3 b
3	----flumioxazin	30		0.056								
3	----chlorimuron	10.3		0.0193								
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A	10.7 b	100.0 a	99.0 a	92.2 a	18.2 a
4	----flumioxazin	30		0.084								
4	----chlorimuron	10.3		0.029								
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A	14.5 a	100.0 a	100.0 a	93.2 a	9.0 bc
5	----sulfentrazone	68		0.298								
5	----chlorimuron	4		0.0175								
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	1.7 d	94.2 b	91.7 c	41.7 d	0.0 d
7	No TankMix Partner							1.2 d	50.0 c	49.2 d	21.7 e	0.0 d
LSD P=.05								3.00	2.42	1.96	7.87	4.64
Standard Deviation								2.53	2.04	1.65	6.63	3.91
CV								36.38	2.22	1.83	9.20	61.78
TABLE OF A (Herbicide Warrant) B (Herbicide TM Partner) MEANS												
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	5.7 ef	100.0 a	100.0 a	82.7 bc	6.7 cd
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		0.0 g	100.0 a	86.7 c	79.3 c	0.0 e
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	10.0 bcd	100.0 a	100.0 a	86.7 abc	6.7 cd
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		3.3 fg	100.0 a	92.7 b	81.0 c	2.3 de
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	9.0 de	100.0 a	100.0 a	87.7 abc	2.3 de
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
3	----flumioxazin	30		0.056								
3	----chlorimuron	10.3		0.0193								

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Pest Code Pest Name								AMAPA PalmerAm	DIGSA L.crbgrs	IPOSS mornglry	
Crop Code Crop Name Rating Type Rating Unit Rating Date							GLXMA Soybean Stunting % 06/01/14	Control % 06/01/14	Control % 06/01/14	Control % 06/01/14	GLXMA Soybean Stunting % 06/10/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		13.3 abc	100.0 a	100.0 a	94.3 a	16.3 ab
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
3	----flumioxazin	30		0.056								
3	----chlorimuron	10.3		0.0193								
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	9.7 cde	100.0 a	99.0 a	90.0 abc	16.3 ab
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
4	----flumioxazin	30		0.084								
4	----chlorimuron	10.3		0.029								
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		11.7 a-d	100.0 a	99.0 a	94.3 a	20.0 a
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
4	----flumioxazin	30		0.084								
4	----chlorimuron	10.3		0.029								
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	14.0 ab	100.0 a	100.0 a	93.7 ab	5.7 de
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
5	----sulfentrazone	68		0.298								
5	----chlorimuron	4		0.0175								
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		15.0 a	100.0 a	100.0 a	92.7 ab	12.3 bc
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
5	----sulfentrazone	68		0.298								
5	----chlorimuron	4		0.0175								
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	3.3 fg	100.0 a	100.0 a	43.3 d	0.0 e
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		0.0 g	88.3 b	83.3 d	40.0 d	0.0 e
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	2.3 fg	100.0 a	98.3 a	43.3 d	0.0 e
7	No TankMix Partner											
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		0.0 g	0.0 c	0.0 e	0.0 e	0.0 e
7	No TankMix Partner											
LSD P=.05								4.25	3.43	2.77	11.13	6.57
Standard Deviation								2.53	2.04	1.65	6.63	3.91
CV								36.38	2.22	1.83	9.20	61.78

Pest Code Pest Name Crop Code Crop Name Rating Type Rating Unit Rating Date							AMAPA PalmerAm Control % 06/10/14	IPOSS mornglry Control % 06/10/14	DIGSA L.crbgrs Control % 06/10/14	GLXMA Soybean Stunting % 06/21/14	AMAPA PalmerAm Control % 06/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
TABLE OF R MEANS Replicate 1								84.9	69.2	88.5	10.3	87.5
Replicate 2								90.7	70.4	88.7	8.4	90.0
Replicate 3								91.3	69.5	91.1	7.0	87.9
TABLE OF A (Herbicide Warrant) MEANS												
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	98.3 a	73.0 a	97.3 a	5.8 b	97.6 a
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		79.6 b	66.4 b	81.6 b	11.3 a	79.3 b
LSD P=.05 Standard Deviation CV								8.86 13.96 15.70	5.70 8.98 12.89	2.46 3.87 4.33	2.30 3.62 42.27	2.96 4.66 5.27
TABLE OF B (Herbicide TM Partner) MEANS												
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	85.0 a	71.2 b	94.2 bc	1.2 b	97.5 a
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A	100.0 a	73.0 b	94.5 bc	5.2 b	100.0 a
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	100.0 a	89.2 a	100.0 a	15.7 a	100.0 a
3	----flumioxazin	30		0.056								
3	----chlorimuron	10.3		0.0193								
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A	100.0 a	91.3 a	100.0 a	16.0 a	100.0 a
4	----flumioxazin	30		0.084								
4	----chlorimuron	10.3		0.029								
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A	100.0 a	93.3 a	98.7 ab	18.5 a	100.0 a
5	----sulfentrazone	68		0.298								
5	----chlorimuron	4		0.0175								
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	93.5 a	46.7 c	91.3 c	2.3 b	80.0 b
7	No TankMix Partner							44.2 b	23.3 d	47.5 d	1.2 b	41.7 c
LSD P=.05 Standard Deviation CV								16.57 13.96 15.70	10.66 8.98 12.89	4.59 3.87 4.33	4.30 3.62 42.27	5.53 4.66 5.27
TABLE OF A (Herbicide Warrant) B (Herbicide TM Partner) MEANS												
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	75.7 bcd	92.3 bc	0.0 d	100.0 a
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		70.0 b	66.7 de	96.0 abc	2.3 cd	95.0 a
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	77.7 bcd	97.3 abc	6.3 c	100.0 a
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	68.3 cde	91.7 c	4.0 cd	100.0 a
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	82.0 abc	100.0 a	6.3 c	100.0 a
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
3	----flumioxazin	30		0.056								
3	----chlorimuron	10.3		0.0193								

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	IPOSS mornglry	DIGSA L.crbgrs	GLXMA Soybean Stunting	AMAPA PalmerAm
	Crop Code										GLXMA	
	Crop Name										Soybean	
	Rating Type							Control	Control	Control	Stunting	Control
	Rating Unit							%	%	%	%	%
	Rating Date							06/10/14	06/10/14	06/10/14	06/21/14	06/21/14
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	96.3 a	100.0 a	25.0 a	100.0 a
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
3	----flumioxazin	30		0.056								
3	----chlorimuron	10.3		0.0193								
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	86.0 ab	100.0 a	7.0 c	100.0 a
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
4	----flumioxazin	30		0.084								
4	----chlorimuron	10.3		0.029								
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	96.7 a	100.0 a	25.0 a	100.0 a
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
4	----flumioxazin	30		0.084								
4	----chlorimuron	10.3		0.029								
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	89.7 ab	98.3 ab	16.3 b	100.0 a
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
5	----sulfentrazone	68		0.298								
5	----chlorimuron	4		0.0175								
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	97.0 a	99.0 a	20.7 ab	100.0 a
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
5	----sulfentrazone	68		0.298								
5	----chlorimuron	4		0.0175								
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	53.3 ef	98.3 ab	2.3 cd	100.0 a
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		87.0 ab	40.0 f	84.3 d	2.3 cd	60.0 c
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	88.3 ab	46.7 f	95.0 abc	2.3 cd	83.3 b
7	No TankMix Partner											
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		0.0 c	0.0 g	0.0 e	0.0 d	0.0 d
7	No TankMix Partner											
	LSD P=.05							23.43	15.08	6.50	6.08	7.83
	Standard Deviation							13.96	8.98	3.87	3.62	4.66
	CV							15.70	12.89	4.33	42.27	5.27

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMBEL C.ragwd	IPOSS mornglry	PANDI F.panicm	AMAPA PalmerAm	IPOSS mornglry
	Pest Code							AMBEL	IPOSS	PANDI	AMAPA	IPOSS
	Pest Name							C.ragwd	mornglry	F.panicm	PalmerAm	mornglry
	Crop Code											
	Crop Name											
	Rating Type							Control	Control	Control	Control	Control
	Rating Unit							%	%	%	%	%
	Rating Date							06/21/14	06/21/14	06/21/14	07/02/14	07/02/14
	TABLE OF R MEANS											
	Replicate 1							86.4	57.5	83.9	85.7	58.8
	Replicate 2							83.2	61.7	81.7	87.1	57.8
	Replicate 3							85.7	63.1	77.4	86.4	56.6
	TABLE OF A (Herbicide Warrant) MEANS											
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	88.1 a	58.8 a	93.3 a	93.9 a	57.5 a
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		82.1 a	62.8 a	68.7 b	78.9 b	58.0 a
	LSD P=.05							10.92	7.68	7.68	1.32	8.14
	Standard Deviation							17.21	12.11	12.10	2.08	12.81
	CV							20.22	19.93	14.94	2.40	22.19
	TABLE OF B (Herbicide TM Partner) MEANS											
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	88.3 a	55.8 c	86.0 a	97.5 a	55.3 cd
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A	89.2 a	62.5 c	87.8 a	99.0 a	50.0 de
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	100.0 a	81.7 b	97.7 a	99.0 a	67.5 bc
3	----flumioxazin	30		0.056								
3	----chlorimuron	10.3		0.0193								
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A	100.0 a	85.2 ab	98.3 a	99.0 a	81.0 b
4	----flumioxazin	30		0.084								
4	----chlorimuron	10.3		0.029								
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A	100.0 a	98.5 a	96.8 a	99.0 a	97.0 a
5	----sulfentrazone	68		0.298								
5	----chlorimuron	4		0.0175								
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	86.7 a	30.0 d	61.2 b	79.5 b	36.7 e
7	No TankMix Partner							31.7 b	11.7 e	39.2 c	31.7 c	16.7 f
	LSD P=.05							20.43	14.37	14.36	2.47	15.24
	Standard Deviation							17.21	12.11	12.10	2.08	12.81
	CV							20.22	19.93	14.94	2.40	22.19
	TABLE OF A (Herbicide Warrant) B (Herbicide TM Partner) MEANS											
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	76.7 ab	56.7 b	87.7 ab	99.0 a	60.7 bc
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	55.0 b	84.3 ab	96.0 a	50.0 cde
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A					
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	91.7 ab	65.0 b	94.0 ab	99.0 a	53.3 cde
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		86.7 ab	60.0 b	81.7 ab	99.0 a	46.7 cde
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A					
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	66.7 b	98.0 ab	99.0 a	56.7 cd
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
3	----flumioxazin	30		0.056								
3	----chlorimuron	10.3		0.0193								

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMBEL C.ragwd	IPOSS mornglry	PANDI F.panicm	AMAPA PalmerAm	IPOSS mornglry
	Pest Code							AMBEL	IPOSS	PANDI	AMAPA	IPOSS
	Pest Name							C.ragwd	mornglry	F.panicm	PalmerAm	mornglry
	Crop Code											
	Crop Name											
	Rating Type							Control	Control	Control	Control	Control
	Rating Unit							%	%	%	%	%
	Rating Date							06/21/14	06/21/14	06/21/14	07/02/14	07/02/14
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	96.7 a	97.3 ab	99.0 a	78.3 ab
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A					
3	----flumioxazin	30		0.056								
3	----chlorimuron	10.3		0.0193								
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	71.7 b	99.7 a	99.0 a	65.0 bc
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
4	----flumioxazin	30		0.084								
4	----chlorimuron	10.3		0.029								
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	98.7 a	97.0 ab	99.0 a	97.0 a
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A					
4	----flumioxazin	30		0.084								
4	----chlorimuron	10.3		0.029								
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	100.0 a	98.0 a	96.7 ab	99.0 a	97.0 a
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
5	----sulfentrazone	68		0.298								
5	----chlorimuron	4		0.0175								
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		100.0 a	99.0 a	97.0 ab	99.0 a	97.0 a
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A					
5	----sulfentrazone	68		0.298								
5	----chlorimuron	4		0.0175								
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	85.0 ab	30.0 c	99.0 a	99.0 a	36.7 de
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		88.3 ab	30.0 c	23.3 c	60.0 b	36.7 de
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A					
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	63.3 b	23.3 c	78.3 b	63.3 b	33.3 e
7	No TankMix Partner											
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		0.0 c	0.0 d	0.0 d	0.0 c	0.0 f
7	No TankMix Partner											
	LSD P=.05							28.89	20.33	20.31	3.49	21.55
	Standard Deviation							17.21	12.11	12.10	2.08	12.81
	CV							20.22	19.93	14.94	2.40	22.19

Pest Code							
Pest Name							
Crop Code							GLXMA
Crop Name							Soybean
Rating Type							Yield
Rating Unit							Bu/A
Rating Date							10/27/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
TABLE OF R MEANS								
Replicate 1								80.3
Replicate 2								79.8
Replicate 3								78.8
TABLE OF A (Herbicide Warrant) MEANS								
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	80.4 a
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		78.9 a
LSD P=.05								2.87
Standard Deviation								4.52
CV								5.67
TABLE OF B (Herbicide TM Partner) MEANS								
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	80.5 ab
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A	79.4 abc
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	82.7 a
3	----flumioxazin	30		0.056				
3	----chlorimuron	10.3		0.0193				
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A	82.7 a
4	----flumioxazin	30		0.084				
4	----chlorimuron	10.3		0.029				
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A	81.2 ab
5	----sulfentrazone	68		0.298				
5	----chlorimuron	4		0.0175				
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	76.4 bc
7	No TankMix Partner							74.7 c
LSD P=.05								5.36
Standard Deviation								4.52
CV								5.67
TABLE OF A (Herbicide Warrant) B (Herbicide TM Partner) MEANS								
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	81.2 a
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		79.8 a
1	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	80.4 a
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A	
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		78.3 a
2	Valor SX.....flumioxazin	51	WG	0.094	lb ai/a	PRE	A	
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	82.8 a
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	
3	----flumioxazin	30		0.056				
3	----chlorimuron	10.3		0.0193				

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Pest Code	
Pest Name	
Crop Code	GLXMA
Crop Name	Soybean
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	10/27/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		82.5 a
3	Valor XLT Premix	40.3	WG	0.0756	lb ai/a	PRE	A	
3	----flumioxazin	30		0.056				
3	----chlorimuron	10.3		0.0193				
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	84.0 a
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A	
4	----flumioxazin	30		0.084				
4	----chlorimuron	10.3		0.029				
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		81.5 a
4	Valor XLT Premix	40.3	WG	0.113	lb ai/a	PRE	A	
4	----flumioxazin	30		0.084				
4	----chlorimuron	10.3		0.029				
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	79.7 a
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A	
5	----sulfentrazone	68		0.298				
5	----chlorimuron	4		0.0175				
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		82.7 a
5	Authority Maxx Premix	72	DG	0.315	lb ai/a	PRE	A	
5	----sulfentrazone	68		0.298				
5	----chlorimuron	4		0.0175				
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	78.8 a
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		74.0 a
6	Tricor DF.....metribuzin	75	DF	0.25	lb ai/a	PRE	A	
1	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A	76.2 a
7	No TankMix Partner							
2	Warrant.....acetochlor	3	CS	0	lb ai/a	PRE		73.2 a
7	No TankMix Partner							

LSD P=.05	7.58
Standard Deviation	4.52
CV	5.67

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Stunting % 06/01/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	1403.904762				
R	2	60.333333	30.166667	4.715	0.0179	
A	1	24.380952	24.380952	3.811	0.0618	1.6
B	6	1001.904762	166.984127	26.102	0.0001	3.0
AB	6	150.952381	25.158730	3.933	0.0063	4.2
ERROR	26	166.333333	6.397436			

FACTORIAL/POOLED ERROR AOV For AMAPA PalmerAm Control % 06/01/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	27852.976190				
R	2	8.333333	4.166667	1.000	0.3816	
A	1	2672.023810	2672.023810	641.286	0.0001	1.3
B	6	12532.142857	2088.690476	501.286	0.0001	2.4
AB	6	12532.142857	2088.690476	501.286	0.0001	3.4
ERROR	26	108.333333	4.166667			

FACTORIAL/POOLED ERROR AOV For DIGSA L.crbgrs Control % 06/01/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	27356.785714				
R	2	4.000000	2.000000	0.736	0.4888	
A	1	3944.023810	3944.023810	1451.103	0.0001	1.0
B	6	12013.952381	2002.325397	736.705	0.0001	2.0
AB	6	11324.142857	1887.357143	694.405	0.0001	2.8
ERROR	26	70.666667	2.717949			

FACTORIAL/POOLED ERROR AOV For IPOSS mornglry Control % 06/01/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	33478.785714				
R	2	0.000000	0.000000	0.000	1.0000	
A	1	446.880952	446.880952	10.168	0.0037	4.2
B	6	29341.619048	4890.269841	111.272	0.0001	7.9
AB	6	2547.619048	424.603175	9.661	0.0001	11.1
ERROR	26	1142.666667	43.948718			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Stunting % 06/10/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	2367.333333				
R	2	1.333333	0.666667	0.044	0.9575	
A	1	38.095238	38.095238	2.489	0.1268	2.5
B	6	1492.333333	248.722222	16.248	0.0001	4.6
AB	6	437.571429	72.928571	4.764	0.0021	6.6
ERROR	26	398.000000	15.307692			

FACTORIAL/POOLED ERROR AOV For AMAPA PalmerAm Control % 06/10/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	33911.904762				
R	2	354.476190	177.238095	0.909	0.4153	
A	1	3696.095238	3696.095238	18.961	0.0002	8.9
B	6	15181.571429	2530.261905	12.980	0.0001	16.6
AB	6	9611.571429	1601.928571	8.218	0.0001	23.4
ERROR	26	5068.190476	194.930403			

FACTORIAL/POOLED ERROR AOV For IPOSS mornglry Control % 06/10/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	31048.571429				
R	2	11.285714	5.642857	0.070	0.9327	
A	1	453.428571	453.428571	5.617	0.0255	5.7
B	6	24593.571429	4098.928571	50.780	0.0001	10.7
AB	6	3891.571429	648.595238	8.035	0.0001	15.1
ERROR	26	2098.714286	80.719780			

FACTORIAL/POOLED ERROR AOV For DIGSA L.crbgrs Control % 06/10/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	27062.404762				
R	2	60.333333	30.166667	2.013	0.1539	
A	1	2608.595238	2608.595238	174.055	0.0001	2.5
B	6	12711.904762	2118.650794	141.364	0.0001	4.6
AB	6	11291.904762	1881.984127	125.573	0.0001	6.5
ERROR	26	389.666667	14.987179			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Stunting % 06/21/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	3664.285714				
R	2	76.000000	38.000000	2.895	0.0733	
A	1	320.380952	320.380952	24.404	0.0001	2.3
B	6	2185.619048	364.269841	27.747	0.0001	4.3
AB	6	740.952381	123.492063	9.407	0.0001	6.1
ERROR	26	341.333333	13.128205			

FACTORIAL/POOLED ERROR AOV For AMAPA PalmerAm Control % 06/21/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	30724.404762				
R	2	51.190476	25.595238	1.177	0.3241	
A	1	3529.166667	3529.166667	162.267	0.0001	3.0
B	6	17253.571429	2875.595238	132.217	0.0001	5.5
AB	6	9325.000000	1554.166667	71.459	0.0001	7.8
ERROR	26	565.476190	21.749084			

FACTORIAL/POOLED ERROR AOV For AMBEL C.ragwd Control % 06/21/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	35974.404762				
R	2	79.761905	39.880952	0.135	0.8747	
A	1	372.023810	372.023810	1.256	0.2727	10.9
B	6	21303.571429	3550.595238	11.983	0.0001	20.4
AB	6	6515.476190	1085.912698	3.665	0.0090	28.9
ERROR	26	7703.571429	296.291209			

FACTORIAL/POOLED ERROR AOV For IPOSS mornglry Control % 06/21/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	42397.619048				
R	2	236.333333	118.166667	0.806	0.4577	
A	1	168.000000	168.000000	1.145	0.2944	7.7
B	6	35044.285714	5840.714286	39.820	0.0001	14.4
AB	6	3135.333333	522.555556	3.563	0.0104	20.3
ERROR	26	3813.666667	146.679487			

FACTORIAL/POOLED ERROR AOV For PANDI F.panicm Control % 06/21/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	40422.000000				
R	2	300.000000	150.000000	1.024	0.3733	
A	1	6388.666667	6388.666667	43.605	0.0001	7.7
B	6	18264.000000	3044.000000	20.776	0.0001	14.4
AB	6	11660.000000	1943.333333	13.264	0.0001	20.3
ERROR	26	3809.333333	146.512821			

FACTORIAL/POOLED ERROR AOV For AMAPA PalmerAm Control % 07/02/14 Missing values in column 14 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	40	31241.904762				
R	2	12.904762	6.452381	1.497	0.2432	
A	1	2377.523810	2377.523810	551.569	0.0001	1.3
B	6	22809.571429	3801.595238	881.943	0.0001	2.5
AB	6	5934.142857	989.023810	229.447	0.0001	3.5
ERROR	25	107.761905	4.310476			

FACTORIAL/POOLED ERROR AOV For IPOSS mornglry Control % 07/02/14 Missing values in column 15 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	40	34528.119048				
R	2	32.190476	16.095238	0.098	0.9070	
A	1	1.928571	1.928571	0.012	0.9146	8.1
B	6	26246.619048	4374.436508	26.640	0.0001	15.2
AB	6	4142.238095	690.373016	4.204	0.0047	21.5
ERROR	25	4105.142857	164.205714			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 10/27/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	968.025525				
R	2	15.852131	7.926065	0.388	0.6820	
A	1	26.553529	26.553529	1.301	0.2644	2.9
B	6	341.327739	56.887956	2.788	0.0314	5.4
AB	6	53.693541	8.948924	0.439	0.8463	7.6
ERROR	26	530.598584	20.407638			

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Liberty Link Soybean Weed Control

Trial ID: Soy10-14 Location: Field #14 Trial Year:
Protocol ID: Soy10-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Bayer

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: LL473N BBCH Scale: BSOY
Planting Date: 05/19/14
Planting Rate, Unit: 220000 S/A Planting Method: PLANTD planted
Depth, Unit: 1 IN Planting Equipment: PP Plot Planter
Row Spacing, Unit: 15 IN Emergence Date: 05/25/14
Harvest Date: 10/27/14
Harvested Width, Unit: 6.25 FT
Soil Temperature, Unit: 73 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDIUM medium % Standard Moisture: 13.0

Pest Description

Pest 1 Type: W Code: DIGSA Digitaria sanguinalis
Common Name: large crabgrass

Pest 2 Type: W Code: AMBEL Ambrosia artemisiifolia
Common Name: Common ragweed

Pest 3 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morning glory

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 6 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Soil Description

% Sand: 79 % OM: 1.4 Texture: LS loamy sand
% Silt: 14 pH: 6.1
% Clay: 7 CEC: 5.1 Fert. Level: E excellent
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

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Application Description

	A	B	C
Application Date:	05/19/14	06/18/14	
Appl. Stop Time:	02:40 PM	07:40 AM	
Interval to Prev. Appl., Unit:		30 DAYS	
Application Method:	SPRAY	SPRAY	
Application Timing:	PRE	28DAP	if needed
Application Placement:	BROADC	BROADC	
Applied By:	Johnson	Johnson	
Air Temperature, Unit:	71 F	81 F	
% Relative Humidity:	27	69	
Wind Velocity, Unit:	4 mph	1 mph	
Wind Direction:	N	W	
Dew Presence (Y/N):	N no	N no	
Soil Temperature, Unit:	70 F	80 F	
Soil Moisture:	NORMAL	NORMAL	
% Cloud Cover:	15	0	

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		DESC	
Stage Majority, Percent:		4-trifol 100	
Height, Unit:		9 in	
Height Minimum, Maximum:		8 10	

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent:		4-leaf 50	
Stage Minimum, Percent:		3-leaf 30	
Stage Maximum, Percent:		5-leaf 20	
Height, Unit:		4 in	
Height Minimum, Maximum:		3.5 4.5	
Density, Unit:		7 m2	
Pest 2 Code, Type, Scale:	AMBEL W	AMBEL W	AMBEL W
Stage Majority, Percent:		veg 100	
Height, Unit:		8 in	
Height Minimum, Maximum:		6 9	
Density, Unit:		1 m2	
Pest 3 Code, Type, Scale:	IPOSS W	IPOSS W	IPOSS W
Stage Majority, Percent:		veg 70	
Stage Minimum, Percent:		veg 70	
Stage Maximum, Percent:		vine 30	
Height, Unit:		7 in	
Height Minimum, Maximum:		5 8	
Density, Unit:		3 m2	

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Application Equipment

	A	B	C
Appl. Equipment:	Tractor	Tractor	
Equipment Type:	TRMOSP	TRMOSP	
Operation Pressure, Unit:	40 psi	40 psi	
Nozzle Type:	AIRMIX	AIRMIX	
Nozzle Size:	11002	11002	
Nozzle Spacing, Unit:	20 in	20 in	
Boom Length, Unit:	10 ft	10 ft	
Boom Height, Unit:	18 in	24 in	
Ground Speed, Unit:	3 mph	3 mph	
Carrier:	WATER	WATER	
Spray Volume, Unit:	20 gal/ac	20 gal/ac	
Mix Size, Unit:	0.7 Gallons	0.7 Gallons	
Propellant:	COMAIR	COMAIR	

Trial Comments

06/20/14: Grass pressure was light and not rated. Only residual herbicide activity was rated.

06/23/14: No leaf burn observed from POST treatments.

07/02/14: AMAPA based on plants not killed with Liberty, probably too tall and starting to regrow. No IPOSS was observed in treatments 3 and 6; emerged IPOSS was observed in other treatments.

The "if needed" treatment was not necessary and was not applied.

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Liberty Link Soybean Weed Control

Trial ID: Soy10-14 Location: Field #14 Trial Year:
Protocol ID: Soy10-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Bayer

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA Soybean Stunting % 06/08/14	AMAPA PalmerAm Control % 06/08/14	IPOSS mornglry Control % 06/08/14	GLXMA Soybean Stunting % 06/20/14	AMAPA PalmerAm Control % 06/20/14
1	Untreated Check							0.0 c	0.0 c	0.0 b	0.0 a	0.0 c
2	Authority First Premix	70	DF	0.236	lb ai/a	PRE	A	9.0 b	97.3 ab	88.7 a	0.0 a	88.3 a
	----sulfentrazone	62.1		0.21								
	----cloransulam	7.9		0.0266								
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B					
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C					
3	Authority MTZ Premix	45	DF	0.394	lb ai/a	PRE	A	0.0 c	100.0 a	84.3 a	0.0 a	88.3 a
	----sulfentrazone	18		0.158								
	----metribuzin	27		0.236								
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B					
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C					
4	Valor XLT Premix	40.3	WG	0.088	lb ai/a	PRE	A	9.0 b	100.0 a	89.7 a	0.0 a	93.0 a
	----flumioxazin	30		0.0655								
	----chlorimuron	10.3		0.0225								
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B					
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C					
5	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	15.0 a	100.0 a	87.7 a	0.0 a	100.0 a
	----flumioxazin	33.5		0.0785								
	----pyroxasulfone	42.5		0.1								
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B					
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) for columns 4,7 because error mean square = 0.

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Pest Code								AMAPA	IPOSS		AMAPA
Pest Name								PalmerAm	mornglry		PalmerAm
Crop Code							GLXMA			GLXMA	
Crop Name							Soybean			Soybean	
Rating Type							Stunting	Control	Control	Stunting	Control
Rating Unit							%	%	%	%	%
Rating Date							06/08/14	06/08/14	06/08/14	06/20/14	06/20/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
6	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	8.0 b	95.3 b	89.7 a	0.0 a	71.7 b
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B				
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C				
LSD P=.05								4.34	3.57	5.95	.	13.08
Standard Deviation								2.39	1.96	3.27	0.00	7.19
CV								34.94	2.39	4.46	0.0	9.78
Replicate F								0.088	0.879	0.202	0.000	0.278
Replicate Prob(F)								0.9167	0.4450	0.8200	1.0000	0.7628
Treatment F								17.982	1261.891	362.966	0.000	80.370
Treatment Prob(F)								0.0001	0.0001	0.0001	1.0000	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMBEL C.ragwd Control % 06/20/14	CHEAL C.lmsqtr Control % 06/20/14	IPOSS mornglry Control % 06/20/14	AMAPA PalmerAm Control % 07/02/14	GLXMA Soybean Yield Bu/A 10/27/14
1	Untreated Check							0.0 b	0.0 b	0.0 b	0.0 d	76.5 a
2	Authority First Premix	70	DF	0.236	lb ai/a	PRE	A	100.0 a	100.0 a	80.0 a	92.0 b	87.0 a
	----sulfentrazone	62.1		0.21								
	----cloransulam	7.9		0.0266								
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B					
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C					
3	Authority MTZ Premix	45	DF	0.394	lb ai/a	PRE	A	86.7 a	100.0 a	71.7 a	99.0 ab	86.5 a
	----sulfentrazone	18		0.158								
	----metribuzin	27		0.236								
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B					
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C					
4	Valor XLT Premix	40.3	WG	0.088	lb ai/a	PRE	A	88.3 a	100.0 a	74.3 a	100.0 a	80.6 a
	----flumioxazin	30		0.0655								
	----chlorimuron	10.3		0.0225								
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B					
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C					
5	Fierce Premix	76	WG	0.178	lb ai/a	PRE	A	100.0 a	100.0 a	72.7 a	100.0 a	79.8 a
	----flumioxazin	33.5		0.0785								
	----pyroxasulfone	42.5		0.1								
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B					
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C					

University of Delaware

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMBEL C.ragwd	CHEAL C.lmsqtr	IPOSS mornglry	AMAPA PalmerAm	GLXMA Soybean
	Pest Code							AMBEL	CHEAL	IPOSS	AMAPA	
	Pest Name							C.ragwd	C.lmsqtr	mornglry	PalmerAm	
	Crop Code											GLXMA
	Crop Name											Soybean
	Rating Type							Control	Control	Control	Control	Yield
	Rating Unit							%	%	%	%	Bu/A
	Rating Date							06/20/14	06/20/14	06/20/14	07/02/14	10/27/14
6	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	86.0 a	100.0 a	76.0 a	80.0 c	83.3 a
	----metribuzin	64.3		0.161								
	----chlorimuron	10.7		0.0268								
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	28DAP	B					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	28DAP	B					
	Liberty 280.....glufosinate	2.34	SL	0.585	lb ai/a	if needed	C					
	Dry Ammonium Sulfate	100	D	1.02	% w/v	if needed	C					
	LSD P=.05							14.95	.	9.17	7.60	7.43
	Standard Deviation							8.22	0.00	5.04	4.18	4.09
	CV							10.69	0.0	8.07	5.32	4.96
	Replicate F							1.365	0.000	1.066	1.069	3.264
	Replicate Prob(F)							0.2990	1.0000	0.3806	0.3796	0.0811
	Treatment F							64.798	0.000	111.596	264.212	2.992
	Treatment Prob(F)							0.0001	1.0000	0.0001	0.0001	0.0660

University of Delaware

Morninglory Control in Soybeans

Trial ID: Soy11-14 Cooperator:
Location: Field #14 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Ivyleaf Morningglory	IPOHE	Ipomoea hederacea (L.) Jacq.
3.	Pitted Morningglory	IPOLA	Ipomoea lacunosa L.
4.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.

Crop 1: Soybean GLXMA Variety: Dyn.39RY43
Planting Date: 05/12/14 Planting Method: Row- Unit Planter Depth: 1 in
Rate: 225000 Sd/A Row Spacing: 15 in Seed Bed: Medium
Soil Temperature: 88 F Soil Moisture: Moist Emergence Date: 05/19/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

SOIL DESCRIPTION

% Sand: 79 % OM: 1.4 Texture: loamy sand
% Silt: 14 pH: 6.1
% Clay: 7 CEC: 5.1 Fert. Level: Optimum

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/13/14	06/18/14
Time of Day:	7:30 am	8:30 am
Application Method:	Spray	Spray
Application Timing:	PRE	POST
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	72 F	81 F
% Relative Humidity:	81	69
Wind Velocity, Unit:	0 mph	1 mph
Wind Direction:	N/A	West
Dew Presence (Y/N):	Y	N
Soil Temp., Unit:	72 F	80 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	N/A	Dry
% Cloud Cover:	30	0

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		5-trifol
Height, Unit:		10 in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:		10 in
Density,Unit:		20-25 m2
Weed 2 Code:	IPOHE	IPOHE
Growth Stage:		veg-run
Height, Unit:		12 in
Density,Unit:		3-4 m2
Weed 3 Code:	IPOLA	IPOLA
Growth Stage:		veg-run
Height, Unit:		14 in
Density,Unit:		2 m2
Weed 4 Code:	DIGSA	DIGSA
Growth Stage:		2-tiller
Height, Unit:		10 in
Density,Unit:		10-30 m2

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	28 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

Trial Comments

University of Delaware

Morninglory Control in Soybeans

Trial ID: Soy11-14 Cooperator:
Location: Field #14 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
	Weed Code								AMAPA	IPOSS	
	Crop Code							GLXMA			GLXMA
	Weed or Crop Name							Soybean	Palmer	Mornglry	Soybean
	Weed or Crop Name								Amaranth	Species	
	Rating Data Type							Stunting	Control	Control	Injury
	Rating Unit							%	%	%	%
	Rating Date							06/21/14	06/21/14	06/21/14	06/23/14
1	Untreated Check							0.0 b	0.0 b	0.0 b	0.0 d
	Select Max.....clethodim	1	EC	0.125	lb ai/a	POST	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POST	B				
2	Touchdown HiTech..glyphosate	5	SL	0.78	lb ae/a	POST	B				0.0 d
	Nonionic Surfactant	100	L	0.25	% v/v	POST	B				
3	Touchdown HiTech..glyphosate	5	SL	0.78	lb ae/a	POST	B				0.0 d
	LI-700	100	L	0.25	% v/v	POST	B				
4	Touchdown HiTech..glyphosate	5	SL	0.78	lb ae/a	POST	B				0.0 d
	Agridex NIS	100	L	0.25	% v/v	POST	B				
5	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B				0.0 d
6	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POST	B				0.0 d
7	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B				1.7 d
	HE-111	100	L	0.625	% v/v	POST	B				
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B				29.0 a
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	POST	B				
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B				23.3 b
	Resource.....flumiclorac	0.86	EC	0.0403	lb ai/a	POST	B				
10	Valor XLT Premix	40.3	WG	0.091	lb ai/a	PRE	A	28.3 a	100.0 a	98.3 a	0.0 d
	----flumioxazin	30		0.068							
	----chlorimuron	10.3		0.0233							
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B				
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B				17.0 c
	Reflex.....fomesafen	2	L	0.375	lb ai/a	POST	B				
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B				16.3 c
	Reflex.....fomesafen	2	L	0.25	lb ai/a	POST	B				
	LSD P=.05							7.17	.	2.87	2.28
	Standard Deviation							2.04	0.00	0.82	1.35
	CV							14.41	0.0	1.66	18.51
	Replicate F							1.000	0.000	1.000	0.566
	Replicate Prob(F)							0.5000	1.0000	0.5000	0.5758
	Treatment F							289.000	0.000	21756.252	196.534
	Treatment Prob(F)							0.0034	1.0000	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) for columns 2 because error mean square = 0.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	AMAPA Palmer Amaranth Control % 07/02/14	IPOSS Mornglry Species Control % 07/02/14	GLXMA Soybean Yield Bu/A 10/27/14
	Weed Code							AMAPA	IPOSS	
	Crop Code									GLXMA
	Weed or Crop Name							Palmer	Mornglry	Soybean
	Weed or Crop Name							Amaranth	Species	
	Rating Data Type							Control	Control	Yield
	Rating Unit							%	%	Bu/A
	Rating Date							07/02/14	07/02/14	10/27/14
1	Untreated Check							0.0 f	0.0 e	69.7 a
	Select Max.....clethodim	1	EC	0.125	lb ai/a	POST	B			
	Nonionic Surfactant	100	L	0.25	% v/v	POST	B			
2	Touchdown HiTech..glyphosate	5	SL	0.78	lb ae/a	POST	B	80.0 d	60.0 d	77.4 a
	Nonionic Surfactant	100	L	0.25	% v/v	POST	B			
3	Touchdown HiTech..glyphosate	5	SL	0.78	lb ae/a	POST	B	92.7 ab	75.0 b	77.7 a
	LI-700	100	L	0.25	% v/v	POST	B			
4	Touchdown HiTech..glyphosate	5	SL	0.78	lb ae/a	POST	B	88.7 bcd	65.0 cd	81.4 a
	Agridex NIS	100	L	0.25	% v/v	POST	B			
5	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B	90.3 bc	68.3 bcd	77.9 a
6	Roundup WeatherMax..glyphosate	4.5	AS	1	lb ae/a	POST	B	91.3 ab	71.7 bc	81.0 a
7	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B	90.3 bc	65.0 cd	76.1 a
	HE-111	100	L	0.625	% v/v	POST	B			
8	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B	87.3 bcd	76.7 b	76.2 a
	Cadet.....fluthiacet	0.91	EC	0.0064	lb ai/a	POST	B			
9	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B	87.0 bcd	76.7 b	76.8 a
	Resource.....flumiclorac	0.86	EC	0.0403	lb ai/a	POST	B			
10	Valor XLT Premix	40.3	WG	0.091	lb ai/a	PRE	A	100.0 a	100.0 a	71.9 a
	----flumioxazin	30		0.068						
	----chlorimuron	10.3		0.0233						
	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B			
11	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B	70.0 e	68.3 bcd	78.3 a
	Reflex.....fomesafen	2	L	0.375	lb ai/a	POST	B			
12	Roundup WeatherMax..glyphosate	4.5	AS	0.77	lb ae/a	POST	B	81.7 cd	73.3 bc	74.5 a
	Reflex.....fomesafen	2	L	0.25	lb ai/a	POST	B			
	LSD P=.05							8.97	9.69	6.83
	Standard Deviation							5.30	5.72	4.04
	CV							6.63	8.59	5.27
	Replicate F							4.721	1.208	1.667
	Replicate Prob(F)							0.0197	0.3178	0.2118
	Treatment F							73.668	49.526	2.069
	Treatment Prob(F)							0.0001	0.0001	0.0706

University of Delaware

FMC Programs for No-Till Soybeans

Trial ID: Soy13-14 Location: Field #36 Trial Year:
Protocol ID: Soy13-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: FMC

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: Dyn. 39RY43 BBCH Scale: BSOY
Description: RR

Planting Rate, Unit: 180000 S/A
Depth, Unit: 1 in
Row Spacing, Unit: 15 in

Soil Temperature, Unit: 80 F
Soil Moisture: NORMAL normal, adequate
Seed Bed: MEDTRA medium/trashy

Planting Date: 05/28/14
Planting Method: PLANTD planted
Planting Equipment: PP Plot Planter
Emergence Date: 06/05/14
Harvest Date: 10/21/14
Harvested Width, Unit: 6.25 FT
Harvested Length, Unit: 25 FT
Harvest Equipment: Plot combine
% Standard Moisture: 13.0

Pest Description

Pest 1 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morning glory

Site and Design

Treated Plot Width: 10 FT
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 15
Replications: 3

Site Type: FIELD field
Tillage Type: REDTIL reduced-till
Study Design: FACTOR Factorial

Trial Initiation Comments:
The plot area was turbotilled prior to soybean planting on 5-28-14.

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/21/14	Roundup	4.5	AS	32	FL OZ/A
2.	04/21/14	2,4-D Ester	3.8	L	16	FL OZ/A

Field Prep./Maintenance:

Soil Description

% Sand: 77 % OM: 2.3 Texture: SL sandy loam
% Silt: 12 pH: 6.2
% Clay: 11 CEC: 7.5 Fert. Level: E excellent
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.6 mi

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Application Description

	A	B
Application Date:	05/30/14	06/18/14
Appl. Stop Time:	11:15 AM	10:00 AM
Interval to Prev. Appl., Unit:		19 DAYS
Application Method:	SPRAY	SPRAY
Application Timing:	PRE	V2
Application Placement:	BROADC	BROADC
Applied By:	Johnson	Johnson
Air Temperature, Unit:	62 F	89 F
% Relative Humidity:	72	48
Wind Velocity, Unit:	2 mph	2.5 mph
Wind Direction:	NE	SW
Dew Presence (Y/N):	Y yes	N no
Soil Temperature, Unit:	61 F	87 F
Soil Moisture:	NORMAL	DRY
% Cloud Cover:	100	0

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		DESC
Stage Majority, Percent:		2-trifol 100
Height, Unit:		5.5 in
Height Minimum, Maximum:		5 6

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	IPOSS W	IPOSS W
Stage Majority, Percent:		veg 75
Stage Minimum, Percent:		veg 75
Stage Maximum, Percent:		vine 25
Height, Unit:		4 in
Height Minimum, Maximum:		3 6
Density, Unit:		2 m2

Application Equipment

	A	B
Appl. Equipment:	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	10 ft	10 ft
Boom Height, Unit:	18 in	22 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR

University of Delaware

FMC Programs for No-Till Soybeans

Trial ID: Soy13-14 Location: Field #36 Trial Year:
Protocol ID: Soy13-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: FMC

Trial Comments

06/19/14: Rated only residual weed control. All trts with manure have 30-40% leaf burn. Weed pressure is very light in rep. 3. Due to severe deer feeding in rep 3 - not able to rate injury.

07/01/14: Very light ragweed and lambsqutrs pressure in rep. 3. Also severe deer feeding in rep. 3. IPOSS ratings include both plants present at the time of POST application and newly emerged seedlings.

University of Delaware

FMC Programs for No-Till Soybeans

Trial ID: Soy13-14 Location: Field #36 Trial Year:
Protocol ID: Soy13-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: FMC

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA	AMBEL	CHEAL	IPOSS
	Pest Code								AMBEL	CHEAL	IPOSS
	Pest Name								C.ragwd	C.lmsqtr	mornglry
	Crop Code							GLXMA			
	Crop Name							Soybean			
	Rating Type							Stunting	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/19/14	06/19/14	06/19/14	06/19/14
1	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	5.0 a	93.0 b	80.0 ab	94.7 a
	----sulfentrazone	62.1		0.248							
	----cloransulam	7.9		0.0316							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
2	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A				
	----sulfentrazone	62.1		0.248							
	----cloransulam	7.9		0.0316							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
3	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	3.5 a	100.0 a	90.0 ab	79.3 ab
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
4	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A				
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
5	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A	0.0 a	100.0 a	70.0 b	84.3 ab
	----sulfentrazone	62.2		0.156							
	----chlorimuron	7.8		0.0195							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=4,6,14; Average=1,2,3
Could not calculate LSD (% mean diff) for columns 8,11 because error mean square = 0.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA	AMBEL C.ragwd	CHEAL C.lmsqtr	IPOSS mornglry
	Pest Code										
	Pest Name										
	Crop Code							GLXMA			
	Crop Name							Soybean			
	Rating Type							Stunting	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/19/14	06/19/14	06/19/14	06/19/14
6	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A				
	----sulfentrazone	62.2		0.156							
	----chlorimuron	7.8		0.0195							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
7	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	8.5 a	100.0 a	80.0 ab	86.7 ab
	----sulfentrazone	68		0.255							
	----chlorimuron	4		0.015							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
8	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A				
	----sulfentrazone	68		0.255							
	----chlorimuron	4		0.015							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
9	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A	7.0 a	30.0 c	72.5 ab	76.6 ab
	----sulfentrazone	0.7		0.137							
	----s-metolachlor	6.3		1.23							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
10	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A				
	----sulfentrazone	0.7		0.137							
	----s-metolachlor	6.3		1.23							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
11	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A				
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Cadet.....fluthiacet	0.91	EC	0.00427	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
12	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A				
	----sulfentrazone	62.1		0.248							
	----cloransulam	7.9		0.0316							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Cadet.....fluthiacet	0.91	EC	0.00427	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA	AMBEL C.ragwd	CHEAL C.lmsqtr	IPOSS mornglry
	Pest Code								AMBEL	CHEAL	IPOSS
	Pest Name								C.ragwd	C.lmsqtr	mornglry
	Crop Code							GLXMA			
	Crop Name							Soybean			
	Rating Type							Stunting	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/19/14	06/19/14	06/19/14	06/19/14
13	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A				
	----sulfentrazone	68		0.255							
	----chlorimuron	4		0.015							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Cadet.....fluthiacet	0.91	EC	0.00427	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
14	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	0.0 a	100.0 a	100.0 a	74.3 b
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
15	Untreated Check							0.0 a	0.0 d	0.0 c	0.6 c
	LSD P=.05							9.85	6.04	27.57	18.11
	Standard Deviation							4.34	3.21	13.80	9.96
	CV							126.72	4.29	19.62	14.04
	Replicate F							0.093	0.667	0.183	0.115
	Replicate Prob(F)							0.9134	0.5398	0.8374	0.8921
	Treatment F							2.019	509.125	16.814	30.536
	Treatment Prob(F)							0.2587	0.0001	0.0016	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA Soybean LeafBrn % 06/24/14	GLXMA Soybean Stunting % 07/01/14	AMAPA PalmerAm Control % 07/01/14	AMBEL C.ragwd Control % 07/01/14
	Pest Code										
	Pest Name										
	Crop Code										
	Crop Name										
	Rating Type										
	Rating Unit										
	Rating Date										
1	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	1.7 c	8.2 cde	100.0 a	100.0 a
	----sulfentrazone	62.1		0.248							
	----cloransulam	7.9		0.0316							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
2	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	30.0 a	16.7 ab	100.0 a	100.0 a
	----sulfentrazone	62.1		0.248							
	----cloransulam	7.9		0.0316							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
3	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	1.7 c	3.4 ef	100.0 a	100.0 a
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
4	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	30.0 a	16.3 ab	100.0 a	100.0 a
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
5	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A	0.0 c	3.3 ef	93.3 c	100.0 a
	----sulfentrazone	62.2		0.156							
	----chlorimuron	7.8		0.0195							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				

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Pest Code										AMAPA	AMBEL
Pest Name										PalmerAm	C.ragwd
Crop Code								GLXMA	GLXMA		
Crop Name								Soybean	Soybean		
Rating Type								LeafBrn	Stunting	Control	Control
Rating Unit								%	%	%	%
Rating Date								06/24/14	07/01/14	07/01/14	07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
6	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A	30.0 a	19.0 a	100.0 a	100.0 a
	----sulfentrazone	62.2		0.156							
	----chlorimuron	7.8		0.0195							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
7	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	1.7 c	0.0 f	100.0 a	100.0 a
	----sulfentrazone	68		0.255							
	----chlorimuron	4		0.015							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
8	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	33.3 a	15.8 ab	100.0 a	100.0 a
	----sulfentrazone	68		0.255							
	----chlorimuron	4		0.015							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
9	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A	1.7 c	4.8 def	100.0 a	100.0 a
	----sulfentrazone	0.7		0.137							
	----s-metolachlor	6.3		1.23							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
10	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A	33.3 a	19.0 a	96.0 bc	100.0 a
	----sulfentrazone	0.7		0.137							
	----s-metolachlor	6.3		1.23							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
11	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	15.7 b	4.7 def	100.0 a	100.0 a
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Cadet.....fluthiacet	0.91	EC	0.00427	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
12	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	19.0 b	9.3 cd	100.0 a	100.0 a
	----sulfentrazone	62.1		0.248							
	----cloransulam	7.9		0.0316							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Cadet.....fluthiacet	0.91	EC	0.00427	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA Soybean LeafBrn % 06/24/14	GLXMA Soybean Stunting % 07/01/14	AMAPA PalmerAm Control % 07/01/14	AMBEL C.ragwd Control % 07/01/14
13	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	16.3 b	13.7 abc	100.0 a	100.0 a
	----sulfentrazone	68		0.255							
	----chlorimuron	4		0.015							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Cadet.....fluthiacet	0.91	EC	0.00427	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
14	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	19.0 b	13.3 bc	99.0 ab	100.0 a
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
15	Untreated Check							0.0 c	0.0 f	0.0 d	0.0 b
	LSD P=.05							4.59	5.71	3.90	.
	Standard Deviation							2.74	3.33	2.33	0.00
	CV							17.63	33.88	2.52	0.0
	Replicate F							0.446	0.436	1.499	0.000
	Replicate Prob(F)							0.6446	0.6535	0.2408	1.0000
	Treatment F							72.298	12.630	363.498	0.000
	Treatment Prob(F)							0.0001	0.0001	0.0001	1.0000

Pest Code							CHEAL	IPOSS	AnnGrass	
Pest Name							C.lmsqtr	mornglry		
Crop Code										GLXMA
Crop Name										Soybean
Rating Type							Control	Control	Control	Yield
Rating Unit							%	%	%	Bu/A
Rating Date							07/01/14	07/01/14	07/01/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	100.0 a	92.3 a-d	100.0 a	65.4 a
	----sulfentrazone	62.1		0.248							
	----cloransulam	7.9		0.0316							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
2	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	100.0 a	98.7 a	100.0 a	72.1 a
	----sulfentrazone	62.1		0.248							
	----cloransulam	7.9		0.0316							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
3	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	100.0 a	97.0 ab	100.0 a	75.0 a
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
4	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	100.0 a	97.0 ab	100.0 a	73.8 a
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
5	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A	96.0 ab	85.3 d	100.0 a	65.6 a
	----sulfentrazone	62.2		0.156							
	----chlorimuron	7.8		0.0195							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				

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Pest Code							CHEAL	IPOSS	AnnGrass	
Pest Name							C.lmsqtr	mornglry		
Crop Code										GLXMA
Crop Name										Soybean
Rating Type							Control	Control	Control	Yield
Rating Unit							%	%	%	Bu/A
Rating Date							07/01/14	07/01/14	07/01/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
6	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A	100.0 a	98.3 a	100.0 a	64.7 a
	----sulfentrazone	62.2		0.156							
	----chlorimuron	7.8		0.0195							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
7	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	100.0 a	93.0 abc	100.0 a	65.8 a
	----sulfentrazone	68		0.255							
	----chlorimuron	4		0.015							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
8	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	98.3 ab	95.7 abc	100.0 a	73.5 a
	----sulfentrazone	68		0.255							
	----chlorimuron	4		0.015							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
9	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A	95.0 b	89.0 cd	100.0 a	70.2 a
	----sulfentrazone	0.7		0.137							
	----s-metolachlor	6.3		1.23							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
10	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A	100.0 a	98.3 a	100.0 a	70.1 a
	----sulfentrazone	0.7		0.137							
	----s-metolachlor	6.3		1.23							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
	----fluthiacet	0.117		0.0066							
	----fomesafen	2.883		0.163							
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
11	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	100.0 a	90.7 bcd	100.0 a	69.5 a
	----sulfentrazone	18		0.135							
	----metribuzin	27		0.203							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Cadet.....fluthiacet	0.91	EC	0.00427	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
12	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	100.0 a	92.3 a-d	100.0 a	67.5 a
	----sulfentrazone	62.1		0.248							
	----cloransulam	7.9		0.0316							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Cadet.....fluthiacet	0.91	EC	0.00427	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	CHEAL C.lmsqtr	IPOSS mornglry	AnnGrass	GLXMA Soybean Yield
	Rating Type							Control	Control	Control	Yield
	Rating Unit							%	%	%	Bu/A
	Rating Date							07/01/14	07/01/14	07/01/14	10/21/14
13	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	100.0 a	94.7 abc	100.0 a	73.3 a
	----sulfentrazone	68		0.255							
	----chlorimuron	4		0.015							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Cadet.....fluthiacet	0.91	EC	0.00427	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
14	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	99.0 ab	98.3 a	100.0 a	75.0 a
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	V-2	B				
	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
15	Untreated Check							0.0 c	0.0 e	0.0 b	25.6 b
	LSD P=.05							4.95	7.05	.	17.26
	Standard Deviation							2.96	4.21	0.00	10.30
	CV							3.2	4.79	0.0	15.35
	Replicate F							1.351	5.055	0.000	5.466
	Replicate Prob(F)							0.2753	0.0134	1.0000	0.0102
	Treatment F							225.616	102.838	0.000	4.098
	Treatment Prob(F)							0.0001	0.0001	1.0000	0.0008

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FMC Programs for No-Till Soybeans

Trial ID: Soy13-14 Location: Field #36 Trial Year:
Protocol ID: Soy13-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: FMC

Pest Code										AMAPA	AMBEL
Pest Name										PalmerAm	C.ragwd
Crop Code									GLXMA	GLXMA	
Crop Name									Soybean	Soybean	
Rating Type									LeafBrn	Stunting	Control
Rating Unit									%	%	%
Rating Date									06/24/14	07/01/14	07/01/14	07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
TABLE OF R MEANS											
Replicate 1									16.0	11.1	97.8	100.0
Replicate 2									17.0	10.8	100.0	100.0
Replicate 3									16.0	10.0	99.0	100.0
TABLE OF A (PRE herbicides) MEANS												
1	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A		15.8 a	12.5 a	100.0 a	100.0 a
1	----sulfentrazone	62.1		0.248								
1	----cloransulam	7.9		0.0316								
2	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A		15.8 a	9.9 a	100.0 a	100.0 a
2	----sulfentrazone	18		0.135								
2	----metribuzin	27		0.203								
3	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A		15.0 a	11.1 a	96.7 a	100.0 a
3	----sulfentrazone	62.2		0.156								
3	----chlorimuron	7.8		0.0195								
4	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A		17.5 a	7.9 a	100.0 a	100.0 a
4	----sulfentrazone	68		0.255								
4	----chlorimuron	4		0.015								
5	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A		17.5 a	11.9 a	98.0 a	100.0 a
5	----sulfentrazone	0.7		0.137								
5	----s-metolachlor	6.3		1.23								
LSD P=.05									3.98	4.12	3.36	.
Standard Deviation									3.28	3.25	2.77	0.00
CV									20.07	30.47	2.80	0.00
TABLE OF B (POST herbicides) MEANS												
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B		1.3 b	3.9 b	98.7 a	100.0 a
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B					
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B					
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B		31.3 a	17.4 a	99.2 a	100.0 a
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B					
2	----fluthiacet	0.117		0.0066								
2	----fomesafen	2.883		0.163								
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B					
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B					
LSD P=.05									2.51	2.61	2.13	.
Standard Deviation									3.28	3.25	2.77	0.00
CV									20.07	30.47	2.80	0.00
TABLE OF A (PRE herbicides) B (POST herbicides) MEANS												

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA Soybean LeafBrn % 06/24/14	GLXMA Soybean Stunting % 07/01/14	AMAPA PalmerAm Control % 07/01/14	AMBEL C.ragwd Control % 07/01/14
1	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	1.7 a	8.2 a	100.0 a	100.0 a
1	----sulfentrazone	62.1		0.248							
1	----cloransulam	7.9		0.0316							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
2	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	1.7 a	3.4 a	100.0 a	100.0 a
2	----sulfentrazone	18		0.135							
2	----metribuzin	27		0.203							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
3	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A	0.0 a	3.3 a	93.3 a	100.0 a
3	----sulfentrazone	62.2		0.156							
3	----chlorimuron	7.8		0.0195							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
4	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	1.7 a	0.0 a	100.0 a	100.0 a
4	----sulfentrazone	68		0.255							
4	----chlorimuron	4		0.015							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
5	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A	1.7 a	4.8 a	100.0 a	100.0 a
5	----sulfentrazone	0.7		0.137							
5	----s-metolachlor	6.3		1.23							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
1	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	30.0 a	16.7 a	100.0 a	100.0 a
1	----sulfentrazone	62.1		0.248							
1	----cloransulam	7.9		0.0316							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
2	----fluthiacet	0.117		0.0066							
2	----fomesafen	2.883		0.163							
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
2	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	30.0 a	16.3 a	100.0 a	100.0 a
2	----sulfentrazone	18		0.135							
2	----metribuzin	27		0.203							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
2	----fluthiacet	0.117		0.0066							
2	----fomesafen	2.883		0.163							
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				

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Pest Code									AMAPA	AMBEL
Pest Name									PalmerAm	C.ragwd
Crop Code							GLXMA	GLXMA		
Crop Name							Soybean	Soybean		
Rating Type							LeafBrn	Stunting	Control	Control
Rating Unit							%	%	%	%
Rating Date							06/24/14	07/01/14	07/01/14	07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
3	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A	30.0 a	19.0 a	100.0 a	100.0 a
3	----sulfentrazone	62.2		0.156							
3	----chlorimuron	7.8		0.0195							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
2	----fluthiacet	0.117		0.0066							
2	----fomesafen	2.883		0.163							
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
4	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	33.3 a	15.8 a	100.0 a	100.0 a
4	----sulfentrazone	68		0.255							
4	----chlorimuron	4		0.015							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
2	----fluthiacet	0.117		0.0066							
2	----fomesafen	2.883		0.163							
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
5	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A	33.3 a	19.0 a	96.0 a	100.0 a
5	----sulfentrazone	0.7		0.137							
5	----s-metolachlor	6.3		1.23							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
2	----fluthiacet	0.117		0.0066							
2	----fomesafen	2.883		0.163							
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
LSD P=.05								5.62	5.83	4.76	.
Standard Deviation								3.28	3.25	2.77	0.00
CV								20.07	30.47	2.80	0.00

Pest Code							CHEAL	IPOSS		
Pest Name							C.lmsqtr	mornglry	AnnGrass	
Crop Code										GLXMA
Crop Name										Soybean
Rating Type							Control	Control	Control	Yield
Rating Unit							%	%	%	Bu/A
Rating Date							07/01/14	07/01/14	07/01/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
TABLE OF R MEANS											
Replicate 1								97.3	94.3	100.0	69.4
Replicate 2								99.5	96.7	100.0	76.7
Replicate 3								100.0	92.4	100.0	62.8
TABLE OF A (PRE herbicides) MEANS											
1	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	100.0 a	95.5 a	100.0 a	68.8 a
1	----sulfentrazone	62.1		0.248							
1	----cloransulam	7.9		0.0316							
2	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	100.0 a	97.0 a	100.0 a	74.4 a
2	----sulfentrazone	18		0.135							
2	----metribuzin	27		0.203							
3	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A	98.0 a	91.8 a	100.0 a	65.2 a
3	----sulfentrazone	62.2		0.156							
3	----chlorimuron	7.8		0.0195							
4	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	99.2 a	94.3 a	100.0 a	69.7 a
4	----sulfentrazone	68		0.255							
4	----chlorimuron	4		0.015							
5	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A	97.5 a	93.7 a	100.0 a	70.1 a
5	----sulfentrazone	0.7		0.137							
5	----s-metolachlor	6.3		1.23							
LSD P=.05								4.25	5.23	.	9.19
Standard Deviation								3.51	4.31	0.00	7.54
CV								3.54	4.57	0.00	10.84
TABLE OF B (POST herbicides) MEANS											
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B	98.2 a	91.3 b	100.0 a	68.4 a
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B	99.7 a	97.6 a	100.0 a	70.9 a
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
2	----fluthiacet	0.117		0.0066							
2	----fomesafen	2.883		0.163							
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
LSD P=.05								2.69	3.31	.	5.81
Standard Deviation								3.51	4.31	0.00	7.54
CV								3.54	4.57	0.00	10.84
TABLE OF A (PRE herbicides) B (POST herbicides) MEANS											

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Pest Code							CHEAL	IPOSS	AnnGrass	
Pest Name							C.lmsqtr	mornglry		
Crop Code										GLXMA
Crop Name										Soybean
Rating Type							Control	Control	Control	Yield
Rating Unit							%	%	%	Bu/A
Rating Date							07/01/14	07/01/14	07/01/14	10/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	100.0 a	92.3 a	100.0 a	65.4 a
1	----sulfentrazone	62.1		0.248							
1	----cloransulam	7.9		0.0316							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
2	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	100.0 a	97.0 a	100.0 a	75.0 a
2	----sulfentrazone	18		0.135							
2	----metribuzin	27		0.203							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
3	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A	96.0 a	85.3 a	100.0 a	65.6 a
3	----sulfentrazone	62.2		0.156							
3	----chlorimuron	7.8		0.0195							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
4	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	100.0 a	93.0 a	100.0 a	65.8 a
4	----sulfentrazone	68		0.255							
4	----chlorimuron	4		0.015							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
5	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A	95.0 a	89.0 a	100.0 a	70.2 a
5	----sulfentrazone	0.7		0.137							
5	----s-metolachlor	6.3		1.23							
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
1	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
1	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
1	Authority First Premix	70	DF	0.28	lb ai/a	PRE	A	100.0 a	98.7 a	100.0 a	72.1 a
1	----sulfentrazone	62.1		0.248							
1	----cloransulam	7.9		0.0316							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
2	----fluthiacet	0.117		0.0066							
2	----fomesafen	2.883		0.163							
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
2	Authority MTZ Premix	45	DF	0.338	lb ai/a	PRE	A	100.0 a	97.0 a	100.0 a	73.8 a
2	----sulfentrazone	18		0.135							
2	----metribuzin	27		0.203							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
2	----fluthiacet	0.117		0.0066							
2	----fomesafen	2.883		0.163							
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	CHEAL C.lmsqtr	IPOSS mornglry	AnnGrass	GLXMA Soybean Yield
	Pest Code							CHEAL	IPOSS		
	Pest Name							C.lmsqtr	mornglry	AnnGrass	
	Crop Code										GLXMA
	Crop Name										Soybean
	Rating Type							Control	Control	Control	Yield
	Rating Unit							%	%	%	Bu/A
	Rating Date							07/01/14	07/01/14	07/01/14	10/21/14
3	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	A	100.0 a	98.3 a	100.0 a	64.7 a
3	----sulfentrazone	62.2		0.156							
3	----chlorimuron	7.8		0.0195							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
2	----fluthiacet	0.117		0.0066							
2	----fomesafen	2.883		0.163							
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
4	Authority Maxx Premix	72	DG	0.27	lb ai/a	PRE	A	98.3 a	95.7 a	100.0 a	73.5 a
4	----sulfentrazone	68		0.255							
4	----chlorimuron	4		0.015							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
2	----fluthiacet	0.117		0.0066							
2	----fomesafen	2.883		0.163							
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
5	Authority Elite Premix	7	EC	1.37	lb ai/a	PRE	A	100.0 a	98.3 a	100.0 a	70.1 a
5	----sulfentrazone	0.7		0.137							
5	----s-metolachlor	6.3		1.23							
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	V-2	B				
2	Marvel Premix	3	SC	0.17	lb ai/a	V-2	B				
2	----fluthiacet	0.117		0.0066							
2	----fomesafen	2.883		0.163							
2	Crop Oil Concentrate	100	L	1	% v/v	V-2	B				
2	Dry Ammonium Sulfate	100	D	2.04	% w/v	V-2	B				
	LSD P=.05							6.02	7.40	.	13.00
	Standard Deviation							3.51	4.31	0.00	7.54
	CV							3.54	4.57	0.00	10.84

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean LeafBrn % 06/24/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	29	6996.666667				
R	2	6.666667	3.333333	0.310	0.7370	
A	4	30.000000	7.500000	0.698	0.6031	4.0
B	1	6750.000000	6750.000000	628.448	0.0001	2.5
AB	4	16.666667	4.166667	0.388	0.8145	5.6
ERROR	18	193.333333	10.740741			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Stunting % 07/01/14 Missing values in column 6 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	22	1610.176393				
R	2	6.213177	3.106588	0.295	0.7503	
A	4	80.446454	20.111613	1.909	0.1790	4.1
B	1	1353.709484	1353.709484	128.519	0.0001	2.6
AB	4	53.942575	13.485644	1.280	0.3356	5.8
ERROR	11	115.864702	10.533155			

FACTORIAL/POOLED ERROR AOV For AMAPA PalmerAm Control % 07/01/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	29	309.866667				
R	2	24.266667	12.133333	1.578	0.2336	
A	4	56.533333	14.133333	1.838	0.1655	3.4
B	1	2.133333	2.133333	0.277	0.6048	2.1
AB	4	88.533333	22.133333	2.879	0.0527	4.8
ERROR	18	138.400000	7.688889			

FACTORIAL/POOLED ERROR AOV For AMBEL C.ragwd Control % 07/01/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	29	0.000000				
R	2	0.000000	0.000000	0.000	1.0000	
A	4	0.000000	0.000000	0.000	1.0000	.
B	1	0.000000	0.000000	0.000	1.0000	.
AB	4	0.000000	0.000000	0.000	1.0000	.
ERROR	18	0.000000	0.000000			

FACTORIAL/POOLED ERROR AOV For CHEAL C.lmsqtr Control % 07/01/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	29	359.866667				
R	2	41.266667	20.633333	1.678	0.2148	
A	4	31.533333	7.883333	0.641	0.6402	4.3
B	1	16.133333	16.133333	1.312	0.2671	2.7
AB	4	49.533333	12.383333	1.007	0.4299	6.0
ERROR	18	221.400000	12.300000			

FACTORIAL/POOLED ERROR AOV For IPOSS mornglry Control % 07/01/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	29	973.466667				
R	2	92.866667	46.433333	2.494	0.1107	
A	4	90.466667	22.616667	1.215	0.3391	5.2
B	1	294.533333	294.533333	15.819	0.0009	3.3
AB	4	160.466667	40.116667	2.155	0.1157	7.4
ERROR	18	335.133333	18.618519			

FACTORIAL/POOLED ERROR AOV For AnnGrass Control % 07/01/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	29	0.000000				
R	2	0.000000	0.000000	0.000	1.0000	
A	4	0.000000	0.000000	0.000	1.0000	.
B	1	0.000000	0.000000	0.000	1.0000	.
AB	4	0.000000	0.000000	0.000	1.0000	.
ERROR	18	0.000000	0.000000			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 10/21/14 Missing values in column 14 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	28	2356.222961				
R	2	965.842519	482.921260	8.483	0.0028	
A	4	262.479878	65.619969	1.153	0.3659	9.2
B	1	45.172371	45.172371	0.794	0.3855	5.8
AB	4	115.001126	28.750281	0.505	0.7326	13.0
ERROR	17	967.727068	56.925122			

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PRE and POST Soybean Weed Control Programs

Trial ID: Soy14-14 Location: Field #36 Trial Year:
Protocol ID: Soy14-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Dow, Valent

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: Dyn 39RY43 BBCH Scale: BSOY
Description: RR

Planting Date: 05/28/14
Planting Rate, Unit: 180000 S/A Planting Method: PLANTD planted
Depth, Unit: 1 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 15 in Emergence Date: 06/05/14
Harvest Date: 10/21/14
Harvested Width, Unit: 6.25 FT
Soil Temperature, Unit: 80 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDTRA medium/trashy % Standard Moisture: 13.0

Pest Description

Pest 1 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth

Pest 2 Type: W Code: DIGSA Digitaria sanguinalis
Common Name: large crabgrass

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 12 Tillage Type: NOTILL no-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/21/14	Roundup	4.5	AS	32	FL OZ/A
2.	04/21/14	2,4-D Ester	3.8	L	16	FL OZ/A
3.	07/09/14	FlexstarGT	3.3	L	3	PT/A
4.	07/09/14	MSO	100	L	1	% V/V

Field Prep./Maintenance:
The plot area was turbotilled prior to soybean planting on 5-28-14.

Soil Description

% Sand: 77 % OM: 2.3 Texture: SL sandy loam
% Silt: 12 pH: 6.2
% Clay: 11 CEC: 7.5 Fert. Level: E excellent
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.6 mi

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Application Description

	A	B	C
Application Date:	05/30/14	06/10/14	06/19/14
Appl. Stop Time:	10:00 AM	10:00 AM	08:00 AM
Interval to Prev. Appl., Unit:		11 DAYS	9 DAYS
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	14DAP	28DAP
Application Placement:	BROADC	BROADC	BROADC
Applied By:	Johnson	Johnson	Johnson
Air Temperature, Unit:	62 F	76 F	75 F
% Relative Humidity:	72	85	84
Wind Velocity, Unit:	2 mph	1 mph	2 mph
Wind Direction:	NE	S	S
Dew Presence (Y/N):	Y yes	Y yes	Y yes
Soil Temperature, Unit:	61 F	75 F	74 F
Soil Moisture:	NORMAL	NORMAL	NORMAL
% Cloud Cover:	100	85	0

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		DESC	DESC
Stage Majority, Percent:		unifol 100	2-trifol 100
Height, Unit:		4 in	6 in

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent:		veg 100	veg 100
Height, Unit:		5 in	12 in
Height Minimum, Maximum:		4 7	10 18
Density, Unit:		10 m2	5 m2
Pest 2 Code, Type, Scale:	DIGSA W	DIGSA W	DIGSA W
Stage Majority, Percent:		1-tilr 70	2-tilr 55
Stage Minimum, Percent:		1-tilr 70	2-tilr 55
Stage Maximum, Percent:		2-tilr 30	3-tilr 45
Height, Unit:		5 in	10 in
Height Minimum, Maximum:		3 7	7 12
Density, Unit:		25 m2	25 m2

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Application Equipment

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in
Boom Length, Unit:	10 ft	10 ft	10 ft
Boom Height, Unit:	18 in	23 in	32 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	WATER	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR	COMAIR

Trial Comments

06/20/14: Field had an early burndown application, but no additional glyphosate at planting. Treatments with POST activity provided better overall control.

07/01/14: Weed density is very low in this field. Suspected GR Palmer amaranth in this portion of the farm and made rating quite variable. Stunting observed with Treatment 9, 10 (15-20%).

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PRE and POST Soybean Weed Control Programs

Trial ID: Soy14-14 Location: Field #36 Trial Year:
Protocol ID: Soy14-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Dow, Valent

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA	AMAPA PalmerAm	IPOSS mornglry	PANDI F.panicm
	Pest Code										
	Pest Name										
	Crop Code							GLXMA			
	Crop Name							Soybean			
	Rating Type							Stunting	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/02/14	06/02/14	06/02/14	06/02/14
1	Untreated Check							0.0 a	0.0 c	0.0 d	0.0 d
2	Sonic Premix	70	DF	0.131	lb ai/a	PRE	A	0.0 a	73.3 ab	82.3 ab	73.3 abc
	----sulfentrazone	62.1		0.116							
	----cloransulam	7.9		0.0148							
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C				
3	Sonic Premix	70	DF	0.197	lb ai/a	PRE	A	0.0 a	60.0 ab	92.7 ab	73.3 abc
	----sulfentrazone	62.1		0.175							
	----cloransulam	7.9		0.0222							
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C				
4	Sonic Premix	70	DF	0.263	lb ai/a	PRE	A	0.0 a	66.7 ab	98.3 a	80.0 abc
	----sulfentrazone	62.1		0.233							
	----cloransulam	7.9		0.0297							
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C				
5	Sonic Premix	70	DF	0.131	lb ai/a	PRE	A	0.0 a	66.7 ab	98.0 a	60.0 bc
	----sulfentrazone	62.1		0.116							
	----cloransulam	7.9		0.0148							
	Firstrate.....cloransulam	84	WG	0.0158	lb ai/a	28DAP	C				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C				
6	---Surveil Co-Pack					PRE		0.0 a	82.7 a	84.0 ab	68.3 bc
	_Surveil V.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A				
	_Surveil FR.....cloransulam	84	WG	0.021	lb ai/a	PRE	A				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C				
7	---Surveil Co-Pack					PRE		2.3 a	71.7 ab	94.0 ab	60.0 bc
	_Surveil V.....flumioxazin	51	WG	0.096	lb ai/a	PRE	A				
	_Surveil FR.....cloransulam	84	WG	0.0315	lb ai/a	PRE	A				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C				
8	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	14DAP	B	0.0 a	31.5 bc	48.5 c	100.0 a
	Dry Ammonium Sulfate	100	D	1.5	% w/v	14DAP	B				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C				
9	Fierce Premix	76	WG	0.143	lb ai/a	PRE	A	3.3 a	66.7 ab	71.7 bc	62.5 bc
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C				
10	Fierce Premix	76	WG	0.143	lb ai/a	PRE	A	4.7 a	97.2 a	89.2 ab	85.0 ab
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
	Cobra.....lactofen	2	EC	0.195	lb ai/a	28DAP	C				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C				
	Nonionic Surfactant	100	L	0.25	% v/v	28DAP	C				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,2,3,6,7,8; Average=4

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
	Pest Code								AMAPA	IPOSS	PANDI
	Pest Name								PalmerAm	mornglry	F.panicm
	Crop Code							GLXMA			
	Crop Name							Soybean			
	Rating Type							Stunting	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/02/14	06/02/14	06/02/14	06/02/14
11	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	0.0 a	63.3 ab	93.0 ab	56.7 c
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C				
12	Valor XLT Premix	40.3	WG	0.088	lb ai/a	PRE	A	0.0 a	63.3 ab	80.5 ab	80.0 abc
	----flumioxazin	30		0.0655							
	----chlorimuron	10.3		0.0225							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C				
	LSD P=.05							3.97	47.29	25.01	27.79
	Standard Deviation							2.34	27.76	14.58	16.13
	CV							269.29	44.84	18.77	24.22
	Replicate F							3.221	0.358	1.433	0.201
	Replicate Prob(F)							0.0602	0.7031	0.2646	0.8200
	Treatment F							1.500	2.383	11.147	6.858
	Treatment Prob(F)							0.2040	0.0441	0.0001	0.0003

Pest Code											AMAPA	IPOSS	PANDI
Pest Name											PalmerAm	mornglry	F.panicm
Crop Code										GLXMA			
Crop Name										Soybean			
Rating Type										Lf Burn	Control	Control	Control
Rating Unit										%	%	%	%
Rating Date										06/23/14	07/01/14	07/01/14	07/01/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code						
1	Untreated Check									0.0 c	0.0 c	0.0 b	0.0 c
2	Sonic Premix	70	DF	0.131	lb ai/a	PRE	A			4.0 bc	90.7 a	100.0 a	99.3 a
	----sulfentrazone	62.1		0.116									
	----cloransulam	7.9		0.0148									
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C						
3	Sonic Premix	70	DF	0.197	lb ai/a	PRE	A			1.0 c	80.0 ab	99.7 a	99.7 a
	----sulfentrazone	62.1		0.175									
	----cloransulam	7.9		0.0222									
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C						
4	Sonic Premix	70	DF	0.263	lb ai/a	PRE	A			0.0 c	84.2 ab	99.3 a	98.8 ab
	----sulfentrazone	62.1		0.233									
	----cloransulam	7.9		0.0297									
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C						
5	Sonic Premix	70	DF	0.131	lb ai/a	PRE	A			7.0 b	89.0 ab	99.7 a	99.0 ab
	----sulfentrazone	62.1		0.116									
	----cloransulam	7.9		0.0148									
	Firstrate.....cloransulam	84	WG	0.0158	lb ai/a	28DAP	C						
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C						
6	---Surveil Co-Pack					PRE				0.0 c	89.3 ab	99.3 a	99.3 a
	_Surveil V.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A						
	_Surveil FR.....cloransulam	84	WG	0.021	lb ai/a	PRE	A						
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C						
7	---Surveil Co-Pack					PRE				0.0 c	92.8 a	100.0 a	99.7 a
	_Surveil V.....flumioxazin	51	WG	0.096	lb ai/a	PRE	A						
	_Surveil FR.....cloransulam	84	WG	0.0315	lb ai/a	PRE	A						
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C						
8	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	14DAP	B			0.0 c	65.7 b	99.8 a	99.4 a
	Dry Ammonium Sulfate	100	D	1.5	% w/v	14DAP	B						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C						
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C						
9	Fierce Premix	76	WG	0.143	lb ai/a	PRE	A			2.3 c	93.8 a	99.6 a	99.7 a
	----flumioxazin	33.5		0.063									
	----pyroxasulfone	42.5		0.08									
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C						
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C						
10	Fierce Premix	76	WG	0.143	lb ai/a	PRE	A			36.7 a	88.2 ab	99.9 a	98.9 ab
	----flumioxazin	33.5		0.063									
	----pyroxasulfone	42.5		0.08									
	Cobra.....lactofen	2	EC	0.195	lb ai/a	28DAP	C						
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C						
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C						
	Nonionic Surfactant	100	L	0.25	% v/v	28DAP	C						

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	GLXMA	AMAPA PalmerAm	IPOSS mornglry	PANDI F.panicm
	Pest Code								AMAPA	IPOSS	PANDI
	Pest Name								PalmerAm	mornglry	F.panicm
	Crop Code							GLXMA			
	Crop Name							Soybean			
	Rating Type							Lf Burn	Control	Control	Control
	Rating Unit							%	%	%	%
	Rating Date							06/23/14	07/01/14	07/01/14	07/01/14
11	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	0.0 c	99.7 a	99.7 a	98.3 b
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C				
12	Valor XLT Premix	40.3	WG	0.088	lb ai/a	PRE	A	1.7 c	78.2 ab	99.9 a	99.4 a
	----flumioxazin	30		0.0655							
	----chlorimuron	10.3		0.0225							
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C				
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C				
	LSD P=.05							4.32	24.24	0.71	0.94
	Standard Deviation							2.55	14.00	0.41	0.55
	CV							58.08	17.66	0.45	0.6
	Replicate F							0.389	0.170	4.828	4.659
	Replicate Prob(F)							0.6823	0.8455	0.0229	0.0254
	Treatment F							49.845	10.720	14636.734	8269.149
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

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Pest Code	
Pest Name	
Crop Code	GLXMA
Crop Name	Soybean
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	10/21/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
1	Untreated Check							60.5 d
2	Sonic Premix	70	DF	0.131	lb ai/a	PRE	A	73.2 abc
	----sulfentrazone	62.1		0.116				
	----cloransulam	7.9		0.0148				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C	
3	Sonic Premix	70	DF	0.197	lb ai/a	PRE	A	68.2 c
	----sulfentrazone	62.1		0.175				
	----cloransulam	7.9		0.0222				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C	
4	Sonic Premix	70	DF	0.263	lb ai/a	PRE	A	73.6 abc
	----sulfentrazone	62.1		0.233				
	----cloransulam	7.9		0.0297				
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C	
5	Sonic Premix	70	DF	0.131	lb ai/a	PRE	A	75.2 abc
	----sulfentrazone	62.1		0.116				
	----cloransulam	7.9		0.0148				
	Firstrate.....cloransulam	84	WG	0.0158	lb ai/a	28DAP	C	
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C	
6	---Surveil Co-Pack					PRE		76.3 ab
	_Surveil V.....flumioxazin	51	WG	0.064	lb ai/a	PRE	A	
	_Surveil FR.....cloransulam	84	WG	0.021	lb ai/a	PRE	A	
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C	
7	---Surveil Co-Pack					PRE		71.3 abc
	_Surveil V.....flumioxazin	51	WG	0.096	lb ai/a	PRE	A	
	_Surveil FR.....cloransulam	84	WG	0.0315	lb ai/a	PRE	A	
	Durango DMA.....glyphosate	4	SL	0.75	lb ae/a	28DAP	C	
8	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	14DAP	B	69.9 abc
	Dry Ammonium Sulfate	100	D	1.5	% w/v	14DAP	B	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C	
9	Fierce Premix	76	WG	0.143	lb ai/a	PRE	A	77.0 a
	----flumioxazin	33.5		0.063				
	----pyroxasulfone	42.5		0.08				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C	
10	Fierce Premix	76	WG	0.143	lb ai/a	PRE	A	69.2 bc
	----flumioxazin	33.5		0.063				
	----pyroxasulfone	42.5		0.08				
	Cobra.....lactofen	2	EC	0.195	lb ai/a	28DAP	C	
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C	
	Nonionic Surfactant	100	L	0.25	% v/v	28DAP	C	

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Pest Code	
Pest Name	
Crop Code	GLXMA
Crop Name	Soybean
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	10/21/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	
11	Canopy Premix	75	DF	0.188	lb ai/a	PRE	A	75.9 ab
	----metribuzin	64.3		0.161				
	----chlorimuron	10.7		0.0268				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C	
12	Valor XLT Premix	40.3	WG	0.088	lb ai/a	PRE	A	72.9 abc
	----flumioxazin	30		0.0655				
	----chlorimuron	10.3		0.0225				
	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	28DAP	C	
	Dry Ammonium Sulfate	100	D	1.5	% w/v	28DAP	C	

LSD P=.05	7.23
Standard Deviation	4.27
CV	5.93
Replicate F	5.086
Replicate Prob(F)	0.0153
Treatment F	3.507
Treatment Prob(F)	0.0059

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Fierce or Valor + Warrant Safety to Early Planted Soybeans

Trial ID: Soy15-14 Location: Field #14 Trial Year:
Protocol ID: Soy15-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Valent

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: Dyn. 39RY43 BBCH Scale: BSOY
Planting Date: 05/12/14
Planting Rate, Unit: 220000 S/A Planting Method: PLANTD planted
Depth, Unit: 1 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 15 IN Emergence Date: 05/19/14
Harvest Date: 10/27/14
Harvested Width, Unit: 6.25 FT
Soil Temperature, Unit: 88 F Harvested Length, Unit: 25 FT
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Plot combine
Seed Bed: MEDIUM medium % Standard Moisture: 13.0

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 8 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/19/14	Roundup	4.5	AS	1	QT/A

Soil Description

% Sand: 79 % OM: 1.4 Texture: LS loamy sand
% Silt: 14 pH: 6.1
% Clay: 7 CEC: 5.1 Fert. Level: E excellent
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

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Application Description

	A
Application Date:	05/13/14
Appl. Stop Time:	07:30 AM
Application Method:	SPRAY
Application Timing:	PRE
Application Placement:	BROADC
Applied By:	Johnson
Air Temperature, Unit:	72 F
% Relative Humidity:	81
Wind Velocity, Unit:	0 mph
Wind Direction:	N/A
Dew Presence (Y/N):	Y yes
Soil Temperature, Unit:	72 F
Soil Moisture:	NORMAL
% Cloud Cover:	30

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	GLXMA BSOY

Application Equipment

	A
Appl. Equipment:	Tractor
Equipment Type:	TRMOSP
Operation Pressure, Unit:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	10 ft
Boom Height, Unit:	18 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/ac
Mix Size, Unit:	0.7 Gallons
Propellant:	COMAIR

Trial Comments

06/01/14: Beans at unofoliate stage. Common lambsquarters and common ragweed at low density in untreated checks, but not observed in treated plots.

06/02/14: Stand counts done in four rows, 5 feet in each row. Number injured is the number of plants that were delayed or showed injury compared to the average soybean stage in the untreated checks.

06/21/14: Only residual weed control rated. Common ragweed was present in untreated check but control with all treatments was very good, except where noted. (one plot of treatment 5, common ragweed control was poor).

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Fierce or Valor + Warrant Safety to Early Planted Soybeans

Trial ID: Soy15-14 Location: Field #14 Trial Year:
Protocol ID: Soy15-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Valent

Pest Code							AMAPA	IPOSS	DIGSA	
Pest Name							PalmerAm	mornglry	L.crbgrs	
Crop Code						GLXMA				GLXMA
Crop Name						Soybean				Soybean
Rating Type						Stunting	Control	Control	Control	Count
Rating Unit						%	%	%	%	#/20' rw
Rating Date						06/01/14	06/01/14	06/01/14	06/01/14	06/02/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Untreated Check						0.0 c	0.0 b	0.0 e	0.0 d	85.0 a
2	Fierce Premix	76	WG	0.143	lb ai/a	PRE	8.7 ab	100.0 a	87.7 b	100.0 a	90.3 a
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
3	Warrant.....acetochlor	3	CS	0.94	lb ai/a	PRE	10.3 ab	100.0 a	79.3 c	99.7 ab	84.7 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE					
4	Warrant.....acetochlor	3	CS	0.94	lb ai/a	PRE	11.3 a	100.0 a	78.3 c	100.0 a	81.3 a
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE					
5	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	7.3 b	100.0 a	71.7 d	94.0 c	88.3 a
6	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE	10.3 ab	100.0 a	82.0 c	97.0 b	86.0 a
7	Valor XLT Premix	40.3	WG	0.086	lb ai/a	PRE	10.3 ab	100.0 a	95.0 a	98.0 ab	89.7 a
	----flumioxazin	30		0.064							
	----chlorimuron	10.3		0.022							
8	Canopy Premix	75	DF	0.188	lb ai/a	PRE	8.0 ab	100.0 a	89.3 b	97.7 ab	86.0 a
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
LSD P=.05							3.89	.	4.30	2.69	11.27
Standard Deviation							2.22	0.00	2.45	1.54	6.44
CV							26.76	0.0	3.36	1.79	7.45
Replicate F							3.970	0.000	0.921	0.495	1.657
Replicate Prob(F)							0.0431	1.0000	0.4210	0.6199	0.2259
Treatment F							7.979	0.000	459.074	1534.462	0.629
Treatment Prob(F)							0.0005	1.0000	0.0001	0.0001	0.7247

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=19
Could not calculate LSD (% mean diff) for columns 2 because error mean square = 0.

Pest Code Pest Name													
								AMAPA PalmerAm	IPOSS mornglry	DIGSA L.crbgrs	
Crop Code Crop Name Rating Type Rating Unit Rating Date							GLXMA Soybean Injured #/20' rw 06/02/14	GLXMA Soybean Stunting % 06/10/14	Control % 06/10/14	Control % 06/10/14	Control % 06/10/14	GLXMA Soybean Stunting % 06/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	Untreated Check						8.0 a	0.0 d	0.0 b	0.0 e	0.0 b	0.0 c
2	Fierce Premix	76	WG	0.143	lb ai/a	PRE	7.7 a	5.7 c	100.0 a	87.0 b	99.0 a	9.7 b
	----flumioxazin	33.5		0.063								
	----pyroxasulfone	42.5		0.08								
3	Warrant.....acetochlor	3	CS	0.94	lb ai/a	PRE	9.7 a	7.0 c	100.0 a	80.3 cd	89.3 a	2.3 bc
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE						
4	Warrant.....acetochlor	3	CS	0.94	lb ai/a	PRE	10.7 a	4.0 cd	100.0 a	75.0 d	95.0 a	4.0 bc
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE						
5	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	7.3 a	0.0 d	100.0 a	80.3 cd	89.0 a	0.0 c
6	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE	8.7 a	2.3 cd	100.0 a	84.7 bc	91.0 a	4.7 bc
7	Valor XLT Premix	40.3	WG	0.086	lb ai/a	PRE	9.0 a	17.0 a	100.0 a	97.0 a	98.7 a	26.7 a
	----flumioxazin	30		0.064								
	----chlorimuron	10.3		0.022								
8	Canopy Premix	75	DF	0.188	lb ai/a	PRE	7.7 a	12.0 b	98.3 a	96.0 a	98.0 a	24.7 a
	----metribuzin	64.3		0.161								
	----chlorimuron	10.7		0.0268								
LSD P=.05							6.56	4.72	1.79	6.01	10.94	7.36
Standard Deviation							3.75	2.69	1.02	3.43	6.25	4.20
CV							43.64	44.89	1.17	4.57	7.57	46.7
Replicate F							1.553	0.672	1.000	2.777	0.195	0.113
Replicate Prob(F)							0.2459	0.5265	0.3927	0.0964	0.8246	0.8938
Treatment F							0.283	14.622	3583.858	249.388	86.773	19.606
Treatment Prob(F)							0.9500	0.0001	0.0001	0.0001	0.0001	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	AMAPA PalmerAm	IPOSS mornglry	GLXMA Soybean	AMAPA PalmerAm	IPOSS mornglry
	Pest Code						AMAPA	IPOSS		AMAPA	IPOSS
	Pest Name						PalmerAm	mornglry		PalmerAm	mornglry
	Crop Code								GLXMA		
	Crop Name								Soybean		
	Rating Type						Control	Control	Stunting	Control	Control
	Rating Unit						%	%	%	%	%
	Rating Date						06/21/14	06/21/14	07/02/14	07/02/14	07/02/14
1	Untreated Check						0.0 b	0.0 d	0.0 c	0.0 c	0.0 d
2	Fierce Premix	76	WG	0.143	lb ai/a	PRE	100.0 a	75.0 b	5.7 bc	99.3 ab	94.3 ab
	----flumioxazin	33.5		0.063							
	----pyroxasulfone	42.5		0.08							
3	Warrant.....acetochlor	3	CS	0.94	lb ai/a	PRE	100.0 a	66.7 c	0.0 c	99.0 b	76.7 c
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE					
4	Warrant.....acetochlor	3	CS	0.94	lb ai/a	PRE	100.0 a	75.0 b	6.3 bc	99.0 b	74.3 c
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE					
5	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	100.0 a	66.7 c	0.0 c	99.0 b	84.7 abc
6	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE	100.0 a	72.7 b	2.3 c	99.7 a	81.7 bc
7	Valor XLT Premix	40.3	WG	0.086	lb ai/a	PRE	100.0 a	97.0 a	15.0 a	99.3 ab	99.0 a
	----flumioxazin	30		0.064							
	----chlorimuron	10.3		0.022							
8	Canopy Premix	75	DF	0.188	lb ai/a	PRE	95.0 a	96.3 a	11.3 ab	99.3 ab	99.0 a
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	LSD P=.05						5.36	4.88	6.43	0.59	16.78
	Standard Deviation						3.06	2.78	3.67	0.34	9.58
	CV						3.52	4.06	72.2	0.39	12.58
	Replicate F						1.000	2.584	0.077	4.789	0.607
	Replicate Prob(F)						0.3927	0.1109	0.9260	0.0260	0.5585
	Treatment F						395.286	352.958	7.139	32656.003	33.973
	Treatment Prob(F)						0.0001	0.0001	0.0010	0.0001	0.0001

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Pest Code	
Pest Name	
Crop Code	GLXMA
Crop Name	Soybean
Rating Type	Yield
Rating Unit	Bu/A
Rating Date	10/27/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	
1	Untreated Check						76.2 a
2	Fierce Premix	76	WG	0.143	lb ai/a	PRE	75.5 a
	----flumioxazin	33.5		0.063			
	----pyroxasulfone	42.5		0.08			
3	Warrant.....acetochlor	3	CS	0.94	lb ai/a	PRE	77.4 a
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	
4	Warrant.....acetochlor	3	CS	0.94	lb ai/a	PRE	74.9 a
	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE	
5	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	PRE	72.9 a
6	Valor SX.....flumioxazin	51	WG	0.096	lb ai/a	PRE	70.4 a
7	Valor XLT Premix	40.3	WG	0.086	lb ai/a	PRE	74.8 a
	----flumioxazin	30		0.064			
	----chlorimuron	10.3		0.022			
8	Canopy Premix	75	DF	0.188	lb ai/a	PRE	73.3 a
	----metribuzin	64.3		0.161			
	----chlorimuron	10.7		0.0268			

LSD P=.05	7.83
Standard Deviation	4.40
CV	5.91
Replicate F	9.106
Replicate Prob(F)	0.0039
Treatment F	0.740
Treatment Prob(F)	0.6443

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MON 76832 in Double-Crop Soybeans

Trial ID: Soy16-14 Location: Field #7 Trial Year:
Protocol ID: Soy16-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Monsanto

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: H42-13R2-UP BBCH Scale: BSOY
Description: RR

Planting Date: 07/10/14
Planting Rate, Unit: 180000 S/A Planting Method: PLANTD planted
Depth, Unit: 1 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 15 in Emergence Date: 07/16/14
Soil Temperature, Unit: 82 F
Soil Moisture: NORMAL normal, adequate
Seed Bed: MEDTRA medium/trashy

Pest Description

Pest 1 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth

Pest 2 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morning glory

Pest 3 Type: W Code: DIGSA Digitaria sanguinalis
Common Name: large crabgrass

Pest 4 Type: W Code: ANVCR Anoda cristata
Common Name: Spurred anoda

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 14 Tillage Type: NOTILL no-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Trial Initiation Comments:
No-till into wheat stubble.

Soil Description

% Sand: 78 % OM: 3.2 Texture: SL sandy loam
% Silt: 13 pH: 5.7
% Clay: 9 CEC: 7.1 Fert. Level: E excellent
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.2 mi

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Application Description

	A	B
Application Date:	07/11/14	07/30/14
Appl. Stop Time:	09:00 AM	11:30 AM
Interval to Prev. Appl., Unit:		19 DAYS
Application Method:	SPRAY	SPRAY
Application Timing:	PRE	21DAP
Application Placement:	BROADC	BROADC
Applied By:	Johnson	Johnson
Air Temperature, Unit:	74 F	75 F
% Relative Humidity:	85	47
Wind Velocity, Unit:	1 mph	1 mph
Wind Direction:	NE	SE
Dew Presence (Y/N):	Y yes	Y yes
Soil Temperature, Unit:	73 F	74 F
Soil Moisture:	WET	NORMAL
% Cloud Cover:	100	20

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:		DESC
Stage Majority, Percent:		V2 60
Stage Minimum, Percent:		V2 60
Stage Maximum, Percent:		V3 40
Height, Unit:		8 in
Height Minimum, Maximum:		7.5 8.5

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Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	AMAPA W	AMAPA W
Stage Majority, Percent:	veg 100	veg 100
Height, Unit:	7 in	7 in
Height Minimum, Maximum:	5 8	6 10
Density, Unit:	1 m2	70 m2
Pest 2 Code, Type, Scale:	IPOSS W	IPOSS W
Stage Majority, Percent:	veg 65	
Stage Minimum, Percent:	veg 65	
Stage Maximum, Percent:	vine 35	
Height, Unit:	6 in	
Height Minimum, Maximum:	4 7	
Density, Unit:	3 m2	
Pest 3 Code, Type, Scale:	DIGSA W	DIGSA W
Stage Majority, Percent:	3-tilr 60	4-tilr 100
Stage Minimum, Percent:	4-leaf 20	
Stage Maximum, Percent:	4-tilr 20	
Height, Unit:	6 in	10 in
Height Minimum, Maximum:	4 8	8 12
Density, Unit:	10 m2	30 m2
Pest 4 Code, Type, Scale:	ANVCR W	ANVCR W
Stage Majority, Percent:		veg 100
Height, Unit:		10 in
Height Minimum, Maximum:		8 11
Density, Unit:		3 m2

Application Equipment

	A	B
Appl. Equipment:	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	10 ft	10 ft
Boom Height, Unit:	24 in	26 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR

Trial Comments

07/22/14: Treatments 9 through 13 not sprayed yet. Newly emerged Palmer amaranth plants observed in only treatment 1.

08/02/14: Due to later emergence of other species, not able to rate treatment 1.

University of Delaware

MON 76832 in Double-Crop Soybeans

Trial ID: Soy16-14 Location: Field #7 Trial Year:
Protocol ID: Soy16-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Monsanto

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	AMAPA PalmerAm	AMAPA PalmerAm
	Pest Code							AMAPA	AMAPA	AMAPA
	Pest Name							PalmerAm	PalmerAm	PalmerAm
	Crop Code									
	Crop Name									
	Rating Type							Control	Control	Control
	Rating Unit							%	%	%
	Rating Date							07/22/14	08/05/14	08/21/14
1	Roundup PowerMax..glyphosate	4.5	AS	1.05	lb ae/a	PRE	A	100.0 a	83.1 d	
	MON 10	100	L	2	% v/v	PRE	A			
2	MON 76832	3	SL	1.5	lb ae/a	PRE	A	100.0 a	90.0 bcd	75.0 d
	MON 10	100	L	2	% v/v	PRE	A			
3	MON 76832	3	SL	1.5	lb ae/a	PRE	A	100.0 a	92.3 abc	79.7 cd
	MON 10	100	L	2	% v/v	PRE	A			
	Tricor DF.....metribuzin	75	DF	0.3	lb ai/a	PRE	A			
4	MON 76832	3	SL	1.5	lb ae/a	PRE	A	100.0 a	97.3 ab	100.0 a
	MON 10	100	L	2	% v/v	PRE	A			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A			
5	MON 76832	3	SL	1.5	lb ae/a	PRE	A	100.0 a	95.7 abc	88.3 b
	MON 10	100	L	2	% v/v	PRE	A			
	Valor XLT Premix	40.3	WG	0.0504	lb ai/a	PRE	A			
	----flumioxazin	30		0.0375						
	----chlorimuron	10.3		0.0129						
6	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	PRE	A	100.0 a	99.0 a	88.7 b
	Nonionic Surfactant	100	L	0.25	% v/v	PRE	A			
	Boundary Premix	6.5	EC	1.63	lb ai/a	PRE	A			
	----s-metolachlor	5.25		1.32						
	----metribuzin	1.25		0.313						
7	MON 76832	3	SL	1.5	lb ae/a	PRE	A	100.0 a	100.0 a	100.0 a
	MON 10	100	L	2	% v/v	PRE	A			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	PRE	A			
	Tricor DF.....metribuzin	75	DF	0.3	lb ai/a	PRE	A			
8	MON 76832	3	SL	1.5	lb ae/a	PRE	A	100.0 a	99.0 a	100.0 a
	MON 10	100	L	2	% v/v	PRE	A			
	Fierce Premix	76	WG	0.143	lb ai/a	PRE	A			
	----flumioxazin	33.5		0.063						
	----pyroxasulfone	42.5		0.08						
9	Roundup PowerMax..glyphosate	4.5	AS	1.05	lb ae/a	21DAP	B		56.7 e	43.3 e
	MON 10	100	L	2	% v/v	21DAP	B			
10	MON 76832	3	SL	1.5	lb ae/a	21DAP	B		88.0 cd	86.0 bc
	MON 10	100	L	2	% v/v	21DAP	B			
11	MON 76832	3	SL	1.5	lb ae/a	21DAP	B		89.7 bcd	84.3 bc
	MON 10	100	L	2	% v/v	21DAP	B			
	Warrant.....acetochlor	3	CS	1.13	lb ai/a	21DAP	B			
12	Flexstar GT Premix	3.3	L	1.86	lb ai/a	21DAP	B		82.0 d	74.3 d
	----fomesafen	0.66		0.372						
	----glyphosate	2.64		1.49						
	Crop Oil Concentrate	100	L	0.5	% v/v	21DAP	B			

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=2
Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

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Pest Code							AMAPA	AMAPA	AMAPA
Pest Name							PalmerAm	PalmerAm	PalmerAm
Crop Code									
Crop Name									
Rating Type							Control	Control	Control
Rating Unit							%	%	%
Rating Date							07/22/14	08/05/14	08/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code		
13	Zemax Premix	3.67	SC	1.84	lb ai/a	PRE	A	100.0 a	97.7 ab	97.3 a
	----s-metolachlor	3.34		1.67					
	----mesotrione	0.33		0.165					
	Roundup PowerMax..glyphosate	4.5	AS	1.05	lb ae/a	21DAP	B		
	MON 10	100	L	2	% v/v	21DAP	B		
14	Untreated Check							0.0 b	0.0 f	0.0 f
LSD P=.05								.	8.52	7.20
Standard Deviation								0.00	5.07	4.27
CV								0.0	6.06	5.46
Replicate F								0.000	0.690	1.606
Replicate Prob(F)								1.0000	0.5109	0.2216
Treatment F								0.000	82.425	129.584
Treatment Prob(F)								1.0000	0.0001	0.0001

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Burndown for NT Soybeans

Trial ID: Soy17-14 Location: Field #18 Trial Year:
Protocol ID: Soy17-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Syngenta

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: Dynagro 39RY43 BBCH Scale: BSOY
Planting Date: 05/19/14
Planting Rate, Unit: 180000 S/A Planting Method: PLANTD planted
Depth, Unit: 1 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 15 in Emergence Date: 05/26/14
Soil Temperature, Unit: 73 F
Soil Moisture: NORMAL normal, adequate
Seed Bed: MEDTRA medium/trashy

Pest Description

Pest 1 Type: W Code: OEOLA Oenothera laciniata
Common Name: Cutleaf eveningprimrose

Pest 2 Type: W Code: CERVU Cerastium fontanum vulgare
Common Name: Mouse-ear chickweed

Pest 3 Type: W Code: ERICA Conyza canadensis
Common Name: Canada horseweed

Pest 4 Type: W Code: PLAPR Plantago purshii
Common Name: Woolly plantain

Pest 5 Type: W Code: SCRAN Scleranthus annuus
Common Name: Annual knawel

Pest 6 Type: W Code: EROCI Erodium cicutarium
Common Name: Redstem filaree

Pest 7 Type: W Code: OXAST Oxalis stricta
Common Name: Common yellow wood sorrel

Pest 8 Type: W Code: VERAR Veronica arvensis
Common Name: Corn speedwell

Pest 9 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 6 Tillage Type: NOTILL no-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Soil Description

% Sand: 83 % OM: 1.4 Texture: LS loamy sand
% Silt: 10 pH: 5.8
% Clay: 7 CEC: 4.5 Fert. Level: G good
Soil Drainage: G good

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Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal

Closest Weather Station: UDREC Distance, Unit: 0.6 mi

Application Description

	A	B	C	D
Application Date:	04/28/14	05/19/14	06/09/14	06/19/14
Appl. Stop Time:	01:50 PM	03:00 PM	10:45 AM	08:15 AM
Interval to Prev. Appl., Unit:		21 DAYS	21 DAYS	10 DAYS
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	21EPP	PRE	3WAP	5WAP
Application Placement:	BROADC	BROADC	BROADC	BROADC
Applied By:	Johnson	Johnson	Johnson	Johnson
Air Temperature, Unit:	58 F	71 F	80 F	75 F
% Relative Humidity:	49	27	63	84
Wind Velocity, Unit:	2 mph	4 mph	3 mph	2 mph
Wind Direction:	SE	N	S	S
Dew Presence (Y/N):	N no	N no	N no	Y yes
Soil Temperature, Unit:	58 F	70 F	79 F	74 F
Soil Moisture:	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover:	95	15	30	0

Crop Stage At Each Application

	A	B	C	D
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:			DESC	DESC
Stage Majority, Percent:			1-trif 60	3-trif 100
Stage Minimum, Percent:			1-trif 60	
Stage Maximum, Percent:			2-trif 40	
Height, Unit:			4 in	7 in
Height Minimum, Maximum:			2 5	4 8

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Pest Stage At Each Application

	A	B	C	D
Pest 1 Code, Type, Scale:	OEOLA W	OEOLA W	OEOLA W	OEOLA W
Stage Majority, Percent:	rosett 100	flowr 100		
Diameter, Unit:	6 in	9 in		
Height Minimum, Maximum:	4 8	8 10		
Density, Unit:	20 m2	10 m2		
Pest 2 Code, Type, Scale:	CERVU W	CERVU W	CERVU W	CERVU W
Stage Majority, Percent:	EaFlwr 100	seed 100		
Diameter, Unit:	8 in	8 in		
Height Minimum, Maximum:	6 10	6 10		
Density, Unit:	15 m2	15 m2		
Pest 3 Code, Type, Scale:	ERICA W	ERICA W	ERICA W	ERICA W
Stage Majority, Percent:	rosett 100	bolt 100	bolt 100	bolt 100
Diameter, Unit:	4 in			
Height, Unit:		6 in	6 in	8 in
Height Minimum, Maximum:	2 6	4 9	4 7	6 10
Density, Unit:	90 m2	45 m2	8 m2	8 m2
Pest 4 Code, Type, Scale:	PLAPR W	PLAPR W	PLAPR W	PLAPR W
Stage Majority, Percent:	bolt 100	seed 100		
Height, Unit:	4 in	8 in		
Height Minimum, Maximum:		7 9		
Density, Unit:	20 m2	25 m2		
Pest 5 Code, Type, Scale:	SCRAN W	SCRAN W	SCRAN W	SCRAN W
Stage Majority, Percent:	veg 100	veg 100		
Diameter, Unit:	4 in	4 in		
Density, Unit:	20 m2	40 m2		
Pest 6 Code, Type, Scale:	EROCI W	EROCI W	EROCI W	EROCI W
Stage Majority, Percent:	flowr 100	flowr 100		
Diameter, Unit:	10 in	8 in		
Height Minimum, Maximum:	6 12	6 10		
Density, Unit:	6 m2	6 m2		
Pest 7 Code, Type, Scale:	OXAST W	OXAST W	OXAST W	OXAST W
Stage Majority, Percent:	veg 100	flowr 100		
Height, Unit:	2 in	5 in		
Density, Unit:	50 m2	25 m2		
Pest 8 Code, Type, Scale:	VERAR W	VERAR W	VERAR W	VERAR W
Stage Majority, Percent:		seed		
Height, Unit:		5 in		
Density, Unit:		30 m2		
Pest 9 Code, Type, Scale:	AMAPA W	AMAPA W	AMAPA W	AMAPA W
Stage Majority, Percent:			veg 100	veg 100
Height, Unit:			4 in	8 in
Height Minimum, Maximum:			2 5	6 10
Density, Unit:			5 m2	5 m2

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Application Equipment

	A	B	C	D
Appl. Equipment:	Tractor	Tractor	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in	20 in
Boom Length, Unit:	10 ft	10 ft	10 ft	10 ft
Boom Height, Unit:	24 in	26 in	22 in	26 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	WATER	WATER	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR	COMAIR	COMAIR

Trial Comments

05/21/14: Common and mouse ear chickweed also in untreated checks; but most are senescing. Common and mouseear chickweed were not seen in any treated plots; appears all treatments provided excellent control.

Treatments 5 and 6 provided poor control of henbit and woodsorel.

05/29/14: Purslane and speedwell control is poor. Mouseear chickweed was in treatment 6 in one rep.
Mouseear chickweed, Palmer amaranth and common lambsquarters were in untreated check, but control was excellen int all treatments excpet treatment 2.

06/21/14: Palmer amaranth density was variable with fewer plants and poor growth in plots with poor horseweed control

07/07/14: Where horseweed was dense, few to no Palmer amarnath plants emerged.

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Burndown for NT Soybeans

Trial ID: Soy17-14 Location: Field #18 Trial Year:
Protocol ID: Soy17-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: Syngenta

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	ERICA Horsewd control % 05/21/14	VIORA FldPansy control % 05/21/14	ERICA Horsewd control % 05/29/14	ERICA Horsewd control % 06/21/14
1	Untreated Check							1.5 c	0.9 d	0.0 d	0.0 c
2	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	21EPP	A	61.7 b	99.5 a	70.0 c	63.3 b
	2,4-D ester	3.8	L	0.475	lb ae/a	21EPP	A				
	Crop Oil Concentrate	100	L	1	% v/v	21EPP	A				
	Flexstar GT Premix	3.3	L	1.65	lb ai/a	3WAP	C				
	----fomesafen	0.66		0.33							
	----glyphosate	2.64		1.32							
	Dry Ammonium Sulfate	100	D	1.2	% w/v	3WAP	C				
3	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	21EPP	A	63.3 b	100.0 a	85.0 b	63.3 b
	2,4-D ester	3.8	L	0.475	lb ae/a	21EPP	A				
	Crop Oil Concentrate	100	L	1	% v/v	21EPP	A				
	Boundary Premix	6.5	EC	1.02	lb ai/a	PRE	B				
	----s-metolachlor	5.25		0.82							
	----metribuzin	1.25		0.196							
	Flexstar GT Premix	3.3	L	1.65	lb ai/a	5WAP	D				
	----fomesafen	0.66		0.33							
	----glyphosate	2.64		1.32							
	Dry Ammonium Sulfate	100	D	1.2	% w/v	5WAP	D				
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	B			63.3 c	63.3 b
	Boundary Premix	6.5	EC	1.02	lb ai/a	PRE	B				
	----s-metolachlor	5.25		0.82							
	----metribuzin	1.25		0.196							
	Crop Oil Concentrate	100	L	1	% v/v	PRE	B				
	Flexstar GT Premix	3.3	L	1.65	lb ai/a	5WAP	D				
	----fomesafen	0.66		0.33							
	----glyphosate	2.64		1.32							
	Dry Ammonium Sulfate	100	D	1.2	% w/v	5WAP	D				
5	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	21EPP	A	75.0 a	60.0 b	100.0 a	96.7 a
	2,4-D ester	3.8	L	0.475	lb ae/a	21EPP	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	21EPP	A				
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	B				
	----metribuzin	64.3		0.18							
	----chlorimuron	10.7		0.03							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	B				
	30% Urea Ammonium Nitrate	100	L	5	% v/v	PRE	B				
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	5WAP	D				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	5WAP	D				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	5WAP	D				

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,2

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Pest Code							ERICA	VIORA	ERICA	ERICA
Pest Name							Horsewd	FldPansy	Horsewd	Horsewd
Rating Type							control	control	control	control
Rating Unit							%	%	%	%
Rating Date							05/21/14	05/21/14	05/29/14	06/21/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
6	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	21EPP	A	73.3 a	53.3 c	99.7 a	96.7 a
	2,4-D ester	3.8	L	0.475	lb ae/a	21EPP	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	21EPP	A				
	Linex.....linuron	4	L	0.75	lb ai/a	PRE	B				
	Classic.....chlorimuron	25	WG	0.0266	lb ai/a	PRE	B				
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	B				
	30% Urea Ammonium Nitrate	100	L	5	% v/v	PRE	B				
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	5WAP	D				
	Reflex.....fomesafen	2	L	0.375	lb ai/a	5WAP	D				
	Dry Ammonium Sulfate	100	D	1.2	% w/v	5WAP	D				
LSD P=.05								4.97	5.69	8.40	8.58
Standard Deviation								2.58	2.85	4.62	4.71
CV								4.69	4.54	6.63	7.38
Replicate F								4.995	1.512	0.094	0.430
Replicate Prob(F)								0.0449	0.2940	0.9113	0.6620
Treatment F								420.004	615.474	195.438	168.250
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Pest Code							AMAPA	ERICA	AMAPA
Pest Name							PalmerAm	Horsewd	PalmerAm
Rating Type							control	control	control
Rating Unit							%	%	%
Rating Date							06/21/14	07/07/14	07/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
1	Untreated Check							0.0 c	0.0 d	
2	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	21EPP	A	0.0 c	65.0 c	68.3 b
	2,4-D ester	3.8	L	0.475	lb ae/a	21EPP	A			
	Crop Oil Concentrate	100	L	1	% v/v	21EPP	A			
	Flexstar GT Premix	3.3	L	1.65	lb ai/a	3WAP	C			
	----fomesafen	0.66		0.33						
	----glyphosate	2.64		1.32						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	3WAP	C			
3	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	21EPP	A	66.7 b	76.0 b	81.0 b
	2,4-D ester	3.8	L	0.475	lb ae/a	21EPP	A			
	Crop Oil Concentrate	100	L	1	% v/v	21EPP	A			
	Boundary Premix	6.5	EC	1.02	lb ai/a	PRE	B			
	----s-metolachlor	5.25		0.82						
	----metribuzin	1.25		0.196						
	Flexstar GT Premix	3.3	L	1.65	lb ai/a	5WAP	D			
	----fomesafen	0.66		0.33						
	----glyphosate	2.64		1.32						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	5WAP	D			
4	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	B	96.7 a	72.0 b	95.0 a
	Boundary Premix	6.5	EC	1.02	lb ai/a	PRE	B			
	----s-metolachlor	5.25		0.82						
	----metribuzin	1.25		0.196						
	Crop Oil Concentrate	100	L	1	% v/v	PRE	B			
	Flexstar GT Premix	3.3	L	1.65	lb ai/a	5WAP	D			
	----fomesafen	0.66		0.33						
	----glyphosate	2.64		1.32						
	Dry Ammonium Sulfate	100	D	1.2	% w/v	5WAP	D			
5	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	21EPP	A	76.7 b	100.0 a	95.0 a
	2,4-D ester	3.8	L	0.475	lb ae/a	21EPP	A			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	21EPP	A			
	Canopy Premix	75	DF	0.21	lb ai/a	PRE	B			
	----metribuzin	64.3		0.18						
	----chlorimuron	10.7		0.03						
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	B			
	30% Urea Ammonium Nitrate	100	L	5	% v/v	PRE	B			
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	5WAP	D			
	Reflex.....fomesafen	2	L	0.375	lb ai/a	5WAP	D			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	5WAP	D			

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	AMAPA PalmerAm	ERICA Horsewd	AMAPA PalmerAm
	Pest Code							AMAPA	ERICA	AMAPA
	Pest Name							PalmerAm	Horsewd	PalmerAm
	Rating Type							control	control	control
	Rating Unit							%	%	%
	Rating Date							06/21/14	07/07/14	07/07/14
6	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	21EPP	A	100.0 a	99.0 a	100.0 a
	2,4-D ester	3.8	L	0.475	lb ae/a	21EPP	A			
	Dry Ammonium Sulfate	100	D	1.02	% w/v	21EPP	A			
	Linex.....linuron	4	L	0.75	lb ai/a	PRE	B			
	Classic.....chlorimuron	25	WG	0.0266	lb ai/a	PRE	B			
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	B			
	30% Urea Ammonium Nitrate	100	L	5	% v/v	PRE	B			
	Roundup WeatherMax..glyphosate	4.5	AS	1.13	lb ae/a	5WAP	D			
	Reflex.....fomesafen	2	L	0.375	lb ai/a	5WAP	D			
	Dry Ammonium Sulfate	100	D	1.2	% w/v	5WAP	D			
	LSD P=.05							15.67	4.21	13.84
	Standard Deviation							8.61	2.32	7.35
	CV							15.2	3.37	8.36
	Replicate F							1.404	3.199	1.579
	Replicate Prob(F)							0.2900	0.0844	0.2643
	Treatment F							84.135	748.547	9.409
	Treatment Prob(F)							0.0001	0.0001	0.0041

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Rescue Treatments for Palmer Amaranth

Trial ID: Soy18-14 Location: Field #14 Trial Year:
Protocol ID: Soy18-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Crop Description

Non-Crop

Pest Description

Pest 1 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth

Pest 2 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morning glory

Pest 3 Type: W Code: CHEAL Chenopodium album
Common Name: Common lambsquarters

Pest 4 Type: W Code: AMBEL Ambrosia artemisiifolia
Common Name: Common ragweed

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 8 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Soil Description

% Sand: 79 % OM: 1.4 Texture: LS loamy sand
% Silt: 14 pH: 6.1
% Clay: 7 CEC: 5.1 Fert. Level: E excellent
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.4 mi

Application Description

	A
Application Date:	06/23/14
Appl. Stop Time:	11:00 AM
Application Method:	SPRAY
Application Timing:	POST
Application Placement:	BROADC
Applied By:	VanGessl
Air Temperature, Unit:	79 F
% Relative Humidity:	38
Wind Velocity, Unit:	8 mph
Wind Direction:	SE
Dew Presence (Y/N):	N no
Soil Temperature, Unit:	78 F
Soil Moisture:	NORMAL
% Cloud Cover:	15

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Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	AMAPA W
Stage Majority, Percent:	veg 100
Height, Unit:	8 in
Height Minimum, Maximum:	6 14
Density, Unit:	50 m2
Pest 2 Code, Type, Scale:	IPOSS W
Stage Majority, Percent:	run 100
Height, Unit:	7 in
Height Minimum, Maximum:	6 8
Density, Unit:	10 m2
Pest 3 Code, Type, Scale:	CHEAL W
Stage Majority, Percent:	veg 100
Height, Unit:	4.5 in
Height Minimum, Maximum:	4 5
Density, Unit:	2 m2
Pest 4 Code, Type, Scale:	AMBEL W
Stage Majority, Percent:	veg 100
Height, Unit:	8 in
Height Minimum, Maximum:	6 10
Density, Unit:	2 m2

Application Equipment

	A
Appl. Equipment:	Backpack
Equipment Type:	SPRBAC
Operation Pressure, Unit:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	9 ft
Boom Height, Unit:	30 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/ac
Mix Size, Unit:	2 Liters
Propellant:	COMCO2

Trial Comments

07/03/14: Palmer amaranth height reflects the minimum height surviving the application.

07/11/14: Reflex and Cobra (trts 2,3, 6) were very poor on Common lambsquarters and velvetleaf. Appears to be some glyphosate-resistant plants in reps 2 and 3. Cobra and Reflex also no control of Prickly sida (trts 2,3, 6).

07/17/14: Border areas were used as untreated check comparisons.

University of Delaware

Rescue Treatments for Palmer Amaranth

Trial ID: Soy18-14 Location: Field #14 Trial Year:
Protocol ID: Soy18-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Pest Code Pest Name Rating Type Rating Unit Rating Date						AMAPA PalmerAm Regrowth % 07/03/14	IPOSS mornglry Regrowth % 07/03/14	AMAPA PalmerAm min ht inches 07/03/14	AMAPA PalmerAm Control % 07/11/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	POST	17.0 b	26.0 b	3.583 a	80.0 a
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POST				
2	Reflex.....fomesafen	2	L	0.375	lb ai/a	POST	29.3 b	27.3 b	2.167 bc	68.3 a
	Nonionic Surfactant	100	L	0.25	% v/v	POST				
3	Reflex.....fomesafen	2	L	0.375	lb ai/a	POST	23.7 b	18.3 bc	1.500 c	71.0 a
	Methylated Seed Oil	100	L	0.94	% v/v	POST				
4	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	POST	11.7 b	11.7 cd	2.750 ab	84.3 a
	Reflex.....fomesafen	2	L	0.375	lb ai/a	POST				
5	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	POST	8.0 b	1.7 d	2.250 bc	81.7 a
	Reflex.....fomesafen	2	L	0.375	lb ai/a	POST				
	Methylated Seed Oil	100	L	0.94	% v/v	POST				
6	Cobra.....lactofen	2	EC	0.195	lb ai/a	POST	56.7 a	66.7 a	1.531 c	66.7 a
	Crop Oil Concentrate	100	L	1.25	% v/v	POST				
7	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	POST	8.3 b	3.3 d	1.900 bc	83.7 a
	Dry Ammonium Sulfate	100	D	3	lb ai/a	POST				
8	Flexstar GT Premix	3.3	L	1.44	lb ai/a	POST	8.7 b	4.3 d	1.667 bc	78.3 a
	----fomesafen	0.66		0.288						
	----glyphosate	2.64		1.15						
	Methylated Seed Oil	100	L	0.94	% ai/v	POST				
LSD P=.05							21.73	11.67	1.1838	16.13
Standard Deviation							12.41	6.67	0.6711	9.21
CV							60.77	33.47	30.95	12.0
Replicate F							2.697	0.457	4.068	1.357
Replicate Prob(F)							0.1021	0.6425	0.0424	0.2893
Treatment F							5.374	30.855	3.353	1.759
Treatment Prob(F)							0.0037	0.0001	0.0286	0.1745

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=3,6

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Pest Code Pest Name Rating Type Rating Unit Rating Date						IPOSS mornglry Control % 07/11/14	AMAPA PalmerAm Control % 07/17/14	IPOSS mornglry Control % 07/17/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		
1	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	POST	70.0 b	73.3 a	76.7 a
	Dry Ammonium Sulfate	100	D	1.02	% w/v	POST			
2	Reflex.....fomesafen	2	L	0.375	lb ai/a	POST	53.3 c	71.7 a	30.0 c
	Nonionic Surfactant	100	L	0.25	% v/v	POST			
3	Reflex.....fomesafen	2	L	0.375	lb ai/a	POST	68.3 b	66.7 a	50.0 b
	Methylated Seed Oil	100	L	0.94	% v/v	POST			
4	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	POST	90.3 a	68.3 a	77.7 a
	Reflex.....fomesafen	2	L	0.375	lb ai/a	POST			
5	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	POST	89.7 a	76.7 a	83.3 a
	Reflex.....fomesafen	2	L	0.375	lb ai/a	POST			
	Methylated Seed Oil	100	L	0.94	% v/v	POST			
6	Cobra.....lactofen	2	EC	0.195	lb ai/a	POST	36.7 d	60.0 a	30.0 c
	Crop Oil Concentrate	100	L	1.25	% v/v	POST			
7	Liberty 280.....glufosinate	2.34	SL	0.66	lb ai/a	POST	84.7 a	70.0 a	81.7 a
	Dry Ammonium Sulfate	100	D	3	lb ai/a	POST			
8	Flexstar GT Premix	3.3	L	1.44	lb ai/a	POST	86.7 a	78.3 a	81.7 a
	----fomesafen	0.66		0.288					
	----glyphosate	2.64		1.15					
	Methylated Seed Oil	100	L	0.94	% ai/v	POST			
LSD P=.05							12.49	13.34	8.71
Standard Deviation							7.13	7.56	4.97
CV							9.84	10.71	7.78
Replicate F							0.789	0.055	0.673
Replicate Prob(F)							0.4733	0.9471	0.5262
Treatment F							22.207	1.787	66.801
Treatment Prob(F)							0.0001	0.1737	0.0001

University of Delaware

Non-volatile, Late-Spring Treatment of Horseweed

Trial ID: Soy19-14 Location: Field #18 Trial Year:
Protocol ID: Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: Dynagro 39RY43 BBCH Scale: BSOY
Planting Date: 05/19/14
Planting Rate, Unit: 180000 S/A Planting Method: PLANTD planted
Depth, Unit: 1 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 15 in Emergence Date: 05/26/14
Soil Temperature, Unit: 73 F
Soil Moisture: NORMAL normal, adequate
Seed Bed: MEDTRA medium/trashy

Pest Description

Pest 1 Type: W Code: ERICA Conyza canadensis
Common Name: Canada horseweed

Pest 2 Type: W Code: VIORA Viola bicolor
Common Name: Johnny-jump-up violet

Pest 3 Type: W Code: OEOLA Oenothera laciniata
Common Name: Cutleaf eveningprimrose

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 6 Tillage Type: NOTILL no-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Soil Description

% Sand: 83 % OM: 1.4 Texture: LS loamy sand
% Silt: 10 pH: 5.8
% Clay: 7 CEC: 4.5 Fert. Level: G good
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.6 mi

Application Description

	A
Application Date:	05/20/14
Appl. Stop Time:	11:30 AM
Application Method:	SPRAY
Application Timing:	Pre-plant
Application Placement:	BROADC
Applied By:	VanGessl
Air Temperature, Unit:	71 F
% Relative Humidity:	36
Wind Velocity, Unit:	2 mph
Wind Direction:	West
Dew Presence (Y/N):	N no
Soil Temperature, Unit:	70 F
Soil Moisture:	NORMAL
% Cloud Cover:	60

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Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	GLXMA BSOY

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	ERICA W
Stage Majority, Percent:	bolt 100
Height, Unit:	7 in
Height Minimum, Maximum:	5 8
Density, Unit:	12 m2
Pest 2 Code, Type, Scale:	VIORA W
Stage Majority, Percent:	flowr 100
Height, Unit:	5 in
Height Minimum, Maximum:	4 6
Density, Unit:	1 m2
Pest 3 Code, Type, Scale:	OEOLA W
Stage Majority, Percent:	flowr 100
Height, Unit:	10 in
Height Minimum, Maximum:	8 12
Density, Unit:	3 PLOT

Application Equipment

	A
Appl. Equipment:	Backpack
Equipment Type:	SPRBAC
Operation Pressure, Unit:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	9 ft
Boom Height, Unit:	24 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/ac
Mix Size, Unit:	2 Liters
Propellant:	COMCO2

Trial Comments

05/29/14: Primrose poor in trt 2,3, 4, 5. Field pansy poor for trt 3.

University of Delaware

Non-volatile, Late-Spring Treatment of Horseweed

Trial ID: Soy19-14 Location: Field #18 Trial Year:
Protocol ID: Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Pest Code Pest Name Rating Type Rating Unit Rating Date							ERICA Horsewd Control % 06/21/14	AMAPA PalmerAm Control % 06/21/14	ERICA Horsewd Control % 06/29/14	ERICA Horsewd Control % 07/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code			
1	Untreated Check							0.0 d	0.0 c	0.0 e	0.0 c
2	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Pre-plant	A	73.3 c	0.0 c	66.7 d	63.3 b
	Dry Ammonium Sulfate	100	D	1.02	% w/v	Pre-plant	A				
3	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Pre-plant	A	99.7 a	50.0 b	97.0 a	100.0 a
	Huskie Premix	2.05	EC	0.24	lb ai/a	Pre-plant	A				
	----pyrasulfotole	0.3		0.035							
	----bromoxynil	1.75		0.205							
	Dry Ammonium Sulfate	100	D	1.02	% w/v	Pre-plant	A				
4	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Pre-plant	A	92.0 a	75.0 a	96.3 a	94.3 a
	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	Pre-plant	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	Pre-plant	A				
5	Roundup PowerMax..glyphosate	4.5	AS	1.13	lb ae/a	Pre-plant	A	83.7 b	90.0 a	73.3 c	73.7 b
	Canopy Premix	75	DF	0.188	lb ai/a	Pre-plant	A				
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Dry Ammonium Sulfate	100	D	1.02	% w/v	Pre-plant	A				
6	Gramoxone SL....paraquat	2	SL	1	lb ae/a	Pre-plant	A	78.3 bc	81.0 a	85.3 b	71.7 b
	Canopy Premix	75	DF	0.188	lb ai/a	Pre-plant	A				
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
	Nonionic Surfactant	100	L	0.25	% v/v	Pre-plant	A				
	Dry Ammonium Sulfate	100	D	1.02	% w/v	Pre-plant	A				
LSD P=.05								8.21	23.87	5.59	10.97
Standard Deviation								4.51	11.37	3.07	6.03
CV								6.34	23.05	4.41	8.98
Replicate F								1.203	0.809	0.217	3.093
Replicate Prob(F)								0.3403	0.4960	0.8083	0.0900
Treatment F								192.175	37.964	417.499	105.667
Treatment Prob(F)								0.0001	0.0006	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Average=2

University of Delaware

Soybean Herbicide Carryover to Cover Crops Preemergence Herbicides

Trial ID: Soy20-14 Location: Field #14 Trial Year:
Protocol ID: Soy20-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: FMC

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: RAPSR Raphanus sativus Small radish
Variety: CCS-779 BBCH Scale: BVRT
Description: Tillage Radish

Crop 2: SECCE Secale cereale Rye
Variety: Rymin BBCH Scale: BCER
Description: Cereal Rye

Crop 3: TRFIN Trifolium incarnatum Carnation clover
Variety: Dixie reseeding BBCH Scale: BDIC
Description: Crimson Clover

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 12 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/30/14	Roundup	4.5	AS	1	QT/A

Soil Description

% Sand: 79 % OM: 1.4 Texture: LS loamy sand
% Silt: 14 pH: 6.1
% Clay: 7 CEC: 5.1 Fert. Level: E excellent
Soil Drainage: F fair

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.5 mi

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Application Description

	A
Application Date:	05/30/14
Appl. Stop Time:	08:30 AM
Application Method:	SPRAY
Application Timing:	PRE
Application Placement:	BROADC
Applied By:	Johnson
Air Temperature, Unit:	59 F
% Relative Humidity:	81
Wind Velocity, Unit:	1 mph
Wind Direction:	NE
Dew Presence (Y/N):	Y yes
Soil Temperature, Unit:	59 F
Soil Moisture:	NORMAL
% Cloud Cover:	100

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	RAPSR BVRT
Crop 2 Code, BBCH Scale:	SECCE BCER
Crop 3 Code, BBCH Scale:	TRFIN BDIC

Application Equipment

	A
Appl. Equipment:	Tractor
Equipment Type:	TRMOSP
Operation Pressure, Unit:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	10 ft
Boom Height, Unit:	18 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/ac
Mix Size, Unit:	0.7 Gallons
Propellant:	COMAIR

Trial Comments

07/01/14: Annual grass control was good to excellent except where noted: Goosegrass control was fair to good with Authority MTZ; Large crabgrass control was fair to good with Authority MTZ (both rates), Authority XL (both rates), Authority First (both rates), and Canopy; Prickly sida control was poor with Authority MTZ (both rates), Authority XL (both rates), Authority First (both rates), Authority Elite, and Canopy.

07/17/14: Ratings taken after glyphosate application. Control based on weed size in border areas adjacent to the trial.

11/10/14: More water was in the last rep throughout the season and it may be why there is less injury in rep 3.

04/28/15: Treatment 5 clover stunting - noticeable effect. Treatment 10 clover injury - noticeable effect. Treatment 11 slight clover injury. Clover in 1st range of Rep 3 (301 - 306) all gone - no clover. Rye does not appear to be affected by herbicide treatments.

University of Delaware

Soybean Herbicide Carryover to Cover Crops Preemergence Herbicides

Trial ID: Soy20-14 Location: Field #14 Trial Year:
Protocol ID: Soy20-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: FMC

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	ABUTH velvetlf	AMAPA PalmerAm	AMBEL C.ragwd	CHEAL C.lmsqtr	IPOSS mornglry	MOLVE carpetwd
	Crop Code											
	Crop Name											
	Rating Type						Control	Control	Control	Control	Control	Control
	Rating Unit						%	%	%	%	%	%
	Rating Date						07/01/14	07/01/14	07/01/14	07/01/14	07/01/14	07/01/14
1	Untreated Check						0.0 b	0.0 c	0.0 d	0.0 b	0.0 e	0.0 c
2	Authority MTZ Premix	45	DF	0.28	lb ai/a	PRE	100.0 a	87.0 b	73.3 bc	100.0 a	63.3 bc	100.0 a
	----sulfentrazone	18		0.112								
	----metribuzin	27		0.168								
3	Authority MTZ Premix	45	DF	0.394	lb ai/a	PRE	100.0 a	95.3 ab	63.3 c	100.0 a	63.3 bc	100.0 a
	----sulfentrazone	18		0.158								
	----metribuzin	27		0.236								
4	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	100.0 a	95.3 ab	100.0 a	100.0 a	74.3 ab	100.0 a
	----sulfentrazone	62.2		0.156								
	----chlorimuron	7.8		0.0195								
5	Authority XL Premix	70	DG	0.263	lb ai/a	PRE	92.7 a	99.0 a	100.0 a	100.0 a	75.3 ab	100.0 a
	----sulfentrazone	62.2		0.234								
	----chlorimuron	7.8		0.0293								
6	Authority First Premix	70	DF	0.175	lb ai/a	PRE	100.0 a	100.0 a	96.0 ab	100.0 a	71.7 abc	100.0 a
	----sulfentrazone	62.1		0.155								
	----cloransulam	7.9		0.0198								
7	Authority First Premix	70	DF	0.28	lb ai/a	PRE	96.0 a	100.0 a	95.0 ab	100.0 a	74.3 ab	100.0 a
	----sulfentrazone	62.1		0.248								
	----cloransulam	7.9		0.0316								
8	Authority Maxx Premix	72	DG	0.36	lb ai/a	PRE	100.0 a	97.7 a	100.0 a	100.0 a	81.0 a	100.0 a
	----sulfentrazone	68		0.34								
	----chlorimuron	4		0.02								
9	Authority Elite Premix	7	EC	1.53	lb ai/a	PRE	95.0 a	100.0 a	60.0 c	100.0 a	58.3 c	99.0 b
	----sulfentrazone	0.7		0.153								
	----s-metolachlor	6.3		1.38								
10	Valor XLT Premix	40.3	WG	0.086	lb ai/a	PRE	100.0 a	100.0 a	100.0 a	100.0 a	79.3 a	100.0 a
	----flumioxazin	30		0.064								
	----chlorimuron	10.3		0.022								
11	Fierce Premix	76	WG	0.178	lb ai/a	PRE	100.0 a	100.0 a	100.0 a	100.0 a	36.7 d	100.0 a
	----flumioxazin	33.5		0.0785								
	----pyroxasulfone	42.5		0.1								

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) for columns 4 because error mean square = 0.

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| Pest Code | | |

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	XANST cocklbr	ABUTH velvetlf	AMAPA PalmerAm	AMBEL C.ragwd	IPOSS mornglry	TRFIN CrimClvr BiomRed
	Pest Code						XANST	ABUTH	AMAPA	AMBEL	IPOSS	
	Pest Name						cocklbr	velvetlf	PalmerAm	C.ragwd	mornglry	
	Crop Code											TRFIN
	Crop Name											CrimClvr
	Rating Type						Control	Control	Control	Control	Control	BiomRed
	Rating Unit						%	%	%	%	%	%
	Rating Date						07/01/14	07/17/14	07/17/14	07/17/14	07/17/14	10/10/14
1	Untreated Check						0.0 d	68.3 b	68.3 b	98.3 a	63.3 e	0.0 d
2	Authority MTZ Premix	45	DF	0.28	lb ai/a	PRE	43.3 c	100.0 a	100.0 a	100.0 a	75.0 cde	17.7 bcd
	----sulfentrazone	18		0.112								
	----metribuzin	27		0.168								
3	Authority MTZ Premix	45	DF	0.394	lb ai/a	PRE	82.7 ab	100.0 a	100.0 a	95.0 a	82.3 abc	26.7 ab
	----sulfentrazone	18		0.158								
	----metribuzin	27		0.236								
4	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	91.0 a	100.0 a	100.0 a	100.0 a	87.7 abc	27.3 ab
	----sulfentrazone	62.2		0.156								
	----chlorimuron	7.8		0.0195								
5	Authority XL Premix	70	DG	0.263	lb ai/a	PRE	76.7 abc	100.0 a	100.0 a	100.0 a	87.7 abc	31.7 ab
	----sulfentrazone	62.2		0.234								
	----chlorimuron	7.8		0.0293								
6	Authority First Premix	70	DF	0.175	lb ai/a	PRE	90.0 ab	100.0 a	100.0 a	100.0 a	87.7 abc	15.7 bcd
	----sulfentrazone	62.1		0.155								
	----cloransulam	7.9		0.0198								
7	Authority First Premix	70	DF	0.28	lb ai/a	PRE	73.3 abc	100.0 a	100.0 a	100.0 a	87.7 abc	40.0 a
	----sulfentrazone	62.1		0.248								
	----cloransulam	7.9		0.0316								
8	Authority Maxx Premix	72	DG	0.36	lb ai/a	PRE	91.7 a	100.0 a	100.0 a	100.0 a	83.3 abc	25.0 abc
	----sulfentrazone	68		0.34								
	----chlorimuron	4		0.02								
9	Authority Elite Premix	7	EC	1.53	lb ai/a	PRE	66.7 abc	99.0 a	100.0 a	100.0 a	80.0 bcd	8.3 cd
	----sulfentrazone	0.7		0.153								
	----s-metolachlor	6.3		1.38								
10	Valor XLT Premix	40.3	WG	0.086	lb ai/a	PRE	90.0 ab	100.0 a	100.0 a	100.0 a	90.0 ab	24.0 abc
	----flumioxazin	30		0.064								
	----chlorimuron	10.3		0.022								
11	Fierce Premix	76	WG	0.178	lb ai/a	PRE	53.3 bc	100.0 a	100.0 a	100.0 a	66.7 de	19.0 bc
	----flumioxazin	33.5		0.0785								
	----pyroxasulfone	42.5		0.1								

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Pest Code						XANST	ABUTH	AMAPA	AMBEL	IPOSS	
Pest Name						cocklbr	velvetlf	PalmerAm	C.ragwd	mornglry	
Crop Code											TRFIN
Crop Name											CrimClvr
Rating Type						Control	Control	Control	Control	Control	BiomRed
Rating Unit						%	%	%	%	%	%
Rating Date						07/01/14	07/17/14	07/17/14	07/17/14	07/17/14	10/10/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
12	Canopy Premix	75	DF	0.188	lb ai/a	PRE	83.3 ab	100.0 a	100.0 a	100.0 a	94.3 a	20.0 bc
	----metribuzin	64.3		0.161								
	----chlorimuron	10.7		0.0268								
LSD P=.05							36.74	3.84	3.73	4.34	13.57	17.81
Standard Deviation							21.70	2.27	2.20	2.56	8.01	10.52
CV							30.92	2.33	2.26	2.58	9.75	49.44
Replicate F							2.663	0.912	1.000	1.692	7.339	0.929
Replicate Prob(F)							0.0921	0.4165	0.3840	0.2072	0.0036	0.4100
Treatment F							4.636	48.457	51.571	1.000	4.176	3.000
Treatment Prob(F)							0.0011	0.0001	0.0001	0.4767	0.0021	0.0136

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Pest Code Pest Name Crop Code Crop Name Rating Type Rating Unit Rating Date							RAPSR TillRad BiomRed % 10/10/14	SECCE Rye BiomRed % 10/10/14	TRFIN CrimClvr Stunting % 11/10/14	RAPSR TillRad Stunting % 11/10/14	SECCE Rye Stunting % 11/10/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated Check						0.0 e	0.0 e	0.0 e	0.0 e	0.0 c
2	Authority MTZ Premix	45	DF	0.28	lb ai/a	PRE	6.7 de	2.3 de	12.3 cd	8.7 cd	0.0 c
	----sulfentrazone	18		0.112							
	----metribuzin	27		0.168							
3	Authority MTZ Premix	45	DF	0.394	lb ai/a	PRE	10.7 de	13.3 a	13.0 bc	11.7 abc	4.0 ab
	----sulfentrazone	18		0.158							
	----metribuzin	27		0.236							
4	Authority XL Premix	70	DG	0.175	lb ai/a	PRE	16.7 bcd	3.3 cde	15.0 abc	11.3 bc	2.3 bc
	----sulfentrazone	62.2		0.156							
	----chlorimuron	7.8		0.0195							
5	Authority XL Premix	70	DG	0.263	lb ai/a	PRE	28.3 a	10.7 abc	23.3 a	15.7 a	6.3 a
	----sulfentrazone	62.2		0.234							
	----chlorimuron	7.8		0.0293							
6	Authority First Premix	70	DF	0.175	lb ai/a	PRE	18.0 a-d	13.3 a	12.3 cd	13.3 ab	4.7 ab
	----sulfentrazone	62.1		0.155							
	----cloransulam	7.9		0.0198							
7	Authority First Premix	70	DF	0.28	lb ai/a	PRE	23.3 abc	15.0 a	21.7 ab	8.0 cd	0.0 c
	----sulfentrazone	62.1		0.248							
	----cloransulam	7.9		0.0316							
8	Authority Maxx Premix	72	DG	0.36	lb ai/a	PRE	25.0 ab	10.7 abc	23.3 a	9.7 bcd	0.0 c
	----sulfentrazone	68		0.34							
	----chlorimuron	4		0.02							
9	Authority Elite Premix	7	EC	1.53	lb ai/a	PRE	13.3 cd	12.3 ab	0.0 e	7.0 d	0.0 c
	----sulfentrazone	0.7		0.153							
	----s-metolachlor	6.3		1.38							
10	Valor XLT Premix	40.3	WG	0.086	lb ai/a	PRE	10.3 de	4.0 cde	15.7 abc	7.0 d	0.0 c
	----flumioxazin	30		0.064							
	----chlorimuron	10.3		0.022							
11	Fierce Premix	76	WG	0.178	lb ai/a	PRE	7.3 de	5.7 b-e	4.0 de	2.3 e	0.0 c
	----flumioxazin	33.5		0.0785							
	----pyroxasulfone	42.5		0.1							

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Pest Code										
Pest Name										
Crop Code							RAPSR	SECCE	TRFIN	RAPSR	SECCE
Crop Name							TillRad	Rye	CrimClvr	TillRad	Rye
Rating Type							BiomRed	BiomRed	Stunting	Stunting	Stunting
Rating Unit							%	%	%	%	%
Rating Date							10/10/14	10/10/14	11/10/14	11/10/14	11/10/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
12	Canopy Premix	75	DF	0.188	lb ai/a	PRE	12.3 cd	8.0 a-d	16.7 abc	15.7 a	0.0 c
	----metribuzin	64.3		0.161							
	----chlorimuron	10.7		0.0268							
LSD P=.05							11.47	7.48	8.76	4.33	3.20
Standard Deviation							6.77	4.42	5.18	2.56	1.89
CV							47.24	53.76	39.47	27.82	130.87
Replicate F							0.056	2.395	0.138	3.469	2.153
Replicate Prob(F)							0.9454	0.1146	0.8719	0.0491	0.1399
Treatment F							4.504	3.876	7.463	10.619	4.449
Treatment Prob(F)							0.0013	0.0033	0.0001	0.0001	0.0014

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Gramoxone plus Residual Herbicides for Soybeans

Trial ID: Soy22-14 Cooperator:
Location: Field #32 Investigator: Mark VanGessel

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horsenettle	SOLCA	Solanum carolinense L.
2.	Yellow Nutsedge	CYPES	Cyperus esculentus L.
3.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.
4.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

Crop 1: Soybean GLXMA Variety: Dyn 39RY43
Planting Date: 06/03/14 Planting Method: Row- Unit Planter Depth: 1 in
Rate: 180000 Sd/A Row Spacing: 15 in Seed Bed: Medium/Trashy
Soil Temperature: 88 F Soil Moisture: Moist Emergence Date: 06/09/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: FACTORIAL
Tillage Type: No Tillage

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/21/14	Roundup PowerMax	4.5	AS	2	qt/A
2.	04/21/14	2,4-D ester	3.8	L	1	pt/A
3.	07/09/14	Touchdown Total	4.17	SL	30	fl oz/A
4.	07/09/14	Reflex	2	L	1.5	pt/A

SOIL DESCRIPTION

% Sand: 81 % OM: 1.8 Texture: loamy sand
% Silt: 10 pH: 6.1
% Clay: 9 CEC: 6.0 Fert. Level: Optimum

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	06/04/14
Time of Day:	11:40 am
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	81 F
% Relative Humidity:	58
Wind Velocity, Unit:	2 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	81 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Mst-Dry
Leaf Surf. Moisture:	Dry
% Cloud Cover:	30

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	SOLCA
Growth Stage:	veg-eaFlwr
Height, Unit:	8 in
Density,Unit:	0-40 m2
Weed 2 Code:	CYPES
Growth Stage:	vegetative
Height, Unit:	8 in
Density,Unit:	0-40 m2
Weed 3 Code:	DIGSA
Growth Stage:	2-3 tiller
Height, Unit:	4 in
Density,Unit:	0-25 m2
Weed 4 Code:	AMAPA
Growth Stage:	vegetative
Height, Unit:	4 in
Density,Unit:	0-16 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	26 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

06/30/14: Ratings based on burndown control. No new emergence of Palmer amaranth or grass species. Some morningglory seedlings observed, but they were not rated.

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Gramoxone plus Residual Herbicides for Soybeans

Trial ID: Soy22-14 Cooperator:
Location: Field #32 Investigator: Mark VanGessel

Weed Code									AMAPA	DIGSA	PANDI	GLXMA
Crop Code												
Weed or Crop Name									Palmer	Large	Fall	Soybean
Weed or Crop Name									Amaranth	Crabgras	Panicum	
Rating Data Type									Control	Control	Control	Yield
Rating Unit									%	%	%	Bu/A
Rating Date									06/30/14	06/30/14	06/30/14	10/27/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Canopy Premix	75	DF	0.187	lb ai/a	PRE	A		100.0 a	71.7 ab	56.7 b	43.9 a
	----metribuzin	64.3		0.16								
	----chlorimuron	10.7		0.0267								
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A					
	No Gramoxone	2	SL									
2	Canopy Premix	75	DF	0.187	lb ai/a	PRE	A		100.0 a	100.0 a	100.0 a	43.6 a
	----metribuzin	64.3		0.16								
	----chlorimuron	10.7		0.0267								
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A					
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	PRE	A					
3	Canopy Premix	75	DF	0.187	lb ai/a	PRE	A		100.0 a	100.0 a	100.0 a	39.0 a
	----metribuzin	64.3		0.16								
	----chlorimuron	10.7		0.0267								
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	A					
4	Valor XLT Premix	40.3	WG	0.091	lb ai/a	PRE	A		100.0 a	98.1 a	43.3 c	39.7 a
	----flumioxazin	30		0.068								
	----chlorimuron	10.3		0.0233								
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A					
	No Gramoxone	2	SL									
5	Valor XLT Premix	40.3	WG	0.091	lb ai/a	PRE	A		100.0 a	86.7 ab	100.0 a	45.4 a
	----flumioxazin	30		0.068								
	----chlorimuron	10.3		0.0233								
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A					
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	PRE	A					
6	Valor XLT Premix	40.3	WG	0.091	lb ai/a	PRE	A		100.0 a	100.0 a	100.0 a	44.9 a
	----flumioxazin	30		0.068								
	----chlorimuron	10.3		0.0233								
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	A					
7	Authority XL Premix	70	DG	0.21	lb ai/a	PRE	A		100.0 a	56.7 b	56.7 b	40.5 a
	----sulfentrazone	62.2		0.187								
	----chlorimuron	7.8		0.0234								
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A					
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A					
	No Gramoxone	2	SL									

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=2
Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	AMAPA	DIGSA	PANDI	GLXMA
	Weed Code							AMAPA	DIGSA	PANDI	
	Crop Code										GLXMA
	Weed or Crop Name							Palmer	Large	Fall	Soybean
	Weed or Crop Name							Amaranth	Crabgras	Panicum	
	Rating Data Type							Control	Control	Control	Yield
	Rating Unit							%	%	%	Bu/A
	Rating Date							06/30/14	06/30/14	06/30/14	10/27/14
8	Authority XL Premix	70	DG	0.21	lb ai/a	PRE	A	100.0 a	80.0 ab	95.0 a	43.8 a
	----sulfentrazone	62.2		0.187							
	----chlorimuron	7.8		0.0234							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	PRE	A				
9	Authority XL Premix	70	DG	0.21	lb ai/a	PRE	A	100.0 a	95.0 a	100.0 a	41.4 a
	----sulfentrazone	62.2		0.187							
	----chlorimuron	7.8		0.0234							
	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	A				
10	Untreated Check							0.0 b	0.0 c	0.0 d	37.2 a
	LSD P=.05							.	31.25	10.68	8.65
	Standard Deviation							0.00	18.14	6.23	5.04
	CV							0.0	23.02	8.29	12.02
	Replicate F							0.000	0.574	0.666	12.036
	Replicate Prob(F)							1.0000	0.5736	0.5260	0.0005
	Treatment F							0.000	8.908	93.005	0.908
	Treatment Prob(F)							1.0000	0.0001	0.0001	0.5394

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Gramoxone plus Residual Herbicides for Soybeans

Trial ID: Soy22-14 Cooperator:
Location: Field #32 Investigator: Mark VanGessel

Weed Code							AMAPA	DIGSA	PANDI	GLXMA
Crop Code										
Weed or Crop Name							Palmer	Large	Fall	Soybean
Weed or Crop Name							Amaranth	Crabgras	Panicum	
Rating Data Type							Control	Control	Control	Yield
Rating Unit							%	%	%	Bu/A
Rating Date							06/30/14	06/30/14	06/30/14	10/27/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
TABLE OF R MEANS											
Replicate 1								100.0	83.2	85.6	47.8
Replicate 2								100.0	86.7	82.8	42.5
Replicate 3								100.0	92.8	82.2	37.1
TABLE OF A (Residual herbicide)		MEANS									
1	Canopy Premix	75	DF	0.187	lb ai/a	PRE	A	100.0 a	90.6 a	85.6 a	42.2 a
1	----metribuzin	64.3		0.16							
1	----chlorimuron	10.7		0.0267							
1	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
1	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
2	Valor XLT Premix	40.3	WG	0.091	lb ai/a	PRE	A	100.0 a	94.9 a	81.1 a	43.3 a
2	----flumioxazin	30		0.068							
2	----chlorimuron	10.3		0.0233							
2	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
2	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
3	Authority XL Premix	70	DG	0.21	lb ai/a	PRE	A	100.0 a	77.2 a	83.9 a	41.9 a
3	----sulfentrazone	62.2		0.187							
3	----chlorimuron	7.8		0.0234							
3	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
3	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
LSD P=.05								.	19.33	6.57	5.31
Standard Deviation								0.00	19.24	6.58	5.31
CV								0.00	21.97	7.88	12.51
TABLE OF B (Addition of paraquat)		MEANS									
1	No Gramoxone	2	SL					100.0 a	75.5 a	52.2 b	41.4 a
2	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	PRE	A	100.0 a	88.9 a	98.3 a	44.3 a
3	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	A	100.0 a	98.3 a	100.0 a	41.8 a
LSD P=.05								.	19.33	6.57	5.31
Standard Deviation								0.00	19.24	6.58	5.31
CV								0.00	21.97	7.88	12.51
TABLE OF A (Residual herbicide) B (Addition of paraquat)							MEANS				
1	Canopy Premix	75	DF	0.187	lb ai/a	PRE	A	100.0 a	71.7 a	56.7 a	43.9 a
1	----metribuzin	64.3		0.16							
1	----chlorimuron	10.7		0.0267							
1	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
1	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
1	No Gramoxone	2	SL								
2	Valor XLT Premix	40.3	WG	0.091	lb ai/a	PRE	A	100.0 a	98.1 a	43.3 a	39.7 a
2	----flumioxazin	30		0.068							
2	----chlorimuron	10.3		0.0233							
2	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
2	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
1	No Gramoxone	2	SL								

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Weed Code							AMAPA	DIGSA	PANDI	
Crop Code										GLXMA
Weed or Crop Name							Palmer	Large	Fall	Soybean
Weed or Crop Name							Amaranth	Crabgras	Panicum	
Rating Data Type							Control	Control	Control	Yield
Rating Unit							%	%	%	Bu/A
Rating Date							06/30/14	06/30/14	06/30/14	10/27/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
3	Authority XL Premix	70	DG	0.21	lb ai/a	PRE	A	100.0 a	56.7 a	56.7 a	40.5 a
3	----sulfentrazone	62.2		0.187							
3	----chlorimuron	7.8		0.0234							
3	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
3	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
1	No Gramoxone	2	SL								
1	Canopy Premix	75	DF	0.187	lb ai/a	PRE	A	100.0 a	100.0 a	100.0 a	43.6 a
1	----metribuzin	64.3		0.16							
1	----chlorimuron	10.7		0.0267							
1	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
1	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
2	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	PRE	A				
2	Valor XLT Premix	40.3	WG	0.091	lb ai/a	PRE	A	100.0 a	86.7 a	100.0 a	45.4 a
2	----flumioxazin	30		0.068							
2	----chlorimuron	10.3		0.0233							
2	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
2	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
2	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	PRE	A				
3	Authority XL Premix	70	DG	0.21	lb ai/a	PRE	A	100.0 a	80.0 a	95.0 a	43.8 a
3	----sulfentrazone	62.2		0.187							
3	----chlorimuron	7.8		0.0234							
3	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
3	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
2	Gramoxone SL....paraquat	2	SL	0.5	lb ai/a	PRE	A				
1	Canopy Premix	75	DF	0.187	lb ai/a	PRE	A	100.0 a	100.0 a	100.0 a	39.0 a
1	----metribuzin	64.3		0.16							
1	----chlorimuron	10.7		0.0267							
1	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
1	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
3	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	A				
2	Valor XLT Premix	40.3	WG	0.091	lb ai/a	PRE	A	100.0 a	100.0 a	100.0 a	44.9 a
2	----flumioxazin	30		0.068							
2	----chlorimuron	10.3		0.0233							
2	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
2	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
3	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	A				
3	Authority XL Premix	70	DG	0.21	lb ai/a	PRE	A	100.0 a	95.0 a	100.0 a	41.4 a
3	----sulfentrazone	62.2		0.187							
3	----chlorimuron	7.8		0.0234							
3	Crop Oil Concentrate	100	L	1.25	% v/v	PRE	A				
3	30% Urea Ammonium Nitrate	100	L	2	% v/v	PRE	A				
3	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	PRE	A				
LSD P=.05								.	33.48	11.39	9.20
Standard Deviation								0.00	19.24	6.58	5.31
CV								0.00	21.97	7.88	12.51

FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 06/30/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	26	0.000000				
R	2	0.000000	0.000000	0.000	1.0000	
A	2	0.000000	0.000000	0.000	1.0000	.
B	2	0.000000	0.000000	0.000	1.0000	.
AB	4	0.000000	0.000000	0.000	1.0000	.
ERROR	16	0.000000	0.000000			

FACTORIAL/POOLED ERROR AOV For DIGSA Large Crabgras Control % 06/30/14 Missing values in column 2 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	25	11656.841564				
R	2	420.113169	210.056584	0.567	0.5787	
A	2	1528.446502	764.223251	2.065	0.1614	19.3
B	2	2377.520576	1188.760288	3.211	0.0690	19.3
AB	4	1778.189300	444.547325	1.201	0.3509	33.5
ERROR	15	5552.572016	370.171468			

FACTORIAL/POOLED ERROR AOV For PANDI Fall Panicum Control % 06/30/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	26	14390.740741				
R	2	57.407407	28.703704	0.663	0.5289	
A	2	90.740741	45.370370	1.048	0.3735	6.6
B	2	13235.185185	6617.592593	152.877	0.0001	6.6
AB	4	314.814815	78.703704	1.818	0.1747	11.4
ERROR	16	692.592593	43.287037			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 10/27/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	26	1100.534612				
R	2	515.053839	257.526919	9.123	0.0023	
A	2	10.619005	5.309502	0.188	0.8303	5.3
B	2	44.208721	22.104361	0.783	0.4738	5.3
AB	4	79.006103	19.751526	0.700	0.6033	9.2
ERROR	16	451.646945	28.227934			

University of Delaware

Increasing Lima Bean Safety from Spartan Charge

Trial ID: Bean2-14 Location: Field #4 Trial Year:
Protocol ID: Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: FMC

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: PHSLU Phaseolus lunatus Lima bean
Variety: Cypress BBCH Scale: BVBE
Planting Date: 06/06/14
Planting Rate, Unit: 4 S/ROWFT Planting Method: PLANTD planted
Depth, Unit: 1 in Planting Equipment: PP Plot Planter
Row Spacing, Unit: 30 in Emergence Date: 06/10/14
Soil Temperature, Unit: 78 F
Soil Moisture: NORMAL normal, adequate
Seed Bed: MEDIUM medium

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 14 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: FACTOR Factorial

Soil Description

% Sand: 79 % OM: 2.0 Texture: SL sandy loam
% Silt: 11 pH: 5.6
% Clay: 10 CEC: 6.0 Fert. Level: E excellent
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.3 mi

Application Description

	A	B	C	D
Application Date:	05/28/14	06/06/14	06/06/14	06/09/14
Appl. Stop Time:	01:00 PM	09:30 AM	04:00 PM	10:30 AM
Interval to Prev. Appl., Unit:		9 DAYS	9 DAYS	3 DAYS
Application Method:	SPRINC	SPRINC	SPRAY	SPRAY
Application Timing:	PPI-7days	PPI	PRE	DPRE
Application Placement:	BROSOI	BROSOI	BROSOI	BROSOI
Applied By:	Johnson	Johnson	Johnson	Johnson
Air Temperature, Unit:	76 F	71 F	77 F	80 F
% Relative Humidity:	74	53	40	63
Wind Velocity, Unit:	3 mph	2 mph	2 mph	3 mph
Wind Direction:	SE	NE	NE	S
Dew Presence (Y/N):	N no	N no	N no	N no
Soil Temperature, Unit:	77 F	70 F	77 F	79 F
Soil Moisture:	NORMAL	NORMAL	NORMAL	NORMAL
% Cloud Cover:	100	50	20	30

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Crop Stage At Each Application

	A	B	C	D
Crop 1 Code, BBCH Scale:	PHSLU BVBE	PHSLU BVBE	PHSLU BVBE	PHSLU BVBE

Application Equipment

	A	B	C	D
Appl. Equipment:	Tractor	Tractor	Tractor	Tractor
Equipment Type:	TRMOSP	TRMOSP	TRMOSP	TRMOSP
Operation Pressure, Unit:	40 psi	40 psi	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in	20 in
Boom Length, Unit:	10 ft	10 ft	10 ft	10 ft
Boom Height, Unit:	18 in	18 in	18 in	18 in
Ground Speed, Unit:	3 mph	3 mph	3 mph	3 mph
Carrier:	WATER	WATER	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons	0.7 Gallons	0.7 Gallons
Propellant:	COMAIR	COMAIR	COMAIR	COMAIR

Trial Comments

07/07/14: watering with the gun to create soil splashing was not uniform over the trial. Added to the variablity in data.

07/11/14: PPI 7 days preplant reduced weed control by 73%. PPI vs PRE very similiar although grass control appears to be slightly lower if applied PPI.

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Increasing Lima Bean Safety from Spartan Charge

Trial ID: Bean2-14 Location: Field #4 Trial Year:
Protocol ID: Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: FMC

Crop Code Crop Name Rating Type Rating Unit Rating Date						PHSLU Lima StdCtTot #normal 06/20/14	PHSLU Lima StdCtTot #injured 06/20/14	PHSLU Lima StdCtTot #sev inj 06/20/14	PHSLU Lima Stunting % 06/20/14	PHSLU Lima Stunting % 07/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code				
1	Spartan Charge Premix	3.5	F	0.103	lb ai/a	A	64 abc	7 a-d	4 a-d	21.7 cde	5.7 def
	----carfentrazone	0.35		0.0103							
	----sulfentrazone	3.15		0.093							
	PPI - 7 Days Pre-Plant										
2	Spartan Charge Premix	3.5	F	0.103	lb ai/a	B	67 a	4 bcd	2 cde	16.7 de	7.0 de
	----carfentrazone	0.35		0.0103							
	----sulfentrazone	3.15		0.093							
	PPI - at Planting										
3	Spartan Charge Premix	3.5	F	0.103	lb ai/a	C	50 ef	12 a	5 a-d	40.0 ab	15.0 abc
	----carfentrazone	0.35		0.0103							
	----sulfentrazone	3.15		0.093							
	PRE - at Planting										
4	Spartan Charge Premix	3.5	F	0.103	lb ai/a	D	40 f	10 a	9 a	46.7 a	21.7 a
	----carfentrazone	0.35		0.0103							
	----sulfentrazone	3.15		0.093							
	DPRE - 2 to 3 days PostPlant										
5	Spartan Charge Premix	3.5	F	0.085	lb ai/a	A	64 ab	5 bcd	2 de	20.7 de	5.7 def
	----carfentrazone	0.35		0.0085							
	----sulfentrazone	3.15		0.0765							
	PPI - 7 Days Pre-Plant										
6	Spartan Charge Premix	3.5	F	0.085	lb ai/a	B	53 b-e	7 a-d	8 a	24.7 cd	14.7 bc
	----carfentrazone	0.35		0.0085							
	----sulfentrazone	3.15		0.0765							
	PPI - at Planting										
7	Spartan Charge Premix	3.5	F	0.085	lb ai/a	C	52 c-f	12 a	6 abc	35.0 abc	15.7 abc
	----carfentrazone	0.35		0.0085							
	----sulfentrazone	3.15		0.0765							
	PRE - at Planting										
8	Spartan Charge Premix	3.5	F	0.085	lb ai/a	D	51 def	9 ab	7 ab	46.7 a	18.3 ab
	----carfentrazone	0.35		0.0085							
	----sulfentrazone	3.15		0.0765							
	DPRE - 2 to 3 days PostPlant										
9	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	A	64 abc	3 d	1 e	13.0 def	2.3 ef
	----carfentrazone	0.35		0.00684							
	----sulfentrazone	3.15		0.0616							
	PPI - 7 Days Pre-Plant										
10	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	B	60 a-e	7 a-d	2 de	8.0 ef	4.7 def
	----carfentrazone	0.35		0.00684							
	----sulfentrazone	3.15		0.0616							
	PPI - at Planting										

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
t=Mean descriptions are reported in transformed data units, and are not de-transformed.
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=14,15

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Crop Code						PHSLU	PHSLU	PHSLU	PHSLU	PHSLU
Crop Name						Lima	Lima	Lima	Lima	Lima
Rating Type						StdCtTot	StdCtTot	StdCtTot	Stunting	Stunting
Rating Unit						#normal	#injured	#sev inj	%	%
Rating Date						06/20/14	06/20/14	06/20/14	06/20/14	07/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code				
11	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	C	60 a-e	8 ab	3 b-e	22.3 cd	10.7 cd
	----carfentrazone	0.35		0.00684							
	----sulfentrazone	3.15		0.0616							
	PRE - at Planting										
12	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	D	53 b-e	7 abc	4 a-d	26.7 bcd	15.7 abc
	----carfentrazone	0.35		0.00684							
	----sulfentrazone	3.15		0.0616							
	DPRE - 2 to 3 days PostPlant										
13	Untreated Check						69 a	3 cd	1 e	0.0 f	0.0 f
14	Hand-Weeded Check						63 a-d	4 bcd	1 e	0.0 f	0.0 f
LSD P=.05							12.1	4.5 - 6.0	2.1 - 5.9	13.76	7.00
Standard Deviation							7.2	0.6t	0.2t	8.20	4.17
CV							12.45	21.79t	35.85t	35.66	42.59
Replicate F							2.310	0.322	3.631	5.462	0.374
Replicate Prob(F)							0.1193	0.7274	0.0407	0.0105	0.6915
Treatment F							3.851	2.791	4.506	10.295	8.636
Treatment Prob(F)							0.0017	0.0125	0.0005	0.0001	0.0001

Crop Code Crop Name Rating Type Rating Unit Rating Date						PHSLU Lima %Stunting distb 07/11/14	PHSLU Lima %Stunting undistb 07/11/14	PHSLU Lima %Stunting tilled 07/18/14	PHSLU Lima %Stunting notill 07/18/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code			
1	Spartan Charge Premix	3.5	F	0.103	lb ai/a	A	14.0 abc	5.7 cd	8.0 b-e	4.0 a
	----carfentrazone	0.35		0.0103						
	----sulfentrazone	3.15		0.093						
	PPI - 7 Days Pre-Plant									
2	Spartan Charge Premix	3.5	F	0.103	lb ai/a	B	6.7 cd	6.3 cd	7.3 b-e	6.7 a
	----carfentrazone	0.35		0.0103						
	----sulfentrazone	3.15		0.093						
	PPI - at Planting									
3	Spartan Charge Premix	3.5	F	0.103	lb ai/a	C	10.3 bcd	8.7 bc	3.3 de	7.3 a
	----carfentrazone	0.35		0.0103						
	----sulfentrazone	3.15		0.093						
	PRE - at Planting									
4	Spartan Charge Premix	3.5	F	0.103	lb ai/a	D	24.0 a	14.0 ab	14.0 ab	5.7 a
	----carfentrazone	0.35		0.0103						
	----sulfentrazone	3.15		0.093						
	DPRE - 2 to 3 days PostPlant									
5	Spartan Charge Premix	3.5	F	0.085	lb ai/a	A	0.0 d	0.0 d	5.0 cde	4.3 a
	----carfentrazone	0.35		0.0085						
	----sulfentrazone	3.15		0.0765						
	PPI - 7 Days Pre-Plant									
6	Spartan Charge Premix	3.5	F	0.085	lb ai/a	B	15.7 abc	0.0 d	12.3 abc	5.7 a
	----carfentrazone	0.35		0.0085						
	----sulfentrazone	3.15		0.0765						
	PPI - at Planting									
7	Spartan Charge Premix	3.5	F	0.085	lb ai/a	C	10.7 bc	5.0 cd	9.0 a-d	6.3 a
	----carfentrazone	0.35		0.0085						
	----sulfentrazone	3.15		0.0765						
	PRE - at Planting									
8	Spartan Charge Premix	3.5	F	0.085	lb ai/a	D	20.7 ab	16.3 a	17.3 a	10.3 a
	----carfentrazone	0.35		0.0085						
	----sulfentrazone	3.15		0.0765						
	DPRE - 2 to 3 days PostPlant									
9	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	A	7.3 cd	0.0 d	0.0 e	0.0 a
	----carfentrazone	0.35		0.00684						
	----sulfentrazone	3.15		0.0616						
	PPI - 7 Days Pre-Plant									
10	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	B	6.3 cd	1.7 cd	6.3 b-e	1.7 a
	----carfentrazone	0.35		0.00684						
	----sulfentrazone	3.15		0.0616						
	PPI - at Planting									

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	PHSLU Lima %Stunting distb 07/11/14	PHSLU Lima %Stunting undistb 07/11/14	PHSLU Lima %Stunting tilled 07/18/14	PHSLU Lima %Stunting notill 07/18/14
11	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	C	16.3 abc	8.3 bc	13.0 abc	6.7 a
	----carfentrazone	0.35		0.00684						
	----sulfentrazone	3.15		0.0616						
	PRE - at Planting									
12	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	D	12.3 bc	3.3 cd	12.3 abc	4.0 a
	----carfentrazone	0.35		0.00684						
	----sulfentrazone	3.15		0.0616						
	DPRE - 2 to 3 days PostPlant									
13	Untreated Check						0.0 d	0.0 d	0.0 e	0.0 a
14	Hand-Weeded Check						0.0 d	0.0 d	0.0 e	2.3 a
	LSD P=.05						10.60	7.61	8.56	8.03
	Standard Deviation						6.32	4.53	5.09	4.77
	CV						61.26	91.53	65.98	102.83
	Replicate F						0.463	1.131	0.893	2.433
	Replicate Prob(F)						0.6347	0.3381	0.4220	0.1083
	Treatment F						4.248	4.213	3.665	1.124
	Treatment Prob(F)						0.0008	0.0009	0.0026	0.3854

University of Delaware

Increasing Lima Bean Safety from Spartan Charge

Trial ID: Bean2-14 Location: Field #4 Trial Year:
Protocol ID: Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: FMC

Crop Code Crop Name Rating Type Rating Unit Rating Date					PHSLU Lima StdCtTot #normal 06/20/14	PHSLU Lima StdCtTot #injured 06/20/14	PHSLU Lima StdCtTot #sev inj 06/20/14	PHSLU Lima Stunting % 06/20/14	PHSLU Lima Stunting % 07/07/14
Trt Treatment No. Name	Form Form Conc Type	Rate Rate	Rate Unit	Appl Code					
TABLE OF R MEANS Replicate 1					60	7	3	22.6	11.3
Replicate 2					57	7	4	24.3	10.7
Replicate 3					53	9	5	33.7	12.3
TABLE OF A (Spartan Charge Rate) MEANS									
1 Spartan Charge Premix	3.5 F	0.103	lb ai/a		55 a	8 a	5 a	31.3 a	12.3 a
1 ----carfentrazone	0.35	0.0103							
1 ----sulfentrazone	3.15	0.093							
2 Spartan Charge Premix	3.5 F	0.085	lb ai/a		55 a	8 a	5 a	31.8 a	13.6 a
2 ----carfentrazone	0.35	0.0085							
2 ----sulfentrazone	3.15	0.0765							
3 Spartan Charge Premix	3.5 F	0.0684	lb ai/a		60 a	6 a	2 b	17.5 b	8.3 b
3 ----carfentrazone	0.35	0.00684							
3 ----sulfentrazone	3.15	0.0616							
LSD P=.05					6.3	2.4 - 2.4	1.5 - 2.0	7.28	3.83
Standard Deviation					7.5	0.5t	0.2t	8.60	4.52
CV					13.2	18.5t	29.9t	32.04	39.59
TABLE OF B (Application) MEANS									
1 PPI - 7 Days Pre-Plant					64 a	5 b	2 c	18.4 b	4.6 c
2 PPI - at Planting					60 ab	6 b	3 bc	16.4 b	8.8 c
3 PRE - at Planting					54 bc	10 a	4 ab	32.4 a	13.8 b
4 DPRE - 2 to 3 days PostPlant					48 c	9 a	6 a	40.0 a	18.6 a
LSD P=.05					7.3	2.5 - 3.1	1.7 - 2.7	8.41	4.42
Standard Deviation					7.5	0.5t	0.2t	8.60	4.52
CV					13.2	18.5t	29.9t	32.04	39.59
TABLE OF A (Spartan Charge Rate) B (Application) MEANS									
1 Spartan Charge Premix	3.5 F	0.103	lb ai/a		64 a	7 a	4 a	21.7 a	5.7 a
1 ----carfentrazone	0.35	0.0103							
1 ----sulfentrazone	3.15	0.093							
1 PPI - 7 Days Pre-Plant									
2 Spartan Charge Premix	3.5 F	0.085	lb ai/a		64 a	5 a	2 a	20.7 a	5.7 a
2 ----carfentrazone	0.35	0.0085							
2 ----sulfentrazone	3.15	0.0765							
1 PPI - 7 Days Pre-Plant									
3 Spartan Charge Premix	3.5 F	0.0684	lb ai/a		64 a	3 a	1 a	13.0 a	2.3 a
3 ----carfentrazone	0.35	0.00684							
3 ----sulfentrazone	3.15	0.0616							
1 PPI - 7 Days Pre-Plant									
1 Spartan Charge Premix	3.5 F	0.103	lb ai/a		67 a	4 a	2 a	16.7 a	7.0 a
1 ----carfentrazone	0.35	0.0103							
1 ----sulfentrazone	3.15	0.093							
2 PPI - at Planting									

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
t=Mean descriptions are reported in transformed data units, and are not de-transformed.

University of Delaware

Crop Code Crop Name Rating Type Rating Unit Rating Date						PHSLU Lima StdCtTot #normal 06/20/14	PHSLU Lima StdCtTot #injured 06/20/14	PHSLU Lima StdCtTot #sev inj 06/20/14	PHSLU Lima Stunting % 06/20/14	PHSLU Lima Stunting % 07/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code				
2	Spartan Charge Premix	3.5	F	0.085	lb ai/a		53 a	7 a	8 a	24.7 a	14.7 a
2	----carfentrazone	0.35		0.0085							
2	----sulfentrazone	3.15		0.0765							
2	PPI - at Planting										
3	Spartan Charge Premix	3.5	F	0.0684	lb ai/a		60 a	7 a	2 a	8.0 a	4.7 a
3	----carfentrazone	0.35		0.00684							
3	----sulfentrazone	3.15		0.0616							
2	PPI - at Planting										
1	Spartan Charge Premix	3.5	F	0.103	lb ai/a		50 a	12 a	5 a	40.0 a	15.0 a
1	----carfentrazone	0.35		0.0103							
1	----sulfentrazone	3.15		0.093							
3	PRE - at Planting										
2	Spartan Charge Premix	3.5	F	0.085	lb ai/a		52 a	12 a	6 a	35.0 a	15.7 a
2	----carfentrazone	0.35		0.0085							
2	----sulfentrazone	3.15		0.0765							
3	PRE - at Planting										
3	Spartan Charge Premix	3.5	F	0.0684	lb ai/a		60 a	8 a	3 a	22.3 a	10.7 a
3	----carfentrazone	0.35		0.00684							
3	----sulfentrazone	3.15		0.0616							
3	PRE - at Planting										
1	Spartan Charge Premix	3.5	F	0.103	lb ai/a		40 a	10 a	9 a	46.7 a	21.7 a
1	----carfentrazone	0.35		0.0103							
1	----sulfentrazone	3.15		0.093							
4	DPRE - 2 to 3 days PostPlant										
2	Spartan Charge Premix	3.5	F	0.085	lb ai/a		51 a	9 a	7 a	46.7 a	18.3 a
2	----carfentrazone	0.35		0.0085							
2	----sulfentrazone	3.15		0.0765							
4	DPRE - 2 to 3 days PostPlant										
3	Spartan Charge Premix	3.5	F	0.0684	lb ai/a		53 a	7 a	4 a	26.7 a	15.7 a
3	----carfentrazone	0.35		0.00684							
3	----sulfentrazone	3.15		0.0616							
4	DPRE - 2 to 3 days PostPlant										
LSD P=.05							12.6	3.9 - 5.4	2.2 - 5.7	14.56	7.65
Standard Deviation							7.5	0.5t	0.2t	8.60	4.52
CV							13.2	18.5t	29.9t	32.04	39.59

Crop Code Crop Name Rating Type Rating Unit Rating Date						PHSLU Lima %Stunting distb 07/11/14	PHSLU Lima %Stunting undistb 07/11/14	PHSLU Lima %Stunting tilled 07/18/14	PHSLU Lima %Stunting notill 07/18/14
Trt Treatment No. Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code				
TABLE OF R MEANS Replicate 1						10.5	4.3	7.5	2.8
Replicate 2						12.6	5.7	10.5	6.1
Replicate 3						13.0	7.3	9.0	6.7
TABLE OF A (Spartan Charge Rate) MEANS									
1 Spartan Charge Premix	3.5	F	0.103	lb	ai/a	13.8 a	8.7 a	8.2 a	5.9 a
1 ----carfentrazone	0.35		0.0103						
1 ----sulfentrazone	3.15		0.093						
2 Spartan Charge Premix	3.5	F	0.085	lb	ai/a	11.8 a	5.3 ab	10.9 a	6.7 a
2 ----carfentrazone	0.35		0.0085						
2 ----sulfentrazone	3.15		0.0765						
3 Spartan Charge Premix	3.5	F	0.0684	lb	ai/a	10.6 a	3.3 b	7.9 a	3.1 a
3 ----carfentrazone	0.35		0.00684						
3 ----sulfentrazone	3.15		0.0616						
LSD P=.05						5.80	4.14	4.69	4.32
Standard Deviation						6.85	4.89	5.52	5.08
CV						56.91	84.67	61.34	97.36
TABLE OF B (Application) MEANS									
1 PPI - 7 Days Pre-Plant						7.1 b	1.9 c	4.3 b	2.8 a
2 PPI - at Planting						9.6 b	2.7 bc	8.7 b	4.7 a
3 PRE - at Planting						12.4 ab	7.3 ab	8.4 b	6.8 a
4 DPRE - 2 to 3 days PostPlant						19.0 a	11.2 a	14.6 a	6.7 a
LSD P=.05						6.69	4.78	5.41	4.98
Standard Deviation						6.85	4.89	5.52	5.08
CV						56.91	84.67	61.34	97.36
TABLE OF A (Spartan Charge Rate) B (Application) MEANS									
1 Spartan Charge Premix	3.5	F	0.103	lb	ai/a	14.0 a	5.7 a	8.0 a	4.0 a
1 ----carfentrazone	0.35		0.0103						
1 ----sulfentrazone	3.15		0.093						
1 PPI - 7 Days Pre-Plant									
2 Spartan Charge Premix	3.5	F	0.085	lb	ai/a	0.0 a	0.0 a	5.0 a	4.3 a
2 ----carfentrazone	0.35		0.0085						
2 ----sulfentrazone	3.15		0.0765						
1 PPI - 7 Days Pre-Plant									
3 Spartan Charge Premix	3.5	F	0.0684	lb	ai/a	7.3 a	0.0 a	0.0 a	0.0 a
3 ----carfentrazone	0.35		0.00684						
3 ----sulfentrazone	3.15		0.0616						
1 PPI - 7 Days Pre-Plant									
1 Spartan Charge Premix	3.5	F	0.103	lb	ai/a	6.7 a	6.3 a	7.3 a	6.7 a
1 ----carfentrazone	0.35		0.0103						
1 ----sulfentrazone	3.15		0.093						
2 PPI - at Planting									

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Crop Code Crop Name Rating Type Rating Unit Rating Date						PHSLU Lima %Stunting distb 07/11/14	PHSLU Lima %Stunting undistb 07/11/14	PHSLU Lima %Stunting tilled 07/18/14	PHSLU Lima %Stunting notill 07/18/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code			
2	Spartan Charge Premix	3.5	F	0.085	lb ai/a		15.7 a	0.0 a	12.3 a	5.7 a
2	----carfentrazone	0.35		0.0085					
2	----sulfentrazone	3.15		0.0765					
2	PPI - at Planting								
3	Spartan Charge Premix	3.5	F	0.0684	lb ai/a		6.3 a	1.7 a	6.3 a	1.7 a
3	----carfentrazone	0.35		0.00684					
3	----sulfentrazone	3.15		0.0616					
2	PPI - at Planting								
1	Spartan Charge Premix	3.5	F	0.103	lb ai/a		10.3 a	8.7 a	3.3 a	7.3 a
1	----carfentrazone	0.35		0.0103					
1	----sulfentrazone	3.15		0.093					
3	PRE - at Planting								
2	Spartan Charge Premix	3.5	F	0.085	lb ai/a		10.7 a	5.0 a	9.0 a	6.3 a
2	----carfentrazone	0.35		0.0085					
2	----sulfentrazone	3.15		0.0765					
3	PRE - at Planting								
3	Spartan Charge Premix	3.5	F	0.0684	lb ai/a		16.3 a	8.3 a	13.0 a	6.7 a
3	----carfentrazone	0.35		0.00684					
3	----sulfentrazone	3.15		0.0616					
3	PRE - at Planting								
1	Spartan Charge Premix	3.5	F	0.103	lb ai/a		24.0 a	14.0 a	14.0 a	5.7 a
1	----carfentrazone	0.35		0.0103					
1	----sulfentrazone	3.15		0.093					
4	DPRE - 2 to 3 days PostPlant								
2	Spartan Charge Premix	3.5	F	0.085	lb ai/a		20.7 a	16.3 a	17.3 a	10.3 a
2	----carfentrazone	0.35		0.0085					
2	----sulfentrazone	3.15		0.0765					
4	DPRE - 2 to 3 days PostPlant								
3	Spartan Charge Premix	3.5	F	0.0684	lb ai/a		12.3 a	3.3 a	12.3 a	4.0 a
3	----carfentrazone	0.35		0.00684					
3	----sulfentrazone	3.15		0.0616					
4	DPRE - 2 to 3 days PostPlant								
LSD P=.05							11.59	8.28	9.37	8.63
Standard Deviation							6.85	4.89	5.52	5.08
CV							56.91	84.67	61.34	97.36

FACTORIAL/POOLED ERROR AOV For PHSLU Lima StdCtTot #normal 06/20/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	3628.555556				
R	2	319.388889	159.694444	2.875	0.0778	
A	2	150.888889	75.444444	1.358	0.2778	6
B	3	1315.222222	438.407407	7.893	0.0009	7
AB	6	621.111111	103.518519	1.864	0.1328	13
ERROR	22	1221.944444	55.542929			

FACTORIAL/POOLED ERROR AOV For PHSLU Lima StdCtTot #injured 06/20/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	15.997543				
R	2	0.961644	0.480822	1.817	0.1860	
A	2	1.094643	0.547321	2.069	0.1502	2 - 2
B	3	6.343109	2.114370	7.992	0.0009	3 - 3
AB	6	1.777503	0.296251	1.120	0.3831	4 - 5
ERROR	22	5.820644	0.264575			

FACTORIAL/POOLED ERROR AOV For PHSLU Lima StdCtTot #sev inj 06/20/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	3.060870				
R	2	0.352477	0.176238	4.285	0.0268	
A	2	0.658929	0.329464	8.010	0.0024	1 - 2
B	3	0.758930	0.252977	6.150	0.0034	2 - 3
AB	6	0.385626	0.064271	1.563	0.2051	2 - 6
ERROR	22	0.904908	0.041132			

FACTORIAL/POOLED ERROR AOV For PHSLU Lima Stunting % 06/20/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	7781.000000				
R	2	857.166667	428.583333	5.798	0.0095	
A	2	1569.500000	784.750000	10.617	0.0006	7.3
B	3	3448.333333	1149.444444	15.551	0.0001	8.4
AB	6	279.833333	46.638889	0.631	0.7040	14.6
ERROR	22	1626.166667	73.916667			

FACTORIAL/POOLED ERROR AOV For PHSLU Lima Stunting % 07/07/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1744.750000				
R	2	15.166667	7.583333	0.371	0.6942	
A	2	180.500000	90.250000	4.417	0.0244	3.8
B	3	995.194444	331.731481	16.236	0.0001	4.4
AB	6	104.388889	17.398148	0.852	0.5447	7.7
ERROR	22	449.500000	20.431818			

FACTORIAL/POOLED ERROR AOV For PHSLU Lima %Stunting distb 07/11/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	2532.972222				
R	2	43.055556	21.527778	0.459	0.6376	
A	2	61.555556	30.777778	0.657	0.5284	5.8
B	3	711.638889	237.212963	5.062	0.0081	6.7
AB	6	685.777778	114.296296	2.439	0.0583	11.6
ERROR	22	1030.944444	46.861111			

FACTORIAL/POOLED ERROR AOV For PHSLU Lima %Stunting undistb 07/11/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1534.222222				
R	2	54.222222	27.111111	1.133	0.3402	
A	2	174.222222	87.111111	3.640	0.0431	4.1
B	3	511.777778	170.592593	7.129	0.0016	4.8
AB	6	267.555556	44.592593	1.864	0.1328	8.3
ERROR	22	526.444444	23.929293			

FACTORIAL/POOLED ERROR AOV For PHSLU Lima %Stunting tilled 07/18/14 Missing values in column 14 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	34	1512.000000				
R	2	54.000000	27.000000	0.886	0.4272	
A	2	66.500000	33.250000	1.091	0.3542	4.7
B	3	477.555556	159.185185	5.223	0.0075	5.4
AB	6	273.944444	45.657407	1.498	0.2271	9.4
ERROR	21	640.000000	30.476190			

FACTORIAL/POOLED ERROR AOV For PHSLU Lima %Stunting notill 07/18/14 Missing values in column 15 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	34	888.163831				
R	2	105.271450	52.635725	2.037	0.1554	
A	2	85.611193	42.805597	1.657	0.2147	4.3
B	3	97.299269	32.433090	1.255	0.3152	5.0
AB	6	57.380588	9.563431	0.370	0.8897	8.6
ERROR	21	542.601331	25.838159			

University of Delaware

Preemergence Herbicide Applications for Cucumber

Trial ID: Cuke1-14 Cooperator:
Location: Field #6 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Morningglory Species	IPOSS	Ipomoea sp.
3.	Common Lambsquarters	CHEAL	Chenopodium album L.

Crop 1: Cucumber CUMSA Variety: Vlaspik
Planting Date: 06/12/14 Planting Method: Row- Unit Planter Depth: 0.7 in
Rate: 60000 Sd/A Row Spacing: 30 in Seed Bed: Smooth
Soil Temperature: 76 F Soil Moisture: Normal Emergence Date: 06/17/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Chisel Plowed, Disked & Field Cultivated

SOIL DESCRIPTION

% Sand: 82 % OM: 1.2 Texture: loamy sand
% Silt: 9 pH: 5.5
% Clay: 9 CEC: 5.4 Fert. Level: Medium

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	06/12/14	06/30/14
Time of Day:	1:40 PM	1:40 PM
Application Method:	Spray	Spray
Application Timing:	PRE	POST
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	76 F	87 F
% Relative Humidity:	79	37
Wind Velocity, Unit:	3 mph	3 mph
Wind Direction:	SE	SE
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	76 F	86 F
Soil Surf. Moisture:	Moist	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	N/A	Dry
% Cloud Cover:	100	20

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	CUMSA	CUMSA
Growth Stage:		1 lf
Height, Unit:		1.5 in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	AMAPA	AMAPA
Growth Stage:		Veg
Height, Unit:		2.5 in
Density,Unit:		1-12 m2
Weed 2 Code:	IPOSS	IPOSS
Growth Stage:		1-2 lf
Height, Unit:		1.5 in
Density,Unit:		0-2 m2
Weed 3 Code:	CHEAL	CHEAL
Growth Stage:		Veg
Height, Unit:		2 in
Density,Unit:		0-3 m2

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	40 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	18 in	20 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

Trial Comments

07/15/14: Stunting not rated because cucumber growth is very uneven and extremely variable.
Common lambsquarters control rating: none = 0; poor = 1; fair = 2; good = 3; excellent = 4.

University of Delaware

Preemergence Herbicide Applications for Cucumber

Trial ID: Cuke1-14 Cooperator:
Location: Field #6 Investigator: Mark VanGessel

Weed Code							AMAPA	DIGSA	CHEAL
Weed or Crop Name							Palmer	Large	Common
Weed or Crop Name							Amaranth	Crabgras	Lambqtrs
Rating Data Type							Control	Control	Control
Rating Unit							%	%	0-4
Rating Date							07/15/14	07/15/14	07/15/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Untreated Check							0.0 c	0.0 c	0.0 d
2	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	A	79.3 a	93.0 ab	1.7 bc
3	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	PRE	A	87.7 a	93.3 ab	2.3 abc
4	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	76.0 ab	99.0 a	2.7 abc
5	Curbit.....ethalfluralin	3	E	1.12	lb ai/a	PRE	A	82.7 a	98.3 a	3.2 ab
6	Strategy Premix	2.1	E	0.394	lb ai/a	PRE	A	58.3 b	84.0 b	2.0 bc
	----clomazone	0.5		0.094						
	----ethalfluralin	1.6		0.3						
	Curbit.....ethalfluralin	3	E	0.187	lb ai/a	PRE	A			
7	Strategy Premix	2.1	E	0.525	lb ai/a	PRE	A	76.0 ab	89.3 ab	2.0 bc
	----clomazone	0.5		0.125						
	----ethalfluralin	1.6		0.4						
	Curbit.....ethalfluralin	3	E	0.187	lb ai/a	PRE	A			
8	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	86.7 a	97.7 a	3.7 a
	Command.....clomazone	3	ME	0.187	lb ai/a	PRE	A			
9	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	PRE	A	77.0 a	89.3 ab	1.5 cd
	Sandea.....halosulfuron	75	DF	0.0234	lb ai/a	PRE	A			
10	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	PRE	A	78.3 a	97.7 a	2.0 bc
	Sandea.....halosulfuron	75	DF	0.0313	lb ai/a	PRE	A			
11	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	PRE	A	91.7 a	90.0 ab	2.5 abc
	Sandea.....halosulfuron	75	DF	0.0234	lb ai/a	POST	B			
	Nonionic Surfactant	100	L	0.25	% v/v	POST	B			
12	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	PRE	A	88.7 a	93.3 ab	2.3 abc
	Sandea.....halosulfuron	75	DF	0.0313	lb ai/a	POST	B			
	Nonionic Surfactant	100	L	0.25	% v/v	POST	B			
LSD P=.05								18.63	11.58	1.51
Standard Deviation								10.97	6.84	0.89
CV								14.92	8.0	41.15
Replicate F								0.401	0.264	2.140
Replicate Prob(F)								0.6747	0.7704	0.1426
Treatment F								15.250	47.767	3.133
Treatment Prob(F)								0.0001	0.0001	0.0118

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,3

University of Delaware

Preemergence PPO Herbicide Applications for Cucumber

Trial ID: Cuke2-14 Cooperator:
Location: Field #6 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Cucumber CUMSA Variety: Vlaspik
Planting Date: 06/06/14 Planting Method: Row- Unit Planter Depth: 0.7 in
Rate: 60000 Sd/A Row Spacing: 30 in Seed Bed: Smooth
Soil Temperature: 78 F Soil Moisture: Normal Emergence Date: 06/11/14

Crop 2: Cucumber CUMSA Variety: Expedition
Planting Date: 06/06/14 Planting Method: Row- Unit Planter Depth: 0.7 in
Rate: 60000 Sd/A Row Spacing: 30 in Seed Bed: Smooth
Soil Temperature: 78 F Soil Moisture: Normal Emergence Date: 06/11/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Chisel Plowed, Disked & Field Cultivated

SOIL DESCRIPTION

% Sand: 83 % OM: 1.4 Texture: loamy sand
% Silt: 10 pH: 5.8
% Clay: 7 CEC: 4.5 Fert. Level: Medium

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.6 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	06/06/14
Time of Day:	5:00 PM
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	77 F
% Relative Humidity:	40
Wind Velocity, Unit:	3 mph
Wind Direction:	NE
Dew Presence (Y/N):	N
Soil Temp., Unit:	77 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	N/A
% Cloud Cover:	20

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	CUMSA
Crop 2 Code:	CUMSA

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	18 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

07/14/14:

Poor Control	Treatments
common ragweed	2, 3, 5, and 12
common lambsquarters	2, 8, 9, 10, 11, and 12
morningglory species	2, 8, 11, and 12
purslane	2, 4, 6, 9, 10, and 12

University of Delaware

Preemergence PPO Herbicide Applications for Cucumber

Trial ID: Cuke2-14 Cooperator:
Location: Field #6 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg					
	Weed Code										AMAPA
	Crop Code						CUMSA	CUMSA	CUMSA	CUMSA	
	Weed or Crop Name						Cucumber	Cucumber	Cucumber	Cucumber	Palmer
	Weed or Crop Name								Vlaspic	Expeditn	Amaranth
	Rating Data Type						Stunting	Stunting	Stunting	Stunting	Control
	Rating Unit						%	%	%	%	%
	Rating Date						06/24/14	07/02/14	07/14/14	07/14/14	07/14/14
1	Untreated Check						0.0 g	0.0 f	0.0 e	0.0 e	0.0 c
2	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	0.0 g	0.0 f	0.0 e	0.0 e	67.7 b
3	Curbit.....ethalfluralin	3	E	1.12	lb ai/a	PRE	8.7 g	10.3 ef	0.0 e	0.0 e	95.0 a
4	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	PRE	31.7 f	19.0 de	2.3 e	4.7 de	90.0 a
	----carfentrazone	0.35		.00684							
	----sulfentrazone	3.15		0.0616							
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE					
5	Spartan Charge Premix	3.5	F	0.103	lb ai/a	PRE	50.0 cde	53.3 b	33.3 cd	25.0 bcd	100.0 a
	----carfentrazone	0.35		0.0103							
	----sulfentrazone	3.15		0.093							
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE					
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	PRE	66.7 b	56.7 b	42.3 c	45.0 b	96.7 a
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE					
7	Spartan Charge Premix	3.5	F	0.205	lb ai/a	PRE	85.0 a	76.7 a	71.7 ab	70.0 a	93.3 a
	----carfentrazone	0.35		0.0205							
	----sulfentrazone	3.15		0.184							
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE					
8	Reflex.....fomesafen	2	L	0.25	lb ai/a	PRE	56.7 bcd	50.0 b	45.0 abc	36.7 bc	100.0 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE					
9	Reflex.....fomesafen	2	L	0.187	lb ai/a	PRE	43.3 def	30.0 cd	8.3 de	9.0 de	100.0 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE					
10	Reflex.....fomesafen	2	L	0.125	lb ai/a	PRE	38.3 ef	19.0 de	22.3 cde	18.3 cde	94.0 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE					
11	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	88.3 a	81.7 a	73.3 a	70.0 a	100.0 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE					
12	Chateau.....flumioxazin	51	WG	0.032	lb ai/a	PRE	60.0 bc	43.3 bc	43.3 bc	43.3 b	100.0 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE					
	LSD P=.05						13.96	15.95	28.54	22.37	14.29
	Standard Deviation						8.24	9.42	16.85	13.21	8.42
	CV						18.71	25.68	59.14	49.24	9.74
	Replicate F						0.532	0.965	0.602	2.143	0.579
	Replicate Prob(F)						0.5950	0.3965	0.5565	0.1412	0.5691
	Treatment F						39.818	26.376	7.822	11.672	34.792
	Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=5,6,8,9,10,11,12

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg						
	Weed Code						DIGSA					
	Crop Code							CUMSA	CUMSA	CUMSA	CUMSA	CUMSA
	Weed or Crop Name						Large	Exped	Exped	Exped	Exped	Exped
	Weed or Crop Name						Crabgras	cukes	cukes	cukes	cukes	cukes
	Rating Data Type						Control	Yield	Size 3B	Size 2B	Size 2A	Size 1B
	Rating Unit						%	kg/10'rw	#	#	#	#
	Rating Date						07/14/14	07/14/14	07/14/14	07/14/14	07/14/14	07/14/14
1	Untreated Check						0.0 f	1.23 de	0.0 a	8.3 b-e	6.3 a-d	3.0 a
2	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	61.7 e	3.10 a	1.4 a	19.6 a	9.9 a	4.0 a
3	Curbit.....ethalfluralin	3	E	1.12	lb ai/a	PRE	92.0 abc	2.33 abc	0.3 a	16.3 abc	9.0 ab	4.3 a
4	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	PRE	83.3 bcd	1.87 bcd	3.3 a	7.7 b-e	7.0 a-d	3.0 a
	----carfentrazone	0.35		.00684								
	----sulfentrazone	3.15		0.0616								
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
5	Spartan Charge Premix	3.5	F	0.103	lb ai/a	PRE	90.7 abc	1.42 cd	1.0 a	8.0 b-e	7.0 a-d	2.0 a
	----carfentrazone	0.35		0.0103								
	----sulfentrazone	3.15		0.093								
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	PRE	96.3 a	1.03 def	0.3 a	5.7 de	2.7 cd	3.7 a
	----carfentrazone	0.35		0.0137								
	----sulfentrazone	3.15		0.123								
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
7	Spartan Charge Premix	3.5	F	0.205	lb ai/a	PRE	90.0 abc	0.30 ef	0.0 a	2.3 e	1.7 d	0.7 a
	----carfentrazone	0.35		0.0205								
	----sulfentrazone	3.15		0.184								
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
8	Reflex.....fomesafen	2	L	0.25	lb ai/a	PRE	96.7 a	1.11 de	0.3 a	8.7 b-e	1.3 d	3.3 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
9	Reflex.....fomesafen	2	L	0.187	lb ai/a	PRE	93.9 ab	2.80 ab	1.0 a	16.0 a-d	8.0 abc	3.7 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
10	Reflex.....fomesafen	2	L	0.125	lb ai/a	PRE	90.0 abc	3.09 a	2.7 a	17.7 ab	8.3 abc	5.3 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
11	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	80.0 cd	0.02 f	1.0 a	6.0 cde	2.7 cd	1.3 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
12	Chateau.....flumioxazin	51	WG	0.032	lb ai/a	PRE	76.9 d	1.70 cd	1.3 a	10.0 a-e	3.7 bcd	3.0 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
	LSD P=.05						12.58	1.070	3.26	10.57	5.75	3.33
	Standard Deviation						7.36	0.632	1.92	6.23	3.39	1.96
	CV						9.29	37.93	181.23	59.18	60.19	63.0
	Replicate F						0.977	1.425	0.673	0.206	0.566	1.571
	Replicate Prob(F)						0.3946	0.2618	0.5206	0.8157	0.5761	0.2314
	Treatment F						39.960	7.791	0.869	2.327	2.428	1.298
	Treatment Prob(F)						0.0001	0.0001	0.5810	0.0463	0.0388	0.2915

Weed Code Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date						CUMSA Exped cukes Size 1A # 07/14/14	CUMSA Vlaspic cukes Yield kg/10'ro 07/14/14	CUMSA Vlaspic cukes Size 3B # 07/14/14	CUMSA Vlaspic cukes Size 2B # 07/14/14	CUMSA Vlaspic cukes Size 2A # 07/14/14	CUMSA Vlaspic cukes Size 1B # 07/14/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg					
1	Untreated Check						0.3 a	1.15 abc	0.3 a	7.7 a-d	5.0 a	2.3 a
2	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	-0.2 a	2.31 ab	2.3 a	15.0 a	2.3 a	4.3 a
3	Curbit.....ethalfluralin	3	E	1.12	lb ai/a	PRE	0.7 a	2.14 ab	0.3 a	9.3 a-d	12.3 a	5.3 a
4	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	PRE	3.7 a	2.52 a	2.3 a	14.0 ab	5.7 a	5.0 a
	----carfentrazone	0.35		.00684								
	----sulfentrazone	3.15		0.0616								
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
5	Spartan Charge Premix	3.5	F	0.103	lb ai/a	PRE	1.0 a	1.09 bc	2.0 a	5.3 bcd	2.7 a	2.0 a
	----carfentrazone	0.35		0.0103								
	----sulfentrazone	3.15		0.093								
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	PRE	1.7 a	1.05 bc	0.3 a	6.3 a-d	4.3 a	2.0 a
	----carfentrazone	0.35		0.0137								
	----sulfentrazone	3.15		0.123								
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
7	Spartan Charge Premix	3.5	F	0.205	lb ai/a	PRE	0.0 a	0.06 c	0.0 a	0.0 d	0.0 a	1.7 a
	----carfentrazone	0.35		0.0205								
	----sulfentrazone	3.15		0.184								
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
8	Reflex.....fomesafen	2	L	0.25	lb ai/a	PRE	0.3 a	1.10 bc	0.7 a	7.3 a-d	2.7 a	2.3 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
9	Reflex.....fomesafen	2	L	0.187	lb ai/a	PRE	0.7 a	2.54 a	2.7 a	15.7 a	5.0 a	4.0 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
10	Reflex.....fomesafen	2	L	0.125	lb ai/a	PRE	0.3 a	2.11 ab	3.0 a	10.0 abc	6.0 a	3.3 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
11	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	0.3 a	0.24 c	0.3 a	1.7 cd	1.0 a	0.0 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
12	Chateau.....flumioxazin	51	WG	0.032	lb ai/a	PRE	1.7 a	2.34 ab	3.0 a	14.0 ab	3.0 a	1.7 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE						
LSD P=.05							2.15	1.400	3.02	9.56	7.18	4.55
Standard Deviation							1.26	0.827	1.78	5.64	4.24	2.69
CV							145.04	53.19	123.3	63.7	101.76	94.93
Replicate F							1.484	1.632	0.245	1.847	0.681	1.071
Replicate Prob(F)							0.2495	0.2184	0.7846	0.1813	0.5163	0.3598
Treatment F							2.096	3.396	1.363	2.493	1.674	1.035
Treatment Prob(F)							0.0698	0.0071	0.2574	0.0328	0.1463	0.4512

Weed Code	
Crop Code	CUMSA
Weed or Crop Name	Vlaspic
Weed or Crop Name	cukes
Rating Data Type	Size 1A
Rating Unit	#
Rating Date	07/14/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	
1	Untreated Check						1.7 a
2	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	1.7 a
3	Curbit.....ethalfluralin	3	E	1.12	lb ai/a	PRE	1.3 a
4	Spartan Charge Premix	3.5	F	0.0684	lb ai/a	PRE	0.7 a
	----carfentrazone	0.35		.00684			
	----sulfentrazone	3.15		0.0616			
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	
5	Spartan Charge Premix	3.5	F	0.103	lb ai/a	PRE	0.7 a
	----carfentrazone	0.35		0.0103			
	----sulfentrazone	3.15		0.093			
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	PRE	0.0 a
	----carfentrazone	0.35		0.0137			
	----sulfentrazone	3.15		0.123			
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	
7	Spartan Charge Premix	3.5	F	0.205	lb ai/a	PRE	0.0 a
	----carfentrazone	0.35		0.0205			
	----sulfentrazone	3.15		0.184			
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	
8	Reflex.....fomesafen	2	L	0.25	lb ai/a	PRE	1.3 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	
9	Reflex.....fomesafen	2	L	0.187	lb ai/a	PRE	0.3 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	
10	Reflex.....fomesafen	2	L	0.125	lb ai/a	PRE	0.3 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	
11	Sharpen.....saflufenacil	2.85	SC	0.0223	lb ai/a	PRE	0.0 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	
12	Chateau.....flumioxazin	51	WG	0.032	lb ai/a	PRE	1.0 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	PRE	

LSD P=.05	2.43
Standard Deviation	1.44
CV	191.4
Replicate F	0.485
Replicate Prob(F)	0.6220
Treatment F	0.592
Treatment Prob(F)	0.8153

University of Delaware

Japanese Knotweed Control Treatments as Applied

Trial ID: JKnt1-14 Location: Bridgeville Trial Year:
Protocol ID: Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Pest Description

Pest 1 Type: W Code: POLCU Fallopia japonica
Common Name: Japanese knotweed

Site and Design

Treated Plot Width: 10 FT Site Type: DITBAN ditch bank
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 12 Tillage Type: NOTILL no-till
Replications: 4 Study Design: RACOBL Randomized Complete Block (RCB)

Field Prep./Maintenance:
The study area was rotary-mowed 5-19-14 as close to ground level as possible.

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal

Application Description

	A	B	C
Application Date:	06/26/14	06/26/14	07/18/14
Appl. Stop Time:	01:00 PM	04:00 PM	03:00 PM
Interval to Prev. Appl., Unit:	DAYS	DAYS	22 DAYS
Application Method:	SPRAY	MOW	MOW
Application Timing:	POST	POST+3wks	POST+6wks
Application Placement:	BROADC	BROADC	BROADC
Applied By:	VanGessl		
Air Temperature, Unit:	87 F		
% Relative Humidity:	39		
Wind Velocity, Unit:	2 mph		
Wind Direction:	E		
Dew Presence (Y/N):	N no		
Soil Temperature, Unit:	87 F		
Soil Moisture:	NORMAL		
% Cloud Cover:	30		

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	POLCU W	POLCU W	POLCU W
Stage Majority, Percent:	veg 100	veg 100	veg 100
Height, Unit:	30 in	30 in	12 in
Density, Unit:	8 m2	8 m2	8 m2

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Application Equipment

	A	B	C
Appl. Equipment:	Backpack	String	String
Equipment Type:	SPRBAC	WEEDER	WEEDER
Operation Pressure, Unit:	31 psi		
Nozzle Type:	AIRMIX		
Nozzle Size:	11002		
Nozzle Spacing, Unit:	18 in		
Boom Length, Unit:	9 ft		
Boom Height, Unit:	45 in		
Ground Speed, Unit:	3 mph		
Carrier:	WATER		
Spray Volume, Unit:	20 gal/ac		
Mix Size, Unit:	2 Liters		
Propellant:	COMCO2		

Trial Comments

NIS= LI 700; MSO= MSO Concentrate/LeciTech

07/17/14: Ratings based on reduction of Japanese knotweed green biomass present. Treatment 2 and 3 excellenct kill of mile-a-minute weed.

08/28/14 Regrowth = new shoots or growth since application.

Appears new shoots (ememergence from soil) only in the mowed treatments:

Treatment 12: ~12" regrowth

Treatment 8: noticeable regrowth from treatments in the stems and branches

Flowering plants only observed in treatments 1, 5, and 7

Treatments 2 and 3 still have excellent control of mile a minute weed.

09/30/14 Height of knotweed at least half the height of the unmowed portions of the ditchbank (maybe reduced as much as 2/3). This due to the single mowing prior to initiating the trial. Ratings are based on reduction of viable leaf material. Very little change in height of the plants since the trial was sprayed.

05/13/15: Ratings based on reduction of Japanese knotweed green biomass present (stand counts and stunting).

University of Delaware

Japanese Knotweed Control Treatments as Applied

Trial ID: JKnt1-14 Location: Bridgeville Trial Year:
Protocol ID: Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	POLCU JapKntwd Control % 07/17/14	POLCU JapKntwd Control % 08/28/14	POLCU JapKntwd Control % 09/30/14	POLCU JapKntwd Control % 05/13/15
1	Untreated Check							0.0 f	0.0 g	0.0 i	0.0 f
2	Stingray.....carfentrazone	1.9	EC	0.2	lb ai/a	POST	A	61.3 bcd	29.8 f	34.9 gh	0.0 f
	Methylated Seed Oil	100	L	0.94	% v/v	POST	A				
3	Clearcast.....imazamox	1	AS	0.29	lb ai/a	POST	A	22.5 e	42.5 de	47.4 ef	63.8 b
	Methylated Seed Oil	100	L	0.94	% v/v	POST	A				
4	Habitat.....imazapyr	2	AS	1	lb ai/a	POST	A	28.8 e	80.3 b	91.6 b	96.0 a
	Methylated Seed Oil	100	L	0.94	% v/v	POST	A				
5	AquaPro.....glyphosate	4	AS	1.94	lb ae/a	POST	A	60.0 bcd	83.1 b	89.5 b	91.3 a
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A				
6	Renovate.....triclopyr	3	L	2.25	lb ae/a	POST	A	65.0 bc	77.5 b	81.3 c	47.5 c
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A				
7	Clearcast.....imazamox	1	AS	0.21	lb ai/a	POST	A	26.3 e	27.4 f	40.0 fg	30.0 d
	AquaPro.....glyphosate	4	AS	1.94	lb ae/a	POST	A				
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A				
8	Clearcast.....imazamox	1	AS	0.21	lb ai/a	POST	A	58.8 cd	50.1 cd	55.0 e	17.5 e
	Stingray.....carfentrazone	1.9	EC	0.2	lb ai/a	POST	A				
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A				
9	Habitat.....imazapyr	2	AS	0.636	lb ai/a	POST	A	66.3 b	96.8 a	98.5 a	94.0 a
	Stingray.....carfentrazone	1.9	EC	0.2	lb ai/a	POST	A				
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A				
10	Stingray.....carfentrazone	1.9	EC	0.306	lb ai/a	POST	A	57.5 d	37.0 ef	28.5 h	0.0 f
	Nonionic Surfactant	100	L	0.25	% v/v	POST	A				
11	Mowing					POST	A	75.0 a	60.1 c	72.6 d	32.5 d
	Mowing					POST+3 wks	B				
12	Mowing					POST	A	73.8 a	57.5 c	87.6 bc	45.0 c
	Mowing					POST+3 wks	B				
	Mowing					POST+6 wks	C				
	LSD P=.05							7.35	5.70 - 11.58	3.22 - 9.10	11.81
	Standard Deviation							5.10	4.91t	3.86t	8.20
	CV							10.29	10.55t	7.49t	19.02
	Replicate F							0.373	3.000	4.662	1.423
	Replicate Prob(F)							0.7728	0.0445	0.0080	0.2541
	Treatment F							88.073	70.975	143.110	79.285
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
t=Mean descriptions are reported in transformed data units, and are not de-transformed.
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,4

University of Delaware

Lima Bean Tolerance to PPO Herbicides

Trial ID: Lima1-14 Location: Field #4 Trial Year:
Protocol ID: Lima1-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: IR-4

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: PHSLU Phaseolus lunatus Lima bean
Variety: Cypress BBCH Scale: BVBE
Description: Baby lima

Planting Date: 06/10/14
Planting Rate, Unit: 4 S/ROWFT Planting Method: PLANTD planted
Depth, Unit: 0.75 IN Planting Equipment: PP Plot Planter
Row Spacing, Unit: 30 IN Emergence Date: 06/14/14
Harvest Date: 08/26/14
Harvested Width, Unit: 30 IN
Soil Temperature, Unit: 87 F Harvested Length, Unit: 120 IN
Soil Moisture: NORMAL normal, adequate Harvest Equipment: Hand harvested
Seed Bed: SMOOTH smooth

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 12 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Product Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/10/14	Dual II Mag	7.64	E	1.25	PT/A

Field Prep./Maintenance:
6/10/14: Trial area received a total PRE treatment of Dual at 1.25 pt/A.

Soil Description

% Sand: 79 % OM: 2.0 Texture: LS loamy sand
% Silt: 11 pH: 5.6
% Clay: 10 CEC: 6.0 Fert. Level: E excellent
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.3 mi

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Application Description

	A	B	C
Application Date:	06/10/14	06/27/14	08/07/14
Appl. Stop Time:	09:40 AM	09:30 AM	01:00 PM
Interval to Prev. Appl., Unit:		17 DAYS	41 DAYS
Application Method:	SPRAY	SPRAY	21DPH
Application Timing:	PRE	1st trifol	Pod dev
Application Placement:	BROADC	BROADC	BROADC
Applied By:	Johnson	Johnson	VanGessel
Air Temperature, Unit:	76 F	74 F	80 F
% Relative Humidity:	85	80	46
Wind Velocity, Unit:	1 MPH	4 MPH	4 MPH
Wind Direction:	S	ENE	NNE
Dew Presence (Y/N):	Y yes	Y yes	N no
Soil Temperature, Unit:	75 F	73 F	78 F
Soil Moisture:	NORMAL	NORMAL	NORMAL
% Cloud Cover:	85	85	30

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	PHSLU BVBE	PHSLU BVBE	PHSLU BVBE
Stage Scale Used:		DESC	DESC
Stage Majority, Percent:		2-trif 70	1stPod 100
Stage Minimum, Percent:		1-trif 30	
Stage Maximum, Percent:		2-trif 70	
Height, Unit:		3.5 IN	15 IN
Height Minimum, Maximum:		3 4	

Application Equipment

	A	B	C
Appl. Equipment:	Tractor	Tractor	Backpack
Equipment Type:	TRMOSP	TRMOSP	SPRBAC
Operation Pressure, Unit:	40 psi	40 psi	30 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	18 in
Boom Length, Unit:	10 ft	10 ft	9 ft
Boom Height, Unit:	18 in	22 in	30 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	WATER	WATER	WATER
Spray Volume, Unit:	20 gal/ac	20 gal/ac	20 gal/ac
Mix Size, Unit:	0.7 Gallons	0.7 Gallons	2 Liters
Propellant:	COMAIR	COMAIR	COMCO2

Trial Comments

08/15/14: Trts 9 & 10 appear to have burnt off small pods & flowers.

8/26/14: Plump/flat and dry pods done on
Rep 1 8/25
Rep 2 8/26
Rep 3 8/27

University of Delaware

Lima Bean Tolerance to PPO Herbicides

Trial ID: Lima1-14 Location: Field #4 Trial Year:
Protocol ID: Lima1-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact: IR-4

Crop Code Crop Name Rating Type Rating Unit Rating Date							PHSLU Lima LeafBrn % 06/30/14	PHSLU Lima Stunting % 06/30/14	PHSLU Lima Stunting % 07/07/14	PHSLU Lima StandCt #/20ft 07/10/14	PHSLU Lima Stunting % 07/17/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							0.0 e	0.0 e	0.0 e	63 a	0.0 f
2	Ultra Blazer....acifluorfen	2	L	0.0625	lb ai/a	1st Trifol	B	50.0 c	50.0 b	43.3 cd	61 a	26.7 e
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
3	Ultra Blazer....acifluorfen	2	L	0.125	lb ai/a	1st Trifol	B	53.3 bc	60.0 a	53.3 bc	61 a	40.0 d
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
4	Ultra Blazer....acifluorfen	2	L	0.25	lb ai/a	1st Trifol	B	60.0 ab	60.0 a	70.0 a	58 a	59.6 b
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
5	Reflex.....fomesafen	2	L	0.0625	lb ai/a	1st Trifol	B	63.3 a	40.0 c	33.3 d	65 a	26.7 e
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
6	Reflex.....fomesafen	2	L	0.125	lb ai/a	1st Trifol	B	33.3 d	43.3 c	40.0 d	65 a	46.7 c
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
7	Reflex.....fomesafen	2	L	0.25	lb ai/a	1st Trifol	B	56.7 abc	53.3 b	63.3 ab	58 a	73.3 a
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
8	Raptor.....imazamox	1	AS	0.0313	lb ai/a	1st Trifol	B	5.7 e	10.7 d	9.0 e	65 a	5.7 f
	Basagran.....bentazon	4	L	0.5	lb ai/a	1st Trifol	B					
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
9	Ultra Blazer....acifluorfen	2	L	0.125	lb ai/a	21 DPH	C	0.0 e	0.0 e	0.0 e	62 a	
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPH	C					
10	Ultra Blazer....acifluorfen	2	L	0.25	lb ai/a	21 DPH	C	0.0 e	0.0 e	0.0 e	67 a	
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPH	C					
11	Weed Free Check							0.0 e	0.0 e	0.0 e	73 a	0.0 f
12	Spartan Charge Premix	3.5	F	0.082	lb ai/a	PRE	A	3.3 e	40.0 c	33.3 d	46 a	23.3 e
	----carfentrazone	0.35		0.0082								
	----sulfentrazone	3.15		0.074								
	Raptor.....imazamox	1	AS	0.0313	lb ai/a	1st Trifol	B					
	Basagran.....bentazon	4	L	0.5	lb ai/a	1st Trifol	B					
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
LSD P=.05								7.36	6.42	11.35	14.0	6.07
Standard Deviation								4.35	3.79	6.70	8.3	3.52
CV								16.02	12.74	23.27	13.31	11.66
Replicate F								3.181	1.716	0.791	0.705	1.055
Replicate Prob(F)								0.0612	0.2030	0.4659	0.5047	0.3700
Treatment F								122.413	134.463	46.016	1.844	150.234
Treatment Prob(F)								0.0001	0.0001	0.0001	0.1069	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
t=Mean descriptions are reported in transformed data units, and are not de-transformed.
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=7

Crop Code Crop Name Rating Type Rating Unit Rating Date							PHSLU Lima Stunting % 07/24/14	PHSLU Lima Stunting % 08/15/14	PHSLU Lima LeafBrn % 08/15/14	PHSLU Lima Plump % 08/26/14	PHSLU Lima Flat % 08/26/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code				
1	Untreated Check							0.0 f	0.0 e			
2	Ultra Blazer....acifluorfen	2	L	0.0625	lb ai/a	1st Trifol	B	23.3 de	14.0 cd			
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
3	Ultra Blazer....acifluorfen	2	L	0.125	lb ai/a	1st Trifol	B	28.3 d	16.7 cd		70.6 a	26.7 a
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
4	Ultra Blazer....acifluorfen	2	L	0.25	lb ai/a	1st Trifol	B	53.3 b	20.0 c		55.8 a	32.1 a
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
5	Reflex.....fomesafen	2	L	0.0625	lb ai/a	1st Trifol	B	26.7 d	11.3 d			
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
6	Reflex.....fomesafen	2	L	0.125	lb ai/a	1st Trifol	B	43.3 c	30.7 b		68.7 a	19.1 a
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
7	Reflex.....fomesafen	2	L	0.25	lb ai/a	1st Trifol	B	71.7 a	60.0 a			
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
8	Raptor.....imazamox	1	AS	0.0313	lb ai/a	1st Trifol	B	0.0 f	0.0 e		65.7 a	5.8 a
	Basagran.....bentazon	4	L	0.5	lb ai/a	1st Trifol	B					
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
9	Ultra Blazer....acifluorfen	2	L	0.125	lb ai/a	21 DPH	C	0.0 f	10.3 d	12.3 a	57.0 a	13.1 a
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPH	C					
10	Ultra Blazer....acifluorfen	2	L	0.25	lb ai/a	21 DPH	C	0.0 f	10.3 d	12.3 a	64.2 a	11.7 a
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPH	C					
11	Weed Free Check							0.0 f	0.0 e		72.3 a	9.3 a
12	Spartan Charge Premix	3.5	F	0.082	lb ai/a	PRE	A	17.3 e	14.0 cd			
	----carfentrazone	0.35		0.0082								
	----sulfentrazone	3.15		0.074								
	Raptor.....imazamox	1	AS	0.0313	lb ai/a	1st Trifol	B					
	Basagran.....bentazon	4	L	0.5	lb ai/a	1st Trifol	B					
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B					
LSD P=.05								7.87	8.50	10.83	25.87	15.69 - 20.11
Standard Deviation								4.65	5.02	3.08	14.54	1.22t
CV								21.13	32.14	24.99	22.41	30.4t
Replicate F								0.860	4.043	0.333	0.106	11.004
Replicate Prob(F)								0.4370	0.0320	0.7500	0.9000	0.0019
Treatment F								80.872	32.805	0.000	0.586	2.634
Treatment Prob(F)								0.0001	0.0001	1.0000	0.7360	0.0723

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Crop Code Crop Name Rating Type Rating Unit Rating Date								PHSLU Lima Dry % 08/26/14	PHSLU Lima Yield Ton/A 08/26/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code		
1	Untreated Check								
2	Ultra Blazer....acifluorfen	2	L	0.0625	lb ai/a	1st Trifol	B		
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B		
3	Ultra Blazer....acifluorfen	2	L	0.125	lb ai/a	1st Trifol	B	2.3 a	1.4 cd
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B		
4	Ultra Blazer....acifluorfen	2	L	0.25	lb ai/a	1st Trifol	B	7.6 a	1.2 d
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B		
5	Reflex.....fomesafen	2	L	0.0625	lb ai/a	1st Trifol	B		
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B		
6	Reflex.....fomesafen	2	L	0.125	lb ai/a	1st Trifol	B	9.6 a	1.5 bcd
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B		
7	Reflex.....fomesafen	2	L	0.25	lb ai/a	1st Trifol	B		
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B		
8	Raptor.....imazamox	1	AS	0.0313	lb ai/a	1st Trifol	B	23.5 a	2.5 a
	Basagran.....bentazon	4	L	0.5	lb ai/a	1st Trifol	B		
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B		
9	Ultra Blazer....acifluorfen	2	L	0.125	lb ai/a	21 DPH	C	27.8 a	2.1 abc
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPH	C		
10	Ultra Blazer....acifluorfen	2	L	0.25	lb ai/a	21 DPH	C	22.8 a	1.8 a-d
	Nonionic Surfactant	100	L	0.25	% v/v	21 DPH	C		
11	Weed Free Check							17.4 a	2.2 ab
12	Spartan Charge Premix	3.5	F	0.082	lb ai/a	PRE	A		
	----carfentrazone	0.35		0.0082					
	----sulfentrazone	3.15		0.074					
	Raptor.....imazamox	1	AS	0.0313	lb ai/a	1st Trifol	B		
	Basagran.....bentazon	4	L	0.5	lb ai/a	1st Trifol	B		
	Nonionic Surfactant	100	L	0.25	% v/v	1st Trifol	B		
LSD P=.05								16.99	0.75
Standard Deviation								9.55	0.42
CV								60.23	23.07
Replicate F								10.175	0.068
Replicate Prob(F)								0.0026	0.9350
Treatment F								2.967	4.020
Treatment Prob(F)								0.0515	0.0193

University of Delaware

Lima Bean Safety From Soil-Applied Herbicides

Trial ID: Lima2-14 Location: Field #4 Trial Year:
Protocol ID: Lima2-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: PHSLU Phaseolus lunatus Lima bean
Variety: Cypress BBCH Scale: BVBE
Description: Baby lima

Planting Date: 07/15/14
Planting Rate, Unit: 4 S/ROWFT Planting Method: PLANTD planted
Depth, Unit: 0.75 IN Planting Equipment: PP Plot Planter
Row Spacing, Unit: 30 IN Emergence Date: 07/19/14
Soil Temperature, Unit: 93 F
Soil Moisture: NORMAL normal, adequate
Seed Bed: SMOOTH smooth

Site and Design

Treated Plot Width: 10 FT Site Type: FIELD field
Treated Plot Length: 25 FT
Treated Plot Area: 250 FT2 Treatments: 8 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Soil Description

% Sand: 79 % OM: 2.0 Texture: SL sandy loam
% Silt: 11 pH: 5.6
% Clay: 10 CEC: 6.0 Fert. Level: E excellent
Soil Drainage: E excellent

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.3 mi

Application Description

	A
Application Date:	07/17/14
Appl. Stop Time:	09:00 AM
Application Method:	SPRAY
Application Timing:	PRE
Application Placement:	BROADC
Applied By:	Johnson
Air Temperature, Unit:	72 F
% Relative Humidity:	68
Wind Velocity, Unit:	0 MPH
Wind Direction:	N/A
Dew Presence (Y/N):	Y yes
Soil Temperature, Unit:	72 F
Soil Moisture:	NORMAL
% Cloud Cover:	0

University of Delaware

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	PHSLU BVBE

Application Equipment

	A
Appl. Equipment:	Tractor
Equipment Type:	TRMOSP
Operation Pressure, Unit:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	10 ft
Boom Height, Unit:	18 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/ac
Mix Size, Unit:	0.7 Gallons
Propellant:	COMAIR

Trial Comments

07/30/14: Stunted = unifoliate or less.

University of Delaware

Lima Bean Safety From Soil-Applied Herbicides

Trial ID: Lima2-14 Location: Field #4 Trial Year:
Protocol ID: Lima2-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	PHSLU Lima Stunting % 07/24/14	PHSLU Lima Stunted % 07/30/14	PHSLU Lima Stunting % 08/05/14	PHSLU Lima Stunting % 08/15/14
	Crop Code										
	Crop Name										
	Rating Type										
	Rating Unit										
	Rating Date										
1	Untreated Check							0.0 c	9.5 a	0.0 d	0.0 d
2	Dual Magnum.....s-metolachlor	7.62	E	0.95	lb ai/a	PRE	A	2.3 c	23.0 a	13.0 bc	9.0 c
	Sandea.....halosulfuron	75	DF	0.0314	lb ai/a	PRE	A				
3	Dual Magnum.....s-metolachlor	7.62	E	0.95	lb ai/a	PRE	A	8.7 b	22.0 a	16.7 b	17.3 ab
	Command.....clomazone	3	ME	0.14	lb ai/a	PRE	A				
	Sandea.....halosulfuron	75	DF	0.0314	lb ai/a	PRE	A				
4	Dual Magnum.....s-metolachlor	7.62	E	0.95	lb ai/a	PRE	A	14.7 a	36.6 a	23.3 a	12.7 bc
	Command.....clomazone	3	ME	0.28	lb ai/a	PRE	A				
	Sandea.....halosulfuron	75	DF	0.0314	lb ai/a	PRE	A				
5	Anthem Premix	2.153	SE	0.109	lb ai/a	PRE	A	14.0 a	17.8 a	11.3 c	11.3 bc
	----pyroxasulfone	2.09		0.106							
	----fluthiacet	0.06300001		0.0032							
	Sandea.....halosulfuron	75	DF	0.0314	lb ai/a	PRE	A				
6	Anthem Premix	2.153	SE	0.109	lb ai/a	PRE	A	15.3 a	24.2 a	12.0 c	10.3 c
	----pyroxasulfone	2.09		0.106							
	----fluthiacet	0.06300001		0.0032							
	Sandea.....halosulfuron	75	DF	0.0314	lb ai/a	PRE	A				
7	Anthem Premix	2.153	SE	0.168	lb ai/a	PRE	A	16.3 a	24.8 a	23.3 a	21.7 a
	----pyroxasulfone	2.09		0.163							
	----fluthiacet	0.06300001		0.0049							
	Sandea.....halosulfuron	75	DF	0.0314	lb ai/a	PRE	A				
8	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PRE	A	7.3 b	22.2 a	16.7 b	1.7 d
	Sandea.....halosulfuron	75	DF	0.0314	lb ai/a	PRE	A				
	LSD P=.05							4.35	15.04	4.02	6.13
	Standard Deviation							2.48	8.59	2.30	3.48
	CV							25.27	38.15	15.78	33.11
	Replicate F							2.720	1.674	0.150	0.281
	Replicate Prob(F)							0.1004	0.2229	0.8618	0.7593
	Treatment F							19.009	2.307	32.071	13.019
	Treatment Prob(F)							0.0001	0.0868	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=7

University of Delaware

Herbicides for Watermelons and Cantalopes
Under Plastic Application
Trial ID: Meln1-14 Cooperator:
Location: Field # 12 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

Crop 1: Watermelon CITLA Variety: 7187
Planting Date: 05/20/14 Planting Method: Transplanted- Machine
Rate: 8 plot Row Spacing: 7 ft Seed Bed: Smooth
Soil Temperature: 76 F Soil Moisture: Moist

Crop 2: Cantaloupe CUMMC Variety: Aphrodite
Planting Date: 05/20/14 Planting Method: Transplanted- Machine
Rate: 7 plot Row Spacing: 7 ft Seed Bed: Smooth
Soil Temperature: 76 F Soil Moisture: Moist

SITE AND DESIGN

Plot Width, Unit: 6.67 FT Plot Length, Unit: 55 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

MAINTENANCE

Field Prep./Maintenance: Had Brian spray row middles mid season to keep clean. Paraquat + Strategy + Sandea.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.5 Texture: loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.4 Fert. Level: Medium

Irrigation/Type: Trickle Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	05/14/14
Time of Day:	11:00 AM
Application Method:	Spray
Application Timing:	PrePla
Applic. Placement:	Brdcst
Air Temp., Unit:	58 F
% Relative Humidity:	98
Wind Velocity, Unit:	3 mph
Wind Direction:	East
Dew Presence (Y/N):	Y
Soil Temp., Unit:	58 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	N/A
% Cloud Cover:	95

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	CITLA
Crop 2 Code:	CUMMC

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	29 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	4 nozl
Boom Height, Unit:	18 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

University of Delaware

Herbicides for Watermelons and Cantalopes
Under Plastic Application
Trial ID: Meln1-14 Cooperator:
Location: Field # 12 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg					
	Weed Code										
	Crop Code						CITLA	CUMMC	CITLA	CUMMC	CITLA
	Weed or Crop Name						Water-	Canta-	Water-	Canta-	Water-
	Weed or Crop Name						melon	loupe	melon	loupe	melon
	Rating Data Type						Injury	Injury	Injury	Injury	Injury
	Rating Unit						%	%	%	%	%
	Rating Date						05/28/14	05/28/14	06/04/14	06/04/14	06/11/14
1	Untreated Check						0.0 a	0.0 a	0.0 a	0.0 b	0.0 c
2	Reflex.....fomesafen	2	L	0.187	lb ai/a	PRE-TRP	0.0 a	0.0 a	2.3 a	19.3 a	7.0 abc
3	Reflex.....fomesafen	2	L	0.25	lb ai/a	PRE-TRP	0.0 a	0.0 a	1.7 a	20.7 a	11.0 a
4	Dual II.....metolachlor	7.8	E	0.73	lb ai/a	PRE-TRP	0.0 a	0.0 a	2.3 a	2.3 b	8.0 ab
5	Dual II.....metolachlor	7.8	E	0.975	lb ai/a	PRE-TRP	0.0 a	0.0 a	4.0 a	0.0 b	12.3 a
6	Sandea.....halosulfuron	75	DF	0.0234	lb ai/a	PRE-TRP	0.0 a	0.0 a	0.0 a	0.0 b	3.3 bc
7	Sinbar.....terbacil	80	W	0.2	lb ai/a	PRE-TRP	0.0 a	2.3 a	0.0 a	26.0 a	6.3 abc
8	Prefar.....bensulide	4	E	6	lb ai/a	PRE-TRP	0.0 a	0.0 a	0.0 a	0.0 b	0.0 c
	LSD P=.05						.	2.50	5.34	7.74	7.63
	Standard Deviation						0.00	1.43	3.05	4.42	4.36
	CV						0.0	489.9	236.29	51.74	72.61
	Replicate F						0.000	1.000	2.554	0.271	2.061
	Replicate Prob(F)						1.0000	0.3927	0.1133	0.7666	0.1642
	Treatment F						0.000	1.000	0.751	19.721	3.372
	Treatment Prob(F)						1.0000	0.4706	0.6354	0.0001	0.0252

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
t=Mean descriptions are reported in transformed data units, and are not de-transformed.
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

Weed Code							AMASS	CHEAL	CHESS	EPHMA
Crop Code						CUMMC				
Weed or Crop Name						Canta-	Pigweed	Common	Gooseft	Spotted
Weed or Crop Name						loupe	Spp	Lambqtrs	spp	Spurge
Rating Data Type						Injury	Count	Count	Count	Count
Rating Unit						%	#/1ft2	#/1ft2	#/1ft2	#/1ft2
Rating Date						06/11/14	07/03/14	07/03/14	07/03/14	07/03/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg				
1	Untreated Check						0.0 e	0.3 a	0.3 a	0.7 a	0.3 a
2	Reflex.....fomesafen	2	L	0.187	lb ai/a	PRE-TRP	50.0 b	0.3 a	0.0 a	0.3 a	0.0 a
3	Reflex.....fomesafen	2	L	0.25	lb ai/a	PRE-TRP	53.3 b	0.0 a	0.0 a	0.0 a	0.7 a
4	Dual II.....metolachlor	7.8	E	0.73	lb ai/a	PRE-TRP	20.7 c	0.3 a	0.3 a	0.0 a	0.3 a
5	Dual II.....metolachlor	7.8	E	0.975	lb ai/a	PRE-TRP	13.3 cd	0.0 a	0.3 a	0.0 a	0.3 a
6	Sandea.....halosulfuron	75	DF	0.0234	lb ai/a	PRE-TRP	12.3 d	0.7 a	0.3 a	0.0 a	0.7 a
7	Sinbar.....terbacil	80	W	0.2	lb ai/a	PRE-TRP	73.3 a	0.0 a	0.0 a	0.0 a	1.3 a
8	Prefar.....bensulide	4	E	6	lb ai/a	PRE-TRP	0.0 e	0.3 a	0.7 a	0.7 a	0.3 a
LSD P=.05							7.67	0.89	0.82	0.93	1.40
Standard Deviation							4.38	0.51	0.47	0.53	0.80
CV							15.71	202.37	187.72	253.88	159.61
Replicate F							1.487	3.419	0.568	0.149	1.374
Replicate Prob(F)							0.2597	0.0618	0.5794	0.8630	0.2852
Treatment F							117.684	0.651	0.757	1.000	0.748
Treatment Prob(F)							0.0001	0.7084	0.6311	0.4706	0.6376

Weed Code						MOLVE	ERAME	CYPES		
Crop Code									CITLA	CUMMC
Weed or Crop Name						Carpet-	Stink-	Yellow	Water-	Canta-
Weed or Crop Name						weed	grass	Nutsedge	melon	loupe
Rating Data Type						Count	Count	Count	Injury	Injury
Rating Unit						#/1ft2	#/1ft2	#/1ft2	%	%
Rating Date						07/03/14	07/03/14	07/03/14	07/25/14	07/25/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg				
1	Untreated Check						6.0 a	2.0 a	1.3 a	0.0 a	0.0 c
2	Reflex.....fomesafen	2	L	0.187	lb ai/a	PRE-TRP	2.7 bcd	1.0 a	0.7 a	2.3 a	29.3 b
3	Reflex.....fomesafen	2	L	0.25	lb ai/a	PRE-TRP	1.3 cd	1.3 a	1.0 a	0.0 a	38.3 b
4	Dual II.....metolachlor	7.8	E	0.73	lb ai/a	PRE-TRP	3.3 a-d	0.7 a	1.7 a	3.3 a	6.0 c
5	Dual II.....metolachlor	7.8	E	0.975	lb ai/a	PRE-TRP	4.0 abc	2.0 a	1.0 a	0.0 a	7.3 c
6	Sandea.....halosulfuron	75	DF	0.0234	lb ai/a	PRE-TRP	3.0 bcd	1.0 a	1.3 a	0.0 a	2.3 c
7	Sinbar.....terbacil	80	W	0.2	lb ai/a	PRE-TRP	1.0 d	1.3 a	3.7 a	0.0 a	71.7 a
8	Prefar.....bensulide	4	E	6	lb ai/a	PRE-TRP	4.3 ab	1.7 a	2.3 a	0.0 a	0.0 c
LSD P=.05							2.67	1.85	2.68	4.06	13.84
Standard Deviation							1.53	1.06	1.53	2.32	7.90
CV							47.55	76.93	94.12	327.3	40.79
Replicate F							0.448	5.809	5.824	2.240	1.785
Replicate Prob(F)							0.6480	0.0146	0.0144	0.1432	0.2039
Treatment F							3.394	0.633	1.198	1.000	31.279
Treatment Prob(F)							0.0246	0.7219	0.3647	0.4706	0.0001

Weed Code						AMASS	CHEAL	EPHMA	MOLVE	ERAME
Crop Code										
Weed or Crop Name						Pigweed	Common	Spotted	Carpet-	Stink-
Weed or Crop Name						Spp	Lambqtrs	Spurge	weed	grass
Rating Data Type						Count	Count	Count	Count	Count
Rating Unit						#/1ft2	#/1ft2	#/1ft2	#/1ft2	#/1ft2
Rating Date						07/17/14	07/17/14	07/17/14	07/17/14	07/17/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg				
1	Untreated Check						0.0 a	0.0 a	0.3 a	0.7 a	4.3 a
2	Reflex.....fomesafen	2	L	0.187	lb ai/a	PRE-TRP	1.0 a	0.7 a	0.0 a	1.7 a	2.7 a
3	Reflex.....fomesafen	2	L	0.25	lb ai/a	PRE-TRP	0.3 a	0.0 a	0.0 a	0.7 a	4.7 a
4	Dual II.....metolachlor	7.8	E	0.73	lb ai/a	PRE-TRP	1.0 a	0.3 a	0.3 a	1.7 a	1.7 a
5	Dual II.....metolachlor	7.8	E	0.975	lb ai/a	PRE-TRP	0.0 a	0.0 a	0.3 a	1.3 a	3.7 a
6	Sandea.....halosulfuron	75	DF	0.0234	lb ai/a	PRE-TRP	0.3 a	0.7 a	0.7 a	1.3 a	0.7 a
7	Sinbar.....terbacil	80	W	0.2	lb ai/a	PRE-TRP	0.0 a	0.3 a	0.7 a	0.7 a	2.0 a
8	Prefar.....bensulide	4	E	6	lb ai/a	PRE-TRP	0.3 a	0.0 a	0.7 a	0.3 a	4.7 a
LSD P=.05							1.40	0.80	0.96	1.92	5.15
Standard Deviation							0.80	0.46	0.55	1.09	2.94
CV							213.81	182.57	146.93	105.01	96.69
Replicate F							0.778	4.200	2.882	0.244	2.057
Replicate Prob(F)							0.4783	0.0373	0.0895	0.7869	0.1647
Treatment F							0.806	1.257	0.765	0.672	0.798
Treatment Prob(F)							0.5965	0.3377	0.6254	0.6932	0.6021

Weed Code						CYPES	AMASS	CHEAL	CHESS	EPHMA
Crop Code										
Weed or Crop Name						Yellow	Pigweed	Common	Gooseft	Spotted
Weed or Crop Name						Nutsedge	Spp	Lambqtrs	spp	Spurge
Rating Data Type						Count	Count	Count	Count	Count
Rating Unit						#/1ft2	#/1ft2	#/1ft2	#/1ft2	#/1ft2
Rating Date						07/17/14	08/07/14	08/07/14	08/07/14	08/07/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg				
1	Untreated Check						0.0 a	0.0 a	0.0 a	0.3 a	1.0 a
2	Reflex.....fomesafen	2	L	0.187	lb ai/a	PRE-TRP	1.0 a	0.3 a	0.3 a	1.0 a	0.0 a
3	Reflex.....fomesafen	2	L	0.25	lb ai/a	PRE-TRP	1.0 a	0.7 a	0.0 a	0.7 a	0.0 a
4	Dual II.....metolachlor	7.8	E	0.73	lb ai/a	PRE-TRP	3.0 a	0.3 a	0.3 a	1.0 a	0.0 a
5	Dual II.....metolachlor	7.8	E	0.975	lb ai/a	PRE-TRP	1.7 a	0.3 a	0.0 a	2.0 a	2.7 a
6	Sandea.....halosulfuron	75	DF	0.0234	lb ai/a	PRE-TRP	0.0 a	0.3 a	0.0 a	0.3 a	2.7 a
7	Sinbar.....terbacil	80	W	0.2	lb ai/a	PRE-TRP	1.3 a	0.0 a	0.0 a	1.0 a	0.0 a
8	Prefar.....bensulide	4	E	6	lb ai/a	PRE-TRP	0.0 a	0.3 a	0.3 a	2.0 a	1.0 a
LSD P=.05							4.25	0.87	0.62	2.62	2.60
Standard Deviation							2.43	0.49	0.35	1.50	1.48
CV							242.51	169.38	282.84	143.81	161.68
Replicate F							0.595	5.293	1.000	2.358	0.588
Replicate Prob(F)							0.5649	0.0194	0.3927	0.1310	0.5685
Treatment F							0.551	0.561	0.714	0.570	1.854
Treatment Prob(F)							0.7830	0.7753	0.6619	0.7685	0.1543

Weed Code						MOLVE	ERAME	CYPES		
Crop Code									CUMMC	CUMMC
Weed or Crop Name						Carpet-	Stink-	Yellow	Canta-	Canta-
Weed or Crop Name						weed	grass	Nutsedge	loupe	loupe
Rating Data Type						Count	Count	Count	Yld Ttl	Yld Ttl
Rating Unit						#/1ft2	#/1ft2	#/1ft2	#/plot	kg/plot
Rating Date						08/07/14	08/07/14	08/07/14		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg				
1	Untreated Check						10.0 b	9.0 a	3.7 a	15 a	51.92 a
2	Reflex.....fomesafen	2	L	0.187	lb ai/a	PRE-TRP	6.7 bcd	0.7 a	2.0 a	6 d	18.67 b
3	Reflex.....fomesafen	2	L	0.25	lb ai/a	PRE-TRP	4.7 cd	7.7 a	1.0 a	3 de	9.44 b
4	Dual II.....metolachlor	7.8	E	0.73	lb ai/a	PRE-TRP	7.7 bcd	0.7 a	6.7 a	10 c	35.90 a
5	Dual II.....metolachlor	7.8	E	0.975	lb ai/a	PRE-TRP	15.7 a	3.0 a	6.3 a	12 abc	49.90 a
6	Sandea.....halosulfuron	75	DF	0.0234	lb ai/a	PRE-TRP	4.0 d	4.0 a	0.0 a	11 bc	36.90 a
7	Sinbar.....terbacil	80	W	0.2	lb ai/a	PRE-TRP	9.0 bc	6.0 a	8.7 a	0 e	0.44 c
8	Prefar.....bensulide	4	E	6	lb ai/a	PRE-TRP	6.3 bcd	5.7 a	6.0 a	14 ab	52.77 a
LSD P=.05							4.59	6.11	10.28	3.8	6.041 - 18.839
Standard Deviation							2.62	3.49	5.87	2.1	6.259t
CV							32.79	76.1	136.8	24.13	19.32t
Replicate F							0.945	1.658	2.873	1.585	0.918
Replicate Prob(F)							0.4123	0.2259	0.0900	0.2396	0.4221
Treatment F							5.952	2.315	0.830	17.828	18.232
Treatment Prob(F)							0.0023	0.0859	0.5796	0.0001	0.0001

Weed Code							
Crop Code						CITLA	CITLA
Weed or Crop Name						Water-	Water-
Weed or Crop Name						melon	melon
Rating Data Type						Yld Ttl	Yld Ttl
Rating Unit						#/plot	kg/plot
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	
1	Untreated Check						9 a	49.71 a
2	Reflex.....fomesafen	2	L	0.187	lb ai/a	PRE-TRP	12 a	63.64 a
3	Reflex.....fomesafen	2	L	0.25	lb ai/a	PRE-TRP	11 a	65.48 a
4	Dual II.....metolachlor	7.8	E	0.73	lb ai/a	PRE-TRP	12 a	65.38 a
5	Dual II.....metolachlor	7.8	E	0.975	lb ai/a	PRE-TRP	14 a	75.32 a
6	Sandea.....halosulfuron	75	DF	0.0234	lb ai/a	PRE-TRP	9 a	53.40 a
7	Sinbar.....terbacil	80	W	0.2	lb ai/a	PRE-TRP	10 a	53.42 a
8	Prefar.....bensulide	4	E	6	lb ai/a	PRE-TRP	13 a	65.01 a
LSD P=.05							3.8	20.569
Standard Deviation							2.1	11.745
CV							19.13	19.12
Replicate F							0.472	0.708
Replicate Prob(F)							0.6336	0.5095
Treatment F							2.092	1.580
Treatment Prob(F)							0.1136	0.2207

University of Delaware

Experimental PPO Herbicides for Watermelons and Cantalopes

Trial ID: Meln2-14 Cooperator:
Location: Field # 12 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Common Lambsquarters	CHEAL	Chenopodium album L.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
3.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.
4.	Stinkgrass	ERAME	Eragrostis cilianensis (All.) E.Mosher

Crop 1: Watermelon CITLA Variety: 7187
Planting Date: 05/28/14 Planting Method: Transplanted- Hand
Rate: 8 plot Row Spacing: 7 ft
Soil Temperature: 80 F Soil Moisture: Moist

Crop 2: Cantaloupe CUMMC Variety: Aphrodite
Planting Date: 05/28/14 Planting Method: Transplanted- Hand
Rate: 7 plot Row Spacing: 7 ft
Soil Temperature: 80 F Soil Moisture: Moist

SITE AND DESIGN

Plot Width, Unit: 6 FT Plot Length, Unit: 55 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Conventional Tillage

SOIL DESCRIPTION

% Sand: 81 % OM: 1.5 Texture: loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.4 Fert. Level: Medium

Irrigation/Type: Trickle Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/27/14	06/12/14
Time of Day:	9:10 AM	7:45 AM
Application Method:	Spray	Spray
Application Timing:	PreDir	PostDir
Applic. Placement:	Dir	Dir
Air Temp., Unit:	79 F	75 F
% Relative Humidity:	61	91
Wind Velocity, Unit:	4 mph	5 mph
Wind Direction:	Northwest	Southeast
Dew Presence (Y/N):	N	Y
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Dry	Moist
Leaf Surf. Moisture:	N/A	Moist
% Cloud Cover:	10	90

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	CITLA	CITLA
Growth Stage:		Vining
Height, Unit:		12 in
Crop Health:		Fair
Crop 2 Code:	CUMMC	CUMMC
Growth Stage:		Vining
Height, Unit:		10 in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	CHEAL	CHEAL
Growth Stage:		Veg
Height, Unit:		4 in
Density,Unit:		0-16 m2
Weed 2 Code:	AMAPA	AMAPA
Growth Stage:		Veg
Height, Unit:		5 in
Density,Unit:		0-20 m2
Weed 3 Code:	DIGSA	DIGSA
Growth Stage:		1-2 tiller
Height, Unit:		3 in
Density,Unit:		20-80 m2
Weed 4 Code:	ERAME	ERAME
Growth Stage:		1-2 tiller
Height, Unit:		3 in
Density,Unit:		20-40 m2

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	33 psi	33 psi
Nozzle Type:	XRTEEJET	XRTEEJET
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	18 in
Boom Length, Unit:	2 nozl	2 nozl
Boom Height, Unit:	12 in	12 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Trial Comments

06/18/14: Bad drift from POST sprays.

06/30/14: Injury consists of a lot of leaf burn and some stunting. Also plots missing 1 lope = 103, 208, 303, 302, 305, 307; 2 dead = 206, 207; 3 dead = 301. These deaths caused by wind damaged stems.

University of Delaware

Experimental PPO Herbicides for Watermelons and Cantalopes

Trial ID: Meln2-14 Cooperator:
Location: Field # 12 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
	Weed Code											
	Crop Code							CITLA	CUMMC	CITLA	CUMMC	CITLA
	Weed or Crop Name							Water-melon	Canta-loupe	Water-melon	Canta-loupe	Water-melon
	Weed or Crop Name											
	Rating Data Type							Injury	Injury	Injury	Injury	Lf burn
	Rating Unit							%	%	%	%	%
	Rating Date							06/05/14	06/05/14	06/11/14	06/11/14	06/18/14
1	Untreated Check							0.0 a	0.0 b	0.0 a	0.0 c	0.0 e
2	Chateau.....flumioxazin	51	WG	0.096	lb ai/a	Dir-PRE	A	0.0 a	14.0 a	5.7 a	14.0 a	4.0 de
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-PRE	A					
3	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	Dir-PRE	A	0.0 a	3.3 b	7.3 a	8.0 b	8.3 cde
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-PRE	A					
4	Strategy Premix	2.1	E	0.79	lb ai/a	Dir-PRE	A	0.0 a	0.0 b	0.0 a	5.7 b	9.7 cde
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.188	lb ai/a	Dir-PRE	A					
	Sandea.....halosulfuron	75	DF	0.035	lb ai/a	Dir-PRE	A					
5	Spartan Charge Premix	3.5	F	0.137	lb ai/a	Dir-POST	B					32.0 b
	----carfentrazone	0.35		0.0137								
	----sulfentrazone	3.15		0.123								
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
6	Reflex.....fomesafen	2	L	0.375	lb ai/a	Dir-POST	B					21.7 bc
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
7	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	Dir-POST	B					24.3 bc
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
8	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	Dir-POST	B					23.7 bc
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
9	Strategy Premix	2.1	E	0.79	lb ai/a	Dir-POST	B					19.7 bcd
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.188	lb ai/a	Dir-POST	B					
	Sandea.....halosulfuron	75	DF	0.035	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) for columns 1 because error mean square = 0.

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Weed Code											
Crop Code							CITLA	CUMMC	CITLA	CUMMC	CITLA
Weed or Crop Name							Water-	Canta-	Water-	Canta-	Water-
Weed or Crop Name							melon	loupe	melon	loupe	melon
Rating Data Type							Injury	Injury	Injury	Injury	Lf burn
Rating Unit							%	%	%	%	%
Rating Date							06/05/14	06/05/14	06/11/14	06/11/14	06/18/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
10	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	Dir-POST	B				49.3 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	Dir-POST	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B				
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B				
LSD P=.05								.	9.46	7.60	4.61	16.13
Standard Deviation								0.00	4.73	3.80	2.31	9.41
CV								0.0	109.26	117.05	33.39	48.82
Replicate F								0.000	2.636	2.712	3.063	0.591
Replicate Prob(F)								1.0000	0.1508	0.1449	0.1212	0.5644
Treatment F								0.000	5.888	3.015	18.891	7.285
Treatment Prob(F)								1.0000	0.0321	0.1160	0.0018	0.0002

Weed Code											AMAPA	CHEAL
Crop Code								CUMMC	CITLA	CUMMC		
Weed or Crop Name								Canta-	Water-	Canta-	Palmer	Common
Weed or Crop Name								loupe	melon	loupe	Amaranth	Lambqtrs
Rating Data Type								Lf burn	Injury	Injury	Control	Control
Rating Unit								%	%	%	%	%
Rating Date								06/18/14	06/30/14	06/30/14	06/30/14	06/30/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Untreated Check							0.0 g	0.0 b	0.0 e	0.0 b	0.0 c
2	Chateau.........flumioxazin	51	WG	0.096	lb ai/a	Dir-PRE	A	14.0 efg	0.0 b	8.0 cde	100.0 a	100.0 a
	Curbit..........ethalfluralin	3	E	0.75	lb ai/a	Dir-PRE	A					
3	Chateau.........flumioxazin	51	WG	0.127	lb ai/a	Dir-PRE	A	12.3 fg	0.0 b	4.0 de	86.7 a	92.7 ab
	Curbit..........ethalfluralin	3	E	0.75	lb ai/a	Dir-PRE	A					
4	Strategy Premix	2.1	E	0.79	lb ai/a	Dir-PRE	A	20.0 def	0.0 b	14.0 cde	93.3 a	88.3 b
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit..........ethalfluralin	3	E	0.188	lb ai/a	Dir-PRE	A					
	Sandea..........halosulfuron	75	DF	0.035	lb ai/a	Dir-PRE	A					
5	Spartan Charge Premix	3.5	F	0.137	lb ai/a	Dir-POST	B	45.0 ab	6.0 b	37.3 ab	100.0 a	100.0 a
	----carfentrazone	0.35		0.0137								
	----sulfentrazone	3.15		0.123								
	Curbit..........ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
6	Reflex..........fomesafen	2	L	0.375	lb ai/a	Dir-POST	B	32.7 bcd	3.3 b	15.0 cde	100.0 a	100.0 a
	Curbit..........ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
7	Sharpen.........saflufenacil	2.85	SC	0.067	lb ai/a	Dir-POST	B	38.7 abc	5.7 b	25.7 bc	100.0 a	100.0 a
	Curbit..........ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
8	Sharpen.........saflufenacil	2.85	SC	0.111	lb ai/a	Dir-POST	B	27.0 c-f	9.7 b	20.7 bcd	100.0 a	100.0 a
	Curbit..........ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
9	Strategy Premix	2.1	E	0.79	lb ai/a	Dir-POST	B	30.3 b-e	4.0 b	12.3 cde	100.0 a	100.0 a
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit..........ethalfluralin	3	E	0.188	lb ai/a	Dir-POST	B					
	Sandea..........halosulfuron	75	DF	0.035	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					

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| Weed Code | | |

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	DIGSA	DIGSA	CITLA	CUMMC	CITLA
	Weed Code							DIGSA	DIGSA			
	Crop Code									CITLA	CUMMC	CITLA
	Weed or Crop Name							Large	Large	Water-	Canta-	Water-
	Weed or Crop Name							Crabgras	Crabgras	melon	loupe	melon
	Rating Data Type							Control	Control	Injury	Injury	YieldTtl
	Rating Unit							%	%	%	%	#/plot
	Rating Date							06/30/14	07/24/14	07/25/14	07/25/14	
1	Untreated Check							0.0 b	0.0 b	0.0 a	0.0 d	8 a
2	Chateau.....flumioxazin	51	WG	0.096	lb ai/a	Dir-PRE	A	82.7 a	73.3 a	0.0 a	3.3 cd	11 a
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-PRE	A					
3	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	Dir-PRE	A	68.3 a	61.7 a	0.0 a	5.7 bcd	10 a
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-PRE	A					
4	Strategy Premix	2.1	E	0.79	lb ai/a	Dir-PRE	A	76.0 a	60.0 a	0.0 a	3.3 cd	13 a
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.188	lb ai/a	Dir-PRE	A					
	Sandea.....halosulfuron	75	DF	0.035	lb ai/a	Dir-PRE	A					
5	Spartan Charge Premix	3.5	F	0.137	lb ai/a	Dir-POST	B	91.0 a	83.3 a	2.3 a	20.0 a	11 a
	----carfentrazone	0.35		0.0137								
	----sulfentrazone	3.15		0.123								
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
6	Reflex.....fomesafen	2	L	0.375	lb ai/a	Dir-POST	B	82.3 a	91.7 a	4.0 a	9.0 bc	9 a
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
7	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	Dir-POST	B	84.7 a	72.7 a	2.3 a	10.7 b	13 a
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
8	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	Dir-POST	B	78.7 a	78.7 a	0.0 a	10.0 bc	7 a
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
9	Strategy Premix	2.1	E	0.79	lb ai/a	Dir-POST	B	76.7 a	61.0 a	0.0 a	0.0 d	11 a
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.188	lb ai/a	Dir-POST	B					
	Sandea.....halosulfuron	75	DF	0.035	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					

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Weed Code							DIGSA	DIGSA			
Crop Code									CITLA	CUMMC	CITLA
Weed or Crop Name							Large	Large	Water-	Canta-	Water-
Weed or Crop Name							Crabgras	Crabgras	melon	loupe	melon
Rating Data Type							Control	Control	Injury	Injury	YieldTtl
Rating Unit							%	%	%	%	#/plot
Rating Date							06/30/14	07/24/14	07/25/14	07/25/14	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
10	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	Dir-POST	B	87.3 a	80.7 a	3.3 a	9.3 bc	10 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	Dir-POST	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B					
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B					
LSD P=.05								31.51	35.79	6.00	6.93	4.1
Standard Deviation								18.37	20.87	3.50	4.04	2.4
CV								25.24	31.47	291.47	56.66	23.48
Replicate F								0.567	0.050	0.319	1.936	1.210
Replicate Prob(F)								0.5769	0.9511	0.7310	0.1731	0.3212
Treatment F								6.175	4.493	0.643	6.680	1.935
Treatment Prob(F)								0.0005	0.0033	0.7470	0.0003	0.1115

Weed Code Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							CITLA Water- melon YieldTtl kg/plot	CUMMC Canta- loupe YieldTtl #/plot	CUMMC Canta- loupe YieldTtl kg/plot
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Untreated Check							241.9 a	6 a	17.3 a
2	Chateau.....flumioxazin	51	WG	0.096	lb ai/a	Dir-PRE	A	270.3 a	7 a	25.1 a
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-PRE	A			
3	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	Dir-PRE	A	250.9 a	9 a	26.9 a
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-PRE	A			
4	Strategy Premix	2.1	E	0.79	lb ai/a	Dir-PRE	A	272.5 a	7 a	28.2 a
	----clomazone	0.5		0.188						
	----ethalfluralin	1.6		0.6						
	Curbit.....ethalfluralin	3	E	0.188	lb ai/a	Dir-PRE	A			
	Sandea.....halosulfuron	75	DF	0.035	lb ai/a	Dir-PRE	A			
5	Spartan Charge Premix	3.5	F	0.137	lb ai/a	Dir-POST	B	265.1 a	5 a	19.8 a
	----carfentrazone	0.35		0.0137						
	----sulfentrazone	3.15		0.123						
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B			
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B			
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B			
6	Reflex.....fomesafen	2	L	0.375	lb ai/a	Dir-POST	B	248.8 a	7 a	22.9 a
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B			
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B			
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B			
7	Sharpen.....saflufenacil	2.85	SC	0.067	lb ai/a	Dir-POST	B	270.4 a	5 a	19.9 a
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B			
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B			
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B			
8	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	Dir-POST	B	246.8 a	6 a	22.5 a
	Curbit.....ethalfluralin	3	E	0.75	lb ai/a	Dir-POST	B			
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B			
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B			
9	Strategy Premix	2.1	E	0.79	lb ai/a	Dir-POST	B	262.1 a	6 a	22.2 a
	----clomazone	0.5		0.188						
	----ethalfluralin	1.6		0.6						
	Curbit.....ethalfluralin	3	E	0.188	lb ai/a	Dir-POST	B			
	Sandea.....halosulfuron	75	DF	0.035	lb ai/a	Dir-POST	B			
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B			
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B			

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Weed Code									
Crop Code							CITLA	CUMMC	CUMMC
Weed or Crop Name							Water-	Canta-	Canta-
Weed or Crop Name							melon	loupe	loupe
Rating Data Type							YieldTtl	YieldTtl	YieldTtl
Rating Unit							kg/plot	#/plot	kg/plot
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
10	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	Dir-POST	B	257.8 a	1 a	3.2 a
	Curbit.....ethalfluralin	3	E	0.56	lb ai/a	Dir-POST	B			
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	Dir-POST	B			
	Nonionic Surfactant	100	L	0.25	% v/v	Dir-POST	B			
LSD P=.05								28.86	5.0	17.77
Standard Deviation								16.82	2.9	10.36
CV								6.5	50.58	49.83
Replicate F								374.396	1.579	0.973
Replicate Prob(F)								0.0001	0.2334	0.3968
Treatment F								1.297	1.533	1.382
Treatment Prob(F)								0.3041	0.2103	0.2667

Experimental Herbicides for Watermelons and Cantaloupes

Trial ID: Meln3-14 Location: Field # 12 Trial Year:
Protocol ID: Meln3-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Investigator: Mark VanGessel Title: Extension Weed Specialist
Organization: University of Delaware
Address: 16483 County Seat Hwy
City+State/Prov: Georgetown, Delaware
Postal Code: 19947 E-mail: mjv@udel.edu
Country: USA United States

Crop Description

Crop 1: CITLA Citrullus lanatus Watermelon
Variety: 7187 BBCH Scale: BVVT
Planting Date: 06/12/14
Planting Rate, Unit: 8 plot Planting Method: TRAHAN transplanted - hand
Row Spacing, Unit: 7 ft
Planting Density, Unit: 1 3 ft-row
Soil Temperature, Unit: 76 F
Soil Moisture: NORMAL normal, adequate

Crop 2: CUMMC Cucumis melo cantaloupensis Cantaloup melon
Variety: Aphrodite BBCH Scale: BVVT
Planting Date: 06/12/14
Planting Rate, Unit: 7 plot Planting Method: TRAHAN transplanted - hand
Row Spacing, Unit: 7 ft
Planting Density, Unit: 1 3 ft-row
Soil Temperature, Unit: 76 F
Soil Moisture: NORMAL normal, adequate

Pest Description

Pest 1 Type: W Code: AMAPA Amaranthus palmeri
Common Name: Palmer amaranth

Pest 2 Type: W Code: POROL Portulaca oleracea
Common Name: Common purslane

Pest 3 Type: W Code: IPOSS Ipomoea sp.
Common Name: Morningglory

Pest 4 Type: W Code: GGGAN Annual grasses
Common Name: Annual grasses
Description: DIGSA, PANDI

Pest 5 Type: W Code: CHEAL Chenopodium album
Common Name: Common lambsquarters

Site and Design

Treated Plot Width: 6.67 FT Site Type: FIELD field
Treated Plot Length: 55 FT
Treated Plot Area: 366.85 FT2 Treatments: 8 Tillage Type: CONTIL conventional-till
Replications: 3 Study Design: RACOBL Randomized Complete Block (RCB)

Soil Description

% Sand: 81 % OM: 1.5 Texture: LS loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.4 Fert. Level: G good
Soil Drainage: G good

Moisture and Weather Conditions

Overall Moisture Conditions: NORMAL normal
Closest Weather Station: UDREC Distance, Unit: 0.3 mi

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Application Description

	A
Application Date:	06/30/14
Appl. Stop Time:	08:45 AM
Application Method:	SPRAY
Application Timing:	POST
Application Placement:	DIR
Applied By:	Johnson
Air Temperature, Unit:	78 F
% Relative Humidity:	72
Wind Velocity, Unit:	3 MPH
Wind Direction:	SSW
Dew Presence (Y/N):	N no
Soil Moisture:	NORMAL
% Cloud Cover:	30

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	CITLA BVVT
Stage Scale Used:	DESC
Stage Majority, Percent:	Vining 100
Height, Unit:	21 in
Height Minimum, Maximum:	18 24
Crop 2 Code, BBCH Scale:	CUMMC BVVT
Stage Scale Used:	DESC
Stage Majority, Percent:	Vining 100
Height, Unit:	16 in
Height Minimum, Maximum:	14 18

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Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	AMAPA W
Stage Majority, Percent:	veg 100
Height, Unit:	9 in
Height Minimum, Maximum:	5 12
Density, Unit:	28 M2
Pest 2 Code, Type, Scale:	POROL W
Stage Majority, Percent:	veg 100
Diameter, Unit:	10 IN
Height Minimum, Maximum:	2 15
Density, Unit:	6 M2
Pest 3 Code, Type, Scale:	IPOSS W
Stage Majority, Percent:	vining 80
Stage Minimum, Percent:	veg 20
Stage Maximum, Percent:	vining 80
Height, Unit:	10 in
Height Minimum, Maximum:	2 15
Density, Unit:	15 M2
Pest 4 Code, Type, Scale:	GGGAN W
Stage Majority, Percent:	tiller 100
Height, Unit:	12 in
Height Minimum, Maximum:	5 15
Density, Unit:	12 M2
Pest 5 Code, Type, Scale:	CHEAL W
Stage Majority, Percent:	veg 100
Height, Unit:	8 in
Height Minimum, Maximum:	6 10
Density, Unit:	2 M2

Application Equipment

	A
Appl. Equipment:	Backpack
Equipment Type:	SHIELD
Operation Pressure, Unit:	33 psi
Nozzle Type:	XRTeejet
Nozzle Size:	11002
Nozzle Spacing, Unit:	16 in
Boom Length, Unit:	32 in
Boom Height, Unit:	16 in
Ground Speed, Unit:	3 mph
Carrier:	WATER
Spray Volume, Unit:	20 gal/A
Mix Size, Unit:	2 Liters
Propellant:	COMCO2

Trial Comments

07/03/14: Plot 308 has 2 small melons and 1 dead lope that has nothing to do with herbicide injury. Also, untreated checks do have leaf burn from drift of paraquat or possiblly neighboring trt. Plots 101, 203, 305 have leaf burn on melons: 0,7,7 and lopes 0,15,15, respectively.

07/09/14: Annual grasses consist of fall panicum and large crabgrass. Lambsquarters presence or abscence is rated as 0 = none, 1 = 1-3, and 2 = 4 or more. Also - there is smooth as well as Palmer here. coverage issue - Common

purslane control likely to be better if Palmer was not covering some of the plants at application.
Farm crew handed-weeded Palmer and Lambsquarter from our plots.

08/19/14: Morningglory spp were hard to locate in the last range due to thick stand of grasses.

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Experimental Herbicides for Watermelons and Cantaloupes

Trial ID: Meln3-14 Location: Field # 12 Trial Year:
Protocol ID: Meln3-14 Investigator: Mark VanGessel
Project ID: Study Director:
Sponsor Contact:

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
	Pest Code								AMASS	POROL	GGGAN
	Pest Name								Amaranth	C.pursln	AnnGrass
	Crop Code						CITLA	CUMMC			
	Crop Name						Watrmeln	Cantalp			
	Rating Type						LeafBrn	LeafBrn	Control	Control	Control
	Rating Unit						%	%	%	%	%
	Rating Date						07/03/14	07/03/14	07/03/14	07/03/14	07/03/14
1	Untreated Check						0.0 a	0.0 c	0.0 c	0.0 b	0.0 b
2	Reflex.....fomesafen	2	L	0.375	lb ai/a	POSDIR	11.7 a	16.0 b	88.3 ab	79.0 a	76.7 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
3	Chateau.....flumioxazin	51	WG	0.128	lb ai/a	POSDIR	9.0 a	18.3 ab	86.7 ab	81.7 a	77.7 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
4	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSDIR	11.7 a	20.7 ab	88.0 ab	76.7 a	78.3 a
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
5	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSDIR	9.7 a	30.3 a	86.7 ab	79.3 a	76.7 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
6	No Residual						9.0 a	18.3 ab	86.0 ab	71.0 a	77.7 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
7	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	POSDIR	11.7 a	16.7 ab	80.0 b	73.3 a	73.3 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
8	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	POSDIR	10.7 a	16.0 b	90.0 a	78.3 a	77.0 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
	LSD P=.05						8.10	14.33	9.69	15.46	8.39
	Standard Deviation						4.62	8.18	5.54	8.83	4.79
	CV						50.44	48.03	7.31	13.09	7.13
	Replicate F						0.096	0.923	0.148	1.863	3.846
	Replicate Prob(F)						0.9095	0.4204	0.8636	0.1917	0.0467
	Treatment F						2.112	3.109	92.479	29.020	96.543
	Treatment Prob(F)						0.1108	0.0337	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=32

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CITLA Watrmeln	CUMMC Cantalp	AMASS Amaranth	POROL C.pursln	GGGAN AnnGrass
	Pest Code								AMASS	POROL	GGGAN
	Pest Name								Amaranth	C.pursln	AnnGrass
	Crop Code						CITLA	CUMMC			
	Crop Name						Watrmeln	Cantalp			
	Rating Type						Injury	Injury	Control	Control	Control
	Rating Unit						%	%	%	%	%
	Rating Date						07/09/14	07/09/14	07/09/14	07/09/14	07/09/14
1	Untreated Check						0.0 e	0.0 c	0.0 c	0.0 b	0.0 c
2	Reflex.....fomesafen	2	L	0.375	lb ai/a	POSDIR	6.3 cd	10.0 ab	97.0 a	69.3 a	66.0 b
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
3	Chateau.....flumioxazin	51	WG	0.128	lb ai/a	POSDIR	4.7 d	11.7 ab	97.3 a	66.7 a	74.3 ab
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
4	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSDIR	10.7 ab	14.7 ab	97.0 a	66.3 a	66.7 b
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
5	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSDIR	7.3 bcd	16.7 a	97.0 a	70.7 a	79.3 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
6	No Residual						6.3 cd	9.0 b	92.7 b	56.0 a	65.0 b
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
7	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	POSDIR	13.0 a	13.3 ab	96.0 ab	64.3 a	72.0 ab
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
8	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	POSDIR	10.0 abc	12.3 ab	97.3 a	66.0 a	73.7 ab
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
	LSD P=.05						4.21	7.09	3.76	15.85	10.74
	Standard Deviation						2.41	4.05	2.15	9.05	6.13
	CV						32.99	36.97	2.54	15.76	9.87
	Replicate F						0.720	0.658	1.476	6.434	5.189
	Replicate Prob(F)						0.5038	0.5334	0.2620	0.0104	0.0206
	Treatment F						8.386	4.680	757.908	20.416	52.194
	Treatment Prob(F)						0.0004	0.0069	0.0001	0.0001	0.0001

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
	Pest Code						CHEAL				
	Pest Name						C.lmsqtr				
	Crop Code							CITLA	CUMMC	CITLA	CUMMC
	Crop Name							Watrmeln	Cantalp	Watrmeln	Cantalp
	Rating Type						PresAbsnc	Stunting	Stunting	Stunting	Stunting
	Rating Unit						0-2	%	%	%	%
	Rating Date						07/09/14	07/17/14	07/17/14	08/06/14	08/06/14
1	Untreated Check						2.0 a	0.0 a	0.0 b	0.0 a	0.0 c
2	Reflex.....fomesafen	2	L	0.375	lb ai/a	POSDIR	0.7 b	3.3 a	1.7 b	3.3 a	2.3 bc
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
3	Chateau.....flumioxazin	51	WG	0.128	lb ai/a	POSDIR	0.7 b	6.3 a	7.3 ab	0.0 a	0.0 c
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
4	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSDIR	0.7 b	9.7 a	10.7 a	5.0 a	10.0 ab
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
5	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSDIR	1.0 b	0.0 a	11.3 a	2.3 a	0.0 c
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
6	No Residual						1.3 ab	0.0 a	0.0 b	0.0 a	0.0 c
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
7	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	POSDIR	1.0 b	9.7 a	14.7 a	12.3 a	12.3 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
8	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	POSDIR	1.0 b	7.3 a	10.7 a	5.7 a	8.3 abc
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
	LSD P=.05						0.75	8.07	7.34	8.23	9.23
	Standard Deviation						0.43	4.61	4.19	4.70	5.27
	CV						41.24	101.41	59.52	131.13	127.75
	Replicate F						0.226	0.244	2.678	0.126	0.059
	Replicate Prob(F)						0.8007	0.7871	0.1036	0.8822	0.9434
	Treatment F						3.323	2.563	5.636	2.389	2.946
	Treatment Prob(F)						0.0266	0.0635	0.0030	0.0784	0.0405

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	GGGAN AnnGrass	IPOSS mornglry	CUMMC	CUMMC	CUMMC
	Crop Code								CUMMC	CUMMC	CUMMC
	Crop Name								Cantalp	Cantalp	Cantalp
	Rating Type						Control	Control	YieldTtl	YieldTtl	Average
	Rating Unit						%	%	#/plot	kg/plot	wt/melon
	Rating Date						08/19/14	08/19/14			
1	Untreated Check						0.0 e	0.0 d	5 a	15.0 a	3.2 a
2	Reflex.....fomesafen	2	L	0.375	lb ai/a	POSDIR	55.0 cd	73.1 ab	7 a	29.6 a	4.2 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
3	Chateau.....flumioxazin	51	WG	0.128	lb ai/a	POSDIR	69.3 abc	38.1 bcd	8 a	35.0 a	4.5 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
4	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSDIR	61.7 bc	50.7 abc	7 a	26.1 a	4.0 a
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
5	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSDIR	80.0 a	76.7 ab	8 a	33.4 a	4.1 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
6	No Residual						56.7 cd	30.7 cd	10 a	36.0 a	3.8 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
7	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	POSDIR	43.3 d	58.3 abc	7 a	25.8 a	4.0 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
8	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	POSDIR	75.0 ab	77.7 a	7 a	24.8 a	3.8 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR					
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR					
	LSD P=.05						17.44	39.38	4.9	19.74	0.83
	Standard Deviation						9.96	21.32	2.8	11.27	0.47
	CV						18.07	42.09	38.95	39.94	12.0
	Replicate F						3.690	0.154	1.385	0.671	1.139
	Replicate Prob(F)						0.0516	0.8599	0.2826	0.5269	0.3480
	Treatment F						19.178	4.794	0.819	1.118	2.139
	Treatment Prob(F)						0.0001	0.0166	0.5872	0.4046	0.1071

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Pest Code Pest Name Crop Code Crop Name Rating Type Rating Unit Rating Date						CITLA Watrmeln YieldTtl #/plot	CITLA Watrmeln YieldTtl kg/plot	CITLA Watrmeln Average wt/melon
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		
1	Untreated Check						5 a	31.36 a	6.0 a
2	Reflex.....fomesafen	2	L	0.375	lb ai/a	POSDIR	8 a	40.06 a	5.3 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR			
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR			
3	Chateau.....flumioxazin	51	WG	0.128	lb ai/a	POSDIR	7 a	47.96 a	7.1 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR			
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR			
4	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSDIR	5 a	28.53 a	5.9 a
	----carfentrazone	0.35		0.0137					
	----sulfentrazone	3.15		0.123					
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR			
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR			
5	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSDIR	8 a	43.88 a	5.9 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR			
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR			
6	No Residual						8 a	49.04 a	6.1 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR			
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR			
7	Zidua.....pyroxasulfone	85	WG	0.106	lb ai/a	POSDIR	7 a	41.57 a	6.1 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR			
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR			
8	Zidua.....pyroxasulfone	85	WG	0.16	lb ai/a	POSDIR	6 a	35.09 a	6.0 a
	Gramoxone SL....paraquat	2	SL	0.6	lb ai/a	POSDIR			
	Nonionic Surfactant	100	L	0.25	% v/v	POSDIR			
LSD P=.05							3.4	21.815	1.72
Standard Deviation							1.9	12.457	0.98
CV							29.53	31.39	16.22
Replicate F							0.413	1.758	4.032
Replicate Prob(F)							0.6694	0.2084	0.0414
Treatment F							1.172	1.083	0.736
Treatment Prob(F)							0.3774	0.4232	0.6463

University of Delaware

Influence of Straw Mulch on Weed Control in Cucurbits

Trial ID: Pmkn1-14 Cooperator:
Location: Field #32 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Morningglory Species	IPOSS	Ipomoea sp.
3.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.
4.	Fall Panicum	PANDI	Panicum dichotomiflorum (L.) Michx.

Crop 1: Pumpkin CUUPE Variety: Magician
Planting Date: 06/04/14 Planting Method: Hand seeded Depth: 1 in
Rate: 1 per 3 ft-r Row Spacing: 10 ft Seed Bed: Med or med-trashy
Soil Temperature: 89 F Soil Moisture: Normal Emergence Date: 06/09/14

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 4
Site Type: Field Study Design: SPLIT-PLOT
Tillage Type: Three - see treatments.

MAINTENANCE

Field Prep./Maintenance: 3/11/14: 50 lb/A N sprayed on rye cover treatments. 4/21/14: 60 lb/A N sprayed on rye cover treatments. Conventional and stale seedbed got glyphosate at 1 qt/A. 5/15/14: Stale seedbed rototilled and cultipacked. 6/4/14: Conventional tillage treatment rototilled and cultipacked prior to planting, and trts 1,4,7 (untreated) got 1 qt/A glyphosate. 6/9/14: Cupped and sprayed Liberty at 1 qt/A for old weed emergence in the stale seedbed plots only. 6/27/14: Aim sprayed on all plots with 2 nozzle hooded sprayer. 7/11/14: Spayed conventional tillage plots only with

SOIL DESCRIPTION

% Sand: 81 % OM: 1.8 Texture: loamy sand
% Silt: 10 pH: 6.1
% Clay: 9 CEC: 6.0 Fert. Level: Optimum

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	06/04/14	06/04/14
Time of Day:	11:00 AM	2:00 PM
Application Method:	Spray	Spray
Application Timing:	Burndown	Pre
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	81 F	87 F
% Relative Humidity:	58	29
Wind Velocity, Unit:	2 mph	4 mph
Wind Direction:	NE	NW
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	81 F	86 F
Soil Surf. Moisture:	Dry	Dry
Root Zone Moisture:	Moist	Dry
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	10	10

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	CUUPE	CUUPE

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	AMAPA	AMAPA
Weed 2 Code:	IPOSS	IPOSS
Weed 3 Code:	DIGSA	DIGSA
Weed 4 Code:	PANDI	PANDI

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Backpack
Operating Pressure:	40 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	20 in	18 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	18 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	CO2

Trial Comments

Rye (variety not stated) biomass was taken in early May (at rolling) in 0.5 m2 area and again on 6/2/14 (at pumpkin planting).

May biomass kg/0.5m2:
Rep 1 0.245
Rep 2 0.236
Rep 3 0.261
Rep 4 0.250

June biomas kg/0.5m2:

Rep 1	0.202
Rep 2	0.195
Rep 3	0.246
Rep 4	0.306

05/19/14: No horseweed emergence was observed in plots treated with glyphosate early.

06/13/14: Emerged pumpkins counted then all plots taken down to 10 per plot or the respective number of emerged plants. Some late emergence did occur after this date but not exceeding 10/plot. Also transplanted into plots where plants were less than 9.

06/27/14: Morningglory density severely decreased in reps 3 and 4.

06/30/14: Leaf burn from Aim hooded spray trt rated by tillage trt only.

07/11/14: Presence or absense of large crabgrass rating: 0 = none; 1 = few; 2 = good stand; 3 = heavy.

09/10/14: Annual grasses consisted mainy of large crabgrass and a few giant foxtail. Morningglory species was predominately pitted. Left side of trial (plots 101-103 and 301-303) was different than all the rest of the trial with heavier densities of both crabgrass and morningglory. This rating is not reflective of a true comparison for tillage treatments due to addtional applications made to the stale seedbed (cupped & sprayed Liberty ~ 2WAP for Palmer amaranth control) and to the conventional tillage (received an application of Select ~ 5 WAP for grass control). The rye cover did not receive any addtional herbicide treatment.

University of Delaware

Influence of Straw Mulch on Weed Control in Cucurbits

Trial ID: Pmkn1-14 Cooperator:
Location: Field #32 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	CUUPE	CUUPE	AMAPA	IPOSS	AMAPA
	Weed Code											
	Crop Code							CUUPE	CUUPE			
	Weed or Crop Name							Pumpkin	Pumpkin	Palmer amaranth	Morngly Species	Palmer amaranth
	Weed or Crop Name											
	Rating Data Type							Emerged	# pumpk thinned	Control	Control	Control
	Rating Unit							#		%	%	%
	Rating Date							06/13/14	06/18/14	06/18/14	06/18/14	06/27/14
1	Conventionally tilled soil							9.8 a	10.0 a	0.0 c	0.0 c	0.0 f
	Untreated Check											
2	Conventionally tilled soil							9.3 a	9.5 a	50.0 b	46.3 b	51.3 e
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					
3	Conventionally tilled soil							10.0 a	10.0 a	51.3 b	51.3 b	57.0 e
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A					
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
4	Stale-seed bed							9.8 a	10.0 a	90.8 a	86.5 a	69.5 d
	Untreated Check											
5	Stale-seed bed							9.3 a	9.5 a	90.8 a	86.3 a	77.8 cd
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					
6	Stale-seed bed							10.8 a	10.0 a	95.5 a	92.3 a	85.3 abc
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A					
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
7	No-till High rye residues							10.0 a	9.5 a	94.5 a	90.3 a	79.3 bcd
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
	Untreated Check											
8	No-till High rye residues							9.5 a	9.5 a	100.0 a	89.5 a	89.0 ab
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					
9	No-till High rye residues							9.3 a	9.5 a	99.5 a	95.5 a	90.5 a
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A					
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
	LSD P=.05							1.63	0.64	18.79	18.84	10.47
	Standard Deviation							1.10	0.43	12.65	12.68	7.05
	CV							11.28	4.43	16.93	17.9	10.58
	Replicate F							0.523	1.000	3.893	1.048	0.338
	Replicate Prob(F)							0.6719	0.4155	0.0263	0.3956	0.7981
	Treatment F							0.802	1.500	29.176	25.733	65.240
	Treatment Prob(F)							0.6090	0.2253	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean separations are based on the complete error term.
t=Mean descriptions are reported in transformed data units, and are not de-transformed.
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Due to missing data, larger LSD values (col. 7: >=-99998.01 and <=0.00) are used for mean comparisons of treatment pairs with missing data.
Missing data estimates are included in columns:Yates=6,19,20,21
Could not calculate LSD (% mean diff) for columns 7 because error mean square = 0.

Weed Code							IPOSS		DIGSA		
Crop Code								CUUPE		CUUPE	CUUPE
Weed or Crop Name							Mornglry	Pumpkin	Large	Pumpkin	Pumpkin
Weed or Crop Name							Species		crabgras		
Rating Data Type							Control	LeafBrn	Presence	Green	Orange
Rating Unit							%	%	0-3	#	#
Rating Date							06/27/14	06/30/14	07/11/14	09/03/14	09/03/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Conventionally tilled soil							0.0 e	27.5	1.9 a	1.8 a	16.5 c
	Untreated Check											
2	Conventionally tilled soil							31.2 d	28.0	1.6 ab	1.0 a	23.8 b
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					
3	Conventionally tilled soil							31.3 d	25.0	1.0 cd	1.5 a	25.8 ab
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A					
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
4	Stale-seed bed							51.2 c	45.0	0.6 cd	1.0 a	24.0 ab
	Untreated Check											
5	Stale-seed bed							64.3 ab	36.5	0.5 de	0.8 a	28.5 a
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					
6	Stale-seed bed							66.8 ab	30.0	0.0 e	1.0 a	27.0 ab
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A					
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
7	No-till High rye residues							61.3 abc	41.5	1.1 bc	3.3 a	16.5 c
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
	Untreated Check											
8	No-till High rye residues							59.8 bc	40.0	0.6 cd	3.0 a	17.3 c
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					
9	No-till High rye residues							72.0 a	45.0	0.8 cd	4.3 a	18.5 c
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A					
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
LSD P=.05								11.23	.	0.51	2.86	4.55
Standard Deviation								7.49	.	0.34	1.92	3.06
CV								15.4	.	38.06	98.85	13.95
Replicate F								5.516		8.843	0.531	2.007
Replicate Prob(F)								0.0085		0.0008	0.6666	0.1491
Treatment F								39.036		11.353	1.688	9.782
Treatment Prob(F)								0.0001		0.0001	0.1695	0.0001

Weed Code												
Crop Code								CUUPE	CUUPE	CUUPE	CUUPE	CUUPE
Weed or Crop Name								Pumpkin	Pumpkin	Pumpkin	Pumpkin	Pumpkin
Weed or Crop Name												
Rating Data Type								Small	Medium	Large	XLarge	Lg+ XL
Rating Unit								#	#	#	#	
Rating Date								09/03/14	09/03/14	09/03/14	09/03/14	09/03/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Conventionally tilled soil							1.3 a	5.8 a	8.0 d	3.3 bc	11.3 d
	Untreated Check											
2	Conventionally tilled soil							1.8 a	7.3 a	14.3 a	1.5 c	15.8 bc
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					
3	Conventionally tilled soil							2.5 a	6.0 a	13.5 ab	5.3 ab	18.8 ab
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A					
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
4	Stale-seed bed							1.8 a	5.3 a	12.5 abc	5.5 ab	18.0 ab
	Untreated Check											
5	Stale-seed bed							1.5 a	7.0 a	13.8 ab	7.0 a	20.8 a
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					
6	Stale-seed bed							2.5 a	5.3 a	15.3 a	5.0 ab	20.3 a
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A					
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
7	No-till High rye residues							2.0 a	5.5 a	10.5 bcd	1.8 c	12.3 cd
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
	Untreated Check											
8	No-till High rye residues							1.8 a	6.8 a	9.5 cd	2.3 c	11.8 cd
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					
9	No-till High rye residues							2.3 a	5.8 a	12.5 abc	2.3 c	14.8 bcd
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A					
	----clomazone	0.5		0.188								
	----ethalfluralin	1.6		0.6								
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
LSD P=.05								2.05	3.80	3.53	2.42	4.26
Standard Deviation								1.38	2.56	2.38	1.63	2.87
CV								71.88	42.25	19.49	43.47	17.99
Replicate F								0.522	3.219	3.166	2.380	0.814
Replicate Prob(F)								0.6726	0.0474	0.0497	0.1035	0.5025
Treatment F								0.395	0.351	4.036	5.880	6.589
Treatment Prob(F)								0.9089	0.9329	0.0067	0.0009	0.0005

| Weed Code | | |

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	GGGAN	CUUPE	CUUPE	CUUPE
	Weed Code							GGGAN			
	Crop Code								CUUPE	CUUPE	CUUPE
	Weed or Crop Name							Annual	Pumpkin	Pumpkin	Pumpkin
	Weed or Crop Name							Grasses	Kate's	Kate's	Kate's
	Rating Data Type							Control	#fruit	#fruit	dis sevr
	Rating Unit							%	rated	w/bactsp	%
	Rating Date							09/10/14	09/19/14	09/19/14	09/19/14
1	Conventionally tilled soil							0.0 e			
	Untreated Check										
2	Conventionally tilled soil							71.3 bcd			
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A				
3	Conventionally tilled soil							87.5 a	24.3 a	1.0 b	0.26 a
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A				
	----clomazone	0.5		0.188							
	----ethalfluralin	1.6		0.6							
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A				
4	Stale-seed bed							67.5 cd			
	Untreated Check										
5	Stale-seed bed							82.5 ab			
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A				
6	Stale-seed bed							91.5 a	23.8 a	10.3 a	3.99 a
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A				
	----clomazone	0.5		0.188							
	----ethalfluralin	1.6		0.6							
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A				
7	No-till High rye residues							59.6 d			
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
	Untreated Check										
8	No-till High rye residues							73.3 bc			
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A				
9	No-till High rye residues							70.8 bcd	20.3 a	2.5 b	0.71 a
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A				
	----clomazone	0.5		0.188							
	----ethalfluralin	1.6		0.6							
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A				
	LSD P=.05							12.56	3.87	6.45	2.832 - 3.427
	Standard Deviation							8.42	2.24	3.73	4.173t
	CV							12.55	9.83	81.39	65.0t
	Replicate F							3.172	1.217	1.060	2.029
	Replicate Prob(F)							0.0511	0.3818	0.4330	0.2113
	Treatment F							41.439	3.800	7.084	4.701
	Treatment Prob(F)							0.0001	0.0859	0.0263	0.0591

Weed Code	
Crop Code	CUUPE
Weed or Crop Name	Pumpkin
Weed or Crop Name	Kate's
Rating Data Type	# diseas
Rating Unit	%
Rating Date	09/19/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Conventionally tilled soil							
	Untreated Check							
2	Conventionally tilled soil							
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	
3	Conventionally tilled soil							3.0 a
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A	
	----clomazone	0.5		0.188				
	----ethalfluralin	1.6		0.6				
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A	
4	Stale-seed bed							
	Untreated Check							
5	Stale-seed bed							
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	
6	Stale-seed bed							34.5 a
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A	
	----clomazone	0.5		0.188				
	----ethalfluralin	1.6		0.6				
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A	
7	No-till High rye residues							
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
	Untreated Check							
8	No-till High rye residues							
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	
9	No-till High rye residues							9.4 a
	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A	
	----clomazone	0.5		0.188				
	----ethalfluralin	1.6		0.6				
	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A	

LSD P=.05	17.89 - 28.96
Standard Deviation	0.43t
CV	40.21t
Replicate F	0.464
Replicate Prob(F)	0.7175
Treatment F	4.964
Treatment Prob(F)	0.0535

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Influence of Straw Mulch on Weed Control in Cucurbits

Trial ID: Pmkn1-14 Cooperator:
Location: Field #32 Investigator: Mark VanGessel

Weed Code							CUUPE	CUUPE	AMAPA	IPOSS	AMAPA
Crop Code											
Weed or Crop Name							Pumpkin	Pumpkin	Palmer amaranth	Morngly Species	Palmer amaranth
Weed or Crop Name											
Rating Data Type							Emerged	# pumpk thinned	Control	Control	Control
Rating Unit							#		%	%	%
Rating Date							06/13/14	06/18/14	06/18/14	06/18/14	06/27/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
TABLE OF R MEANS											
Replicate 1								9.7	9.6	62.8	65.2	64.9
Replicate 2								9.6	9.9	82.0	73.7	68.2
Replicate 3								9.6	9.8	76.1	69.8	66.8
Replicate 4								10.1	9.7	77.9	74.8	66.6
TABLE OF A (Straw Amount) MEANS												
1	Conventionally tilled soil							9.7 a	9.8 a	33.8 b	32.5 b	36.1 c
2	Stale-seed bed							9.9 a	9.8 a	92.3 a	88.3 a	77.5 b
3	No-till High rye residues							9.6 a	9.5 a	98.0 a	91.8 a	86.3 a
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
LSD P=.05								0.97	0.36	13.49	11.78	7.04
Standard Deviation								1.15	0.43	16.01	13.98	8.36
CV								11.80	4.43	21.43	19.73	12.55
TABLE OF B (Herbicide Treatment) MEANS												
1	Untreated Check							9.8 a	9.8 a	61.8 b	58.9 b	49.6 b
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	9.3 a	9.5 a	80.3 a	74.0 a	72.7 a
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A	10.0 a	9.8 a	82.1 a	79.7 a	77.6 a
3	----clomazone	0.5		0.188								
3	----ethalfluralin	1.6		0.6								
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
LSD P=.05								0.97	0.36	13.49	11.78	7.04
Standard Deviation								1.15	0.43	16.01	13.98	8.36
CV								11.80	4.43	21.43	19.73	12.55
TABLE OF A (Straw Amount) B (Herbicide Treatment) MEANS												
1	Conventionally tilled soil							9.8 a	10.0 a	0.0 c	0.0 c	0.0 e
1	Untreated Check											
2	Stale-seed bed							9.8 a	10.0 a	90.8 a	86.5 a	69.5 c
1	Untreated Check											
3	No-till High rye residues							10.0 a	9.5 a	94.5 a	90.3 a	79.3 abc
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
1	Untreated Check											
1	Conventionally tilled soil							9.3 a	9.5 a	50.0 b	46.3 b	51.3 d
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					
2	Stale-seed bed							9.3 a	9.5 a	90.8 a	86.3 a	77.8 bc
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					
3	No-till High rye residues							9.5 a	9.5 a	100.0 a	89.5 a	89.0 ab
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B					
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A					

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
t=Mean descriptions are reported in transformed data units, and are not de-transformed.

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| Weed Code | | |

Weed Code							IPOSS		DIGSA		
Crop Code								CUUPE		CUUPE	CUUPE
Weed or Crop Name							Morngly	Pumpkin	Large	Pumpkin	Pumpkin
Weed or Crop Name							Species		crabgras		
Rating Data Type							Control	LeafBrn	Presence	Green	Orange
Rating Unit							%	%	0-3	#	#
Rating Date							06/27/14	06/30/14	07/11/14	09/03/14	09/03/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
TABLE OF R MEANS											
Replicate 1							46.1		1.4	2.2	20.8
Replicate 2							46.7		0.7	2.4	23.3
Replicate 3							57.3		0.9	1.4	23.1
Replicate 4							44.4		0.7	1.7	20.7
TABLE OF A (Straw Amount) MEANS											
1	Conventionally tilled soil						20.8 b		1.5 a	1.4 b	22.0 b
2	Stale-seed bed						60.7 a		0.4 b	0.9 b	26.5 a
3	No-till High rye residues						64.3 a		0.8 b	3.5 a	17.4 c
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
LSD P=.05							12.76		0.49	1.82	2.88
Standard Deviation							15.07		0.58	2.16	3.41
CV							30.99		64.17	111.15	15.54
TABLE OF B (Herbicide Treatment) MEANS											
1	Untreated Check						37.5 b		1.2 a	2.0 a	19.0 b
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	51.7 a		0.9 ab	1.6 a	23.2 a
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A	56.7 a		0.6 b	2.3 a	23.8 a
3	----clomazone	0.5		0.188								
3	----ethalfluralin	1.6		0.6								
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
LSD P=.05							12.76		0.49	1.82	2.88
Standard Deviation							15.07		0.58	2.16	3.41
CV							30.99		64.17	111.15	15.54
TABLE OF A (Straw Amount) B (Herbicide Treatment) MEANS											
1	Conventionally tilled soil						0.0 a		1.9 a	1.8 a	16.5 a
1	Untreated Check										
2	Stale-seed bed						51.2 a		0.6 a	1.0 a	24.0 a
1	Untreated Check										
3	No-till High rye residues						61.3 a		1.1 a	3.3 a	16.5 a
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
1	Untreated Check										
1	Conventionally tilled soil						31.2 a		1.6 a	1.0 a	23.8 a
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A				
2	Stale-seed bed						64.3 a		0.5 a	0.8 a	28.5 a
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A				
3	No-till High rye residues						59.8 a		0.6 a	3.0 a	17.3 a
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A				

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Weed Code							IPOSS		DIGSA		
Crop Code								CUUPE		CUUPE	CUUPE
Weed or Crop Name							Mornglry	Pumpkin	Large	Pumpkin	Pumpkin
Weed or Crop Name							Species		crabgras		
Rating Data Type							Control	LeafBrn	Presence	Green	Orange
Rating Unit							%	%	0-3	#	#
Rating Date							06/27/14	06/30/14	07/11/14	09/03/14	09/03/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Conventionally tilled soil							31.3 a		1.0 a	1.5 a	25.8 a
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A				
3	----clomazone	0.5		0.188							
3	----ethalfluralin	1.6		0.6							
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A				
2	Stale-seed bed							66.8 a		0.0 a	1.0 a	27.0 a
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A				
3	----clomazone	0.5		0.188							
3	----ethalfluralin	1.6		0.6							
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A				
3	No-till High rye residues							72.0 a		0.8 a	4.3 a	18.5 a
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A				
3	----clomazone	0.5		0.188							
3	----ethalfluralin	1.6		0.6							
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A				
LSD P=.05								22.10		0.85	3.15	4.98
Standard Deviation								15.07		0.58	2.16	3.41
CV								30.99		64.17	111.15	15.54

Weed Code Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							CUUPE Pumpkin Small # 09/03/14	CUUPE Pumpkin Medium # 09/03/14	CUUPE Pumpkin Large # 09/03/14	CUUPE Pumpkin XLarge # 09/03/14	CUUPE Pumpkin Lg+ XL 09/03/14
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code					
TABLE OF R MEANS Replicate 1							2.2	5.4	10.8	4.6	15.3
Replicate 2							2.0	8.2	12.8	2.8	15.6
Replicate 3							1.4	5.9	13.9	3.3	17.2
Replicate 4							2.0	4.7	11.3	4.3	15.7
TABLE OF A (Straw Amount) MEANS 1 Conventionally tilled soil							1.8 a	6.3 a	11.9 ab	3.3 b	15.3 b
2 Stale-seed bed							1.9 a	5.8 a	13.8 a	5.8 a	19.7 a
3 No-till High rye residues 3 30% Urea Ammonium Nitrate	3.25 L		50	lb ai/a	Spring	B	2.0 a	6.0 a	10.8 b	2.1 b	12.9 b
LSD P=.05 Standard Deviation CV							1.42 1.68 87.68	2.11 2.50 41.32	2.23 2.64 21.67	1.81 2.15 57.29	2.88 3.41 21.42
TABLE OF B (Herbicide Treatment) MEANS 1 Untreated Check							1.7 a	5.5 a	10.3 b	3.5 a	13.8 b
2 Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	1.7 a	7.0 a	12.5 ab	3.6 a	16.1 ab
3 Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A	2.4 a	5.7 a	13.8 a	4.2 a	17.9 a
3 ----clomazone	0.5		0.188								
3 ----ethalfluralin	1.6		0.6								
3 Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A					
LSD P=.05 Standard Deviation CV							1.42 1.68 87.68	2.11 2.50 41.32	2.23 2.64 21.67	1.81 2.15 57.29	2.88 3.41 21.42
TABLE OF A (Straw Amount) B (Herbicide Treatment) MEANS 1 Conventionally tilled soil 1 Untreated Check							1.3 a	5.8 a	8.0 a	3.3 a	11.3 a
2 Stale-seed bed 1 Untreated Check							1.8 a	5.3 a	12.5 a	5.5 a	18.0 a
3 No-till High rye residues 3 30% Urea Ammonium Nitrate 1 Untreated Check	3.25 L		50	lb ai/a	Spring	B	2.0 a	5.5 a	10.5 a	1.8 a	12.3 a
1 Conventionally tilled soil 2 Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	1.8 a	7.3 a	14.3 a	1.5 a	15.8 a
2 Stale-seed bed 2 Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	1.5 a	7.0 a	13.8 a	7.0 a	20.8 a
3 No-till High rye residues 3 30% Urea Ammonium Nitrate 2 Curbit.....ethalfluralin	3.25 L 3	E	50 0.94	lb ai/a lb ai/a	Spring PRE	B A	1.8 a	6.8 a	9.5 a	2.3 a	11.8 a

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| Weed Code | | |

Weed Code Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							CUUPE Pumpkin %Lg XL 09/03/14	CUUPE Pumpkin Total # 09/03/14	CUUPE Pumpkin fruit w/diseas % 09/04/14	AMAPA Palmer Amaranth Control % 09/10/14	IPOSS Morngly Species Control % 09/10/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code				
TABLE OF R MEANS Replicate 1								64.2	23.0		66.7	47.6
Replicate 2								60.5	25.8		73.7	65.0
Replicate 3								69.8	24.6		64.3	48.3
Replicate 4								70.7	22.3		62.9	53.1
TABLE OF A (Straw Amount) MEANS 1 Conventionally tilled soil								64.0 a	23.4 b		42.3 b	36.9 b
2 Stale-seed bed								72.1 a	27.4 a		75.5 a	67.8 a
3 No-till High rye residues 3 30% Urea Ammonium Nitrate		3.25	L	50	lb ai/a	Spring	B	62.8 a	20.9 b		82.8 a	55.8 a
LSD P=.05 Standard Deviation CV								10.63 12.62 19.04	3.52 4.17 17.46		8.63 10.21 15.27	16.19 19.12 35.74
TABLE OF B (Herbicide Treatment) MEANS 1 Untreated Check								65.1 a	21.0 b		52.2 c	42.5 a
2 Curbit.....ethalfluralin		3	E	0.94	lb ai/a	PRE	A	64.7 a	24.8 a		69.8 b	58.4 a
3 Strategy Premix 3 ----clomazone 3 ----ethalfluralin 3 Curbit.....ethalfluralin		2.1 0.5 1.6 3	E E	0.79 0.188 0.6 0.34	lb ai/a lb ai/a	PRE PRE	A A	69.0 a	26.0 a		78.7 a	59.6 a
LSD P=.05 Standard Deviation CV								10.63 12.62 19.04	3.52 4.17 17.46		8.63 10.21 15.27	16.19 19.12 35.74
TABLE OF A (Straw Amount) B (Herbicide Treatment) MEANS 1 Conventionally tilled soil 1 Untreated Check								59.5 a	18.3 a	.	0.0 c	0.0 b
2 Stale-seed bed 1 Untreated Check								72.0 a	25.0 a	.	74.5 a	62.5 a
3 No-till High rye residues 3 30% Urea Ammonium Nitrate 1 Untreated Check		3.25	L	50	lb ai/a	Spring	B	63.9 a	19.8 a	.	82.0 a	64.9 a
1 Conventionally tilled soil 2 Curbit.....ethalfluralin		3	E	0.94	lb ai/a	PRE	A	63.1 a	24.8 a	.	55.8 b	58.3 a
2 Stale-seed bed 2 Curbit.....ethalfluralin		3	E	0.94	lb ai/a	PRE	A	71.9 a	29.3 a	.	70.0 ab	64.5 a
3 No-till High rye residues 3 30% Urea Ammonium Nitrate 2 Curbit.....ethalfluralin		3.25 3	L E	50 0.94	lb ai/a lb ai/a	Spring PRE	B A	59.2 a	20.3 a	.	83.8 a	52.5 a

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| Weed Code | | |

Weed Code Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date							GGGAN Annual Grasses Control % 09/10/14	CUUPE Pumpkin Kate's #fruit rated 09/19/14	CUUPE Pumpkin Kate's #fruit w/bactsp 09/19/14	CUUPE Pumpkin Kate's dis sevr % 09/19/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code			
TABLE OF R MEANS Replicate 1							61.4			
Replicate 2							69.3			
Replicate 3							64.8			
Replicate 4							72.8			
TABLE OF A (Straw Amount) MEANS 1	Conventionally tilled soil						52.9 c			
2	Stale-seed bed						80.5 a			
3 3	No-till High rye residues 30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	67.9 b B			
LSD P=.05 Standard Deviation CV							7.15 8.46 12.62			
TABLE OF B (Herbicide Treatment) MEANS 1	Untreated Check						42.4 c			
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A 75.7 b			
3 3 3 3	Strategy Premix ----clomazone ----ethalfluralin Curbit.....ethalfluralin	2.1 0.5 1.6 3	E E	0.79 0.188 0.6 0.34	lb ai/a lb ai/a	PRE PRE	A 83.3 a A			
LSD P=.05 Standard Deviation CV							7.15 8.46 12.62			
TABLE OF A (Straw Amount) B (Herbicide Treatment) MEANS 1 1	Conventionally tilled soil Untreated Check						0.0 e	.	.	.
2 1	Stale-seed bed Untreated Check						67.5 cd	.	.	.
3 3 1	No-till High rye residues 30% Urea Ammonium Nitrate Untreated Check	3.25	L	50	lb ai/a	Spring	59.6 d B	.	.	.
1 2	Conventionally tilled soil Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	71.3 bcd A	.	.	.
2 2	Stale-seed bed Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	82.5 ab A	.	.	.
3 3 2	No-till High rye residues 30% Urea Ammonium Nitrate Curbit.....ethalfluralin	3.25 3	L E	50 0.94	lb ai/a lb ai/a	Spring PRE	73.3 bc B A	.	.	.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	GGGAN Annual Grasses Control % 09/10/14	CUUPE Pumpkin Kate's #fruit rated 09/19/14	CUUPE Pumpkin Kate's #fruit w/bactsp 09/19/14	CUUPE Pumpkin Kate's dis sevr % 09/19/14
1	Conventionally tilled soil							87.5 a	24.3 a	1.0 a	0.26 a
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A				
3	----clomazone	0.5		0.188							
3	----ethalfluralin	1.6		0.6							
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A				
2	Stale-seed bed							91.5 a	23.8 a	10.3 a	3.99 a
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A				
3	----clomazone	0.5		0.188							
3	----ethalfluralin	1.6		0.6							
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A				
3	No-till High rye residues							70.8 bcd	20.3 a	2.5 a	0.71 a
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B				
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A				
3	----clomazone	0.5		0.188							
3	----ethalfluralin	1.6		0.6							
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A				
LSD P=.05								12.38	3.87	6.45	2.832 - 3.427
Standard Deviation								8.46	2.24	3.73	4.173t
CV								12.62	9.83	81.39	65.002t

Weed Code							
Crop Code							CUUPE
Weed or Crop Name							Pumpkin
Weed or Crop Name							Kate's
Rating Data Type							# diseas
Rating Unit							%
Rating Date							09/19/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
TABLE OF R MEANS								
Replicate 1								
Replicate 2								
Replicate 3								
Replicate 4								
TABLE OF A (Straw Amount) MEANS								
1	Conventionally tilled soil							
2	Stale-seed bed							
3	No-till High rye residues							
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
LSD P=.05								
Standard Deviation								
CV								
TABLE OF B (Herbicide Treatment) MEANS								
1	Untreated Check							
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A	
3	----clomazone	0.5		0.188				
3	----ethalfluralin	1.6		0.6				
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A	
LSD P=.05								
Standard Deviation								
CV								
TABLE OF A (Straw Amount) B (Herbicide Treatment) MEANS								
1	Conventionally tilled soil							.
1	Untreated Check							
2	Stale-seed bed							.
1	Untreated Check							
3	No-till High rye residues							.
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
1	Untreated Check							
1	Conventionally tilled soil							.
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	
2	Stale-seed bed							.
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	
3	No-till High rye residues							.
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
2	Curbit.....ethalfluralin	3	E	0.94	lb ai/a	PRE	A	

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Weed Code	
Crop Code	CUUPE
Weed or Crop Name	Pumpkin
Weed or Crop Name	Kate's
Rating Data Type	# diseas
Rating Unit	%
Rating Date	09/19/14

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	
1	Conventionally tilled soil							3.0 a
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A	
3	----clomazone	0.5		0.188				
3	----ethalfluralin	1.6		0.6				
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A	
2	Stale-seed bed							34.5 a
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A	
3	----clomazone	0.5		0.188				
3	----ethalfluralin	1.6		0.6				
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A	
3	No-till High rye residues							9.4 a
3	30% Urea Ammonium Nitrate	3.25	L	50	lb ai/a	Spring	B	
3	Strategy Premix	2.1	E	0.79	lb ai/a	PRE	A	
3	----clomazone	0.5		0.188				
3	----ethalfluralin	1.6		0.6				
3	Curbit.....ethalfluralin	3	E	0.34	lb ai/a	PRE	A	
LSD P=.05								17.89 - 28.96
Standard Deviation								0.43t
CV								40.21t

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin Emerged # 06/13/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	41.222222				
R	3	1.888889	0.629630	0.478	0.7006	
A	2	0.722222	0.361111	0.274	0.7626	1.0
B	2	2.888889	1.444444	1.097	0.3501	1.0
AB	4	4.111111	1.027778	0.780	0.5490	1.7
ERROR	24	31.611111	1.317130			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin # pumpk thinned 06/18/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	7.222222				
R	3	0.555556	0.185185	1.000	0.4098	
A	2	0.888889	0.444444	2.400	0.1122	0.4
B	2	0.888889	0.444444	2.400	0.1122	0.4
AB	4	0.444444	0.111111	0.600	0.6662	0.6
ERROR	24	4.444444	0.185185			

FACTORIAL/POOLED ERROR AOV For AMAPA Palmer amaranth Control % 06/18/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	45359.638889				
R	3	1868.305556	622.768519	2.430	0.0899	
A	2	30368.722222	15184.361111	59.247	0.0001	13.5
B	2	3036.222222	1518.111111	5.923	0.0081	13.5
AB	4	3935.444444	983.861111	3.839	0.0150	23.4
ERROR	24	6150.944444	256.289352			

FACTORIAL/POOLED ERROR AOV For IPOSS Mornglry Species Control % 06/18/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	38318.305556				
R	3	505.638889	168.546296	0.863	0.4739	
A	2	26558.388889	13279.194444	67.966	0.0001	11.8
B	2	2760.722222	1380.361111	7.065	0.0039	11.8
AB	4	3804.444444	951.111111	4.868	0.0051	20.4
ERROR	24	4689.111111	195.379630			

FACTORIAL/POOLED ERROR AOV For AMAPA Palmer amaranth Control % 06/27/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	27634.555556				
R	3	50.333333	16.777778	0.240	0.8675	
A	2	17234.388889	8617.194444	123.348	0.0001	7.0
B	2	5364.055556	2682.027778	38.391	0.0001	7.0
AB	4	3309.111111	827.277778	11.842	0.0001	12.2
ERROR	24	1676.666667	69.861111			

FACTORIAL/POOLED ERROR AOV For IPOSS Mornglry Species Control % 06/27/14 Missing values in column 6 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	33	23435.808521				
R	3	927.879496	309.293165	1.362	0.2804	
A	2	13996.727773	6998.363886	30.817	0.0001	12.8
B	2	2379.917474	1189.958737	5.240	0.0138	12.8
AB	4	1135.238805	283.809701	1.250	0.3193	22.1
ERROR	22	4996.044974	227.092953			

FACTORIAL/POOLED ERROR AOV For DIGSA Large crabgras Presence 0-3 07/11/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	21.909722				
R	3	3.131944	1.043981	3.110	0.0452	
A	2	7.680556	3.840278	11.441	0.0003	0.5
B	2	2.347222	1.173611	3.497	0.0465	0.5
AB	4	0.694444	0.173611	0.517	0.7238	0.8
ERROR	24	8.055556	0.335648			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin Green # 09/03/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	167.888889				
R	3	5.888889	1.962963	0.420	0.7402	
A	2	45.055556	22.527778	4.823	0.0174	1.8
B	2	2.722222	1.361111	0.291	0.7498	1.8
AB	4	2.111111	0.527778	0.113	0.9767	3.2
ERROR	24	112.111111	4.671296			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin Orange # 09/03/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1070.972222				
R	3	56.527778	18.842593	1.617	0.2117	
A	2	495.055556	247.527778	21.238	0.0001	2.9
B	2	161.055556	80.527778	6.909	0.0043	2.9
AB	4	78.611111	19.652778	1.686	0.1860	5.0
ERROR	24	279.722222	11.655093			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin Small # 09/03/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	76.750000				
R	3	2.972222	0.990741	0.351	0.7889	
A	2	0.166667	0.083333	0.030	0.9710	1.4
B	2	4.500000	2.250000	0.797	0.4624	1.4
AB	4	1.333333	0.333333	0.118	0.9748	2.5
ERROR	24	67.777778	2.824074			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin Medium # 09/03/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	231.888889				
R	3	63.222222	21.074074	3.366	0.0352	
A	2	1.555556	0.777778	0.124	0.8838	2.1
B	2	16.222222	8.111111	1.295	0.2923	2.1
AB	4	0.611111	0.152778	0.024	0.9988	3.7
ERROR	24	150.277778	6.261574			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin Large # 09/03/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	403.638889				
R	3	53.638889	17.879630	2.560	0.0787	
A	2	55.388889	27.694444	3.966	0.0325	2.2
B	2	71.722222	35.861111	5.135	0.0139	2.2
AB	4	55.277778	13.819444	1.979	0.1300	3.9
ERROR	24	167.611111	6.983796			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin XLarge # 09/03/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	254.750000				
R	3	18.972222	6.324074	1.370	0.2758	
A	2	87.500000	43.750000	9.478	0.0009	1.8
B	2	3.166667	1.583333	0.343	0.7130	1.8
AB	4	34.333333	8.583333	1.860	0.1504	3.1
ERROR	24	110.777778	4.615741			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin Lg+ XL 09/03/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	733.888889				
R	3	20.111111	6.703704	0.575	0.6371	
A	2	282.055556	141.027778	12.093	0.0002	2.9
B	2	100.388889	50.194444	4.304	0.0253	2.9
AB	4	51.444444	12.861111	1.103	0.3780	5.0
ERROR	24	279.888889	11.662037			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin %Lg XL 09/03/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	5347.482296				
R	3	630.143368	210.047789	1.319	0.2913	
A	2	609.020102	304.510051	1.912	0.1696	10.6
B	2	136.554289	68.277145	0.429	0.6562	10.6
AB	4	150.185242	37.546310	0.236	0.9154	18.4
ERROR	24	3821.579296	159.232471			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin Total # 09/03/14

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	972.750000				
R	3	64.972222	21.657407	1.243	0.3162	
A	2	258.000000	129.000000	7.402	0.0031	3.5
B	2	162.500000	81.250000	4.662	0.0195	3.5
AB	4	69.000000	17.250000	0.990	0.4320	6.1
ERROR	24	418.277778	17.428241			

Randomized Complete Block (RCB) AOV For CUUPE Pumpkin fruit w/diseas % 09/04/14 Missing factor B levels prevents analyzing column 18 as Split-Plot design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	11	673.000000			
Replicate	3	209.666667	69.888889	1.908	0.2295
Treatment	2	243.500000	121.750000	3.323	0.1068
ERROR	6	219.833333	36.638889		

FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 09/10/14 Missing values in column 19 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	34	25725.555556				
R	3	616.666667	205.555556	1.970	0.1465	
A	2	11176.222222	5588.111111	53.568	0.0001	8.6
B	2	4369.555556	2184.777778	20.943	0.0001	8.6
AB	4	7163.777778	1790.944444	17.168	0.0001	14.9
ERROR	23	2399.333333	104.318841			

FACTORIAL/POOLED ERROR AOV For IPOSS Mornglry Species Control % 09/10/14 Missing values in column 20 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	33	24791.066162				
R	3	1750.097459	583.365820	1.596	0.2190	
A	2	5800.953056	2900.476528	7.933	0.0025	16.2
B	2	2191.909579	1095.954789	2.998	0.0706	16.2
AB	4	7004.652488	1751.163122	4.790	0.0062	28.0
ERROR	22	8043.453581	365.611526			

FACTORIAL/POOLED ERROR AOV For GGGAN Annual Grasses Control % 09/10/14 Missing values in column 21 results in unbalanced data, Least Squares Analysis is preferred

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	34	25827.617429				
R	3	674.745515	224.915172	3.139	0.0448	
A	2	4575.608893	2287.804446	31.934	0.0001	7.1
B	2	11356.733893	5678.366946	79.260	0.0001	7.1
AB	4	7572.752508	1893.188127	26.426	0.0001	12.4
ERROR	23	1647.776620	71.642462			

Randomized Complete Block (RCB) AOV For CUUPE Pumpkin Kate's #fruit rated 09/19/14 Missing factor B levels prevents analyzing column 22 as Split-Plot design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	11	86.250000			
Replicate	3	18.250000	6.083333	1.217	0.3818
Treatment	2	38.000000	19.000000	3.800	0.0859
ERROR	6	30.000000	5.000000		

Randomized Complete Block (RCB) AOV For CUUPE Pumpkin Kate's #fruit w/bactsp 09/19/14 Missing factor B levels prevents analyzing column 23 as Split-Plot design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	11	324.916667			
Replicate	3	44.250000	14.750000	1.060	0.4330
Treatment	2	197.166667	98.583333	7.084	0.0263
ERROR	6	83.500000	13.916667		

Randomized Complete Block (RCB) AOV For CUUPE Pumpkin Kate's dis sevr % 09/19/14 Missing factor B levels prevents analyzing column 24 as Split-Plot design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	11	374.183201			
Replicate	3	106.006748	35.335583	2.029	0.2113
Treatment	2	163.706816	81.853408	4.701	0.0591
ERROR	6	104.469636	17.411606		

Randomized Complete Block (RCB) AOV For CUUPE Pumpkin Kate's # diseas % 09/19/14 Missing factor B levels prevents analyzing column 25 as Split-Plot design

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	11	3.131720			
Replicate	3	0.251952	0.083984	0.464	0.7175
Treatment	2	1.794927	0.897464	4.964	0.0535
ERROR	6	1.084840	0.180807		

University of Delaware

Crop Safety with Alternative Herbicides
Herbicide Options for Between Rows
Trial ID: Veg2-14 Cooperator: PA Vegetable Growers
Location: Field # 12 Investigator: Mark VanGessel

GENERAL TRIAL INFORMATION

Study Director: Mark VanGessel Title: Extension Specialist, Weed Science
Affiliation: University of Delaware Research & Education Center
Address: 16483 County Seat Hwy City: Georgetown State: DE Zip Code: 19947

Conducted Under GLP (Y/N): N Conducted Under GEP (Y/N): N

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Common Purslane	POROL	Portulaca oleracea L.
3.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.
4.	Fall Panicum	PANDI	Panicum dichotomiflorum (L.) Michx.

Crop 1: Pepper CPSAN Variety: Snapper bell
Planting Date: 05/20/14 Planting Method: Transplanted- Hand
Rate: 5 plot Row Spacing: 7 ft
Soil Temperature: 76 F Soil Moisture: Moist

Crop 2: Pepper CPSAN Variety: Aristotle bell
Planting Date: 05/20/14 Planting Method: Transplanted- Hand
Rate: 5 plot Row Spacing: 7 ft
Soil Temperature: 76 F Soil Moisture: Moist

Crop 3: Tomato LYPES Variety: Mountain Fresh
Planting Date: 05/20/14 Planting Method: Transplanted- Hand
Rate: 8 plot Row Spacing: 7 ft
Soil Temperature: 76 F Soil Moisture: Moist

Crop 4: Eggplant SOLME Variety: Nadia
Planting Date: 05/20/14 Planting Method: Transplanted- Hand
Rate: 8 plot Row Spacing: 7 ft
Soil Temperature: 76 F Soil Moisture: Moist

SITE AND DESIGN

Plot Width, Unit: 6 FT Plot Length, Unit: 55 FT Reps: 4
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: Disked and Field Cultivated

Trial Initiation Comments: Beds were formed and plastic laid 2 weeks prior to trial initiation.

MAINTENANCE

Field Prep./Maintenance: 6/13/14: Front and back of trial sprayed with Gramoxone + Strategy + Curbit.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.5 Texture: loamy sand
% Silt: 12 pH: 6.0
% Clay: 7 CEC: 4.4 Fert. Level: Medium

Irrigation/Type: Trickle Frequency: as needed
Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.3 Unit: mi

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APPLICATION DESCRIPTION

	A	B
Application Date:	05/19/14	06/04/14
Time of Day:	8:00 AM	12:15 PM
Application Method:	Spray	Spray
Application Timing:	PREtrnspl	POSTtrnsp
Applic. Placement:	RowMiddle	RowMiddle
Air Temp., Unit:	55 F	84 F
% Relative Humidity:	68	40
Wind Velocity, Unit:	3 mph	3 mph
Wind Direction:	N	N
Dew Presence (Y/N):	Y	N
Soil Surf. Moisture:	Moist	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Moist	Dry
% Cloud Cover:	50	10

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Backpack	Backpack
Operating Pressure:	33 psi	33 psi
Nozzle Type:	XRTEEJET	XRTEEJET
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	16 in	16 in
Boom Length, Unit:	2 nozl	2 nozl
Boom Height, Unit:	12 in	15 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Trial Comments

06/10/14: A lot of drift caused leaf burn on unintended plots as well as treatments. Note that Brian's farm crew cultivated this trial by mistake the same afternoon (6/4) POST trts were applied. No weed control data taken.

06/18/14: Eggplant 4th rep. is bleaching from Strategy drift sprayed at front and back of trial.

07/01/14: Wind knocking over heavy pepper plants plots 401,405,406, and fruit weight pulling down tomatoes.
On this date, the following plots have missing plants - not herbicide related: 101, 102, = 1 snapper. 101, 105, 204 = 1 aristotle.

University of Delaware

Crop Safety with Alternative Herbicides
Herbicide Options for Between Rows
Trial ID: Veg2-14 Cooperator: PA Vegetable Growers
Location: Field # 12 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	CPSAN	CPSAN	LYPES	SOLME
	Crop Code							CPSAN	CPSAN	LYPES	SOLME
	Weed or Crop Name							Aristotl	Snapper	Tomato	Eggplant
	Weed or Crop Name							bell	bell		
	Rating Data Type							Injury	Injury	Injury	Injury
	Rating Unit							%	%	%	%
	Rating Date							05/28/14	05/28/14	05/28/14	05/28/14
1	Pre-transplant					PTrnsplt	A	0 a	0 a	0 a	0 b
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
2	Pre-transplant					PTrnsplt	A	2 a	2 a	0 a	4 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
3	10 to 14 days post-transplant					POSTTns	B	0 a	0 a	0 a	0 b
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
4	10 to 14 days post-transplant					POSTTns	B	0 a	0 a	0 a	0 b
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
5	Untreated					Ptrnsplt	A	0 a	0 a	0 a	0 b
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	Ptrnsplt	A				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSTTns	B	0 a	0 a	0 a	0 b
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
	LSD P=.05							2.2	2.2	.	2.5
	Standard Deviation							1.4	1.4	0.0	1.6
	CV							489.9	489.9	0.0	282.84
	Replicate F							1.000	1.000	0.000	1.000
	Replicate Prob(F)							0.4199	0.4199	1.0000	0.4199
	Treatment F							1.000	1.000	0.000	3.000
	Treatment Prob(F)							0.4509	0.4509	1.0000	0.0450

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
t=Mean descriptions are reported in transformed data units, and are not de-transformed.
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=55
Could not calculate LSD (% mean diff) for columns 3,6,7 because error mean square = 0.

Crop Code							CPSAN	CPSAN	LYPES	SOLME
Weed or Crop Name							Aristotl	Snapper	Tomato	Eggplant
Weed or Crop Name							bell	bell		
Rating Data Type							Injury	Injury	Injury	Injury
Rating Unit							%	%	%	%
Rating Date							06/04/14	06/04/14	06/04/14	06/04/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code			
1	Pre-transplant					PTrnsplt	A	0 a	0 a	0 a	0 b
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
2	Pre-transplant					PTrnsplt	A	3 a	0 a	0 a	4 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
3	10 to 14 days post-transplant					POSTTns	B	0 a	0 a	0 a	0 b
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
4	10 to 14 days post-transplant					POSTTns	B	0 a	0 a	0 a	0 b
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
5	Untreated					Ptrnsplt	A	0 a	0 a	0 a	0 b
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	Ptrnsplt	A				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSTTns	B	0 a	0 a	0 a	0 b
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
LSD P=.05								3.7	.	.	2.5
Standard Deviation								2.4	0.0	0.0	1.6
CV								489.9	0.0	0.0	282.84
Replicate F								1.000	0.000	0.000	1.000
Replicate Prob(F)								0.4199	1.0000	1.0000	0.4199
Treatment F								1.000	0.000	0.000	3.000
Treatment Prob(F)								0.4509	1.0000	1.0000	0.0450

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	CPSAN	CPSAN	LYPES	SOLME
	Crop Code							CPSAN	CPSAN	LYPES	SOLME
	Weed or Crop Name							Aristotl	Snapper	Tomato	Eggplant
	Weed or Crop Name							bell	bell		
	Rating Data Type							Injury	Injury	Injury	Injury
	Rating Unit							%	%	%	%
	Rating Date							06/10/14	06/10/14	06/10/14	06/10/14
1	Pre-transplant					PTrnsplt	A	0.0 c	0.0 c	0.0 b	6.5 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
2	Pre-transplant					PTrnsplt	A	4.3 bc	3.5 bc	1.8 b	11.3 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
3	10 to 14 days post-transplant					POSTTns	B	14.3 a	12.3 a	16.3 a	21.3 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
4	10 to 14 days post-transplant					POSTTns	B	12.5 ab	13.5 a	9.3 ab	18.3 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
5	Untreated					Ptrnsplt	A	15.0 a	13.0 a	8.3 ab	4.5 a
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	Ptrnsplt	A				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSTTns	B	4.3 bc	8.0 ab	3.8 b	4.8 a
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
	LSD P=.05							8.38	7.65	9.55	19.89
	Standard Deviation							5.56	5.07	6.34	13.20
	CV							66.42	60.57	96.89	119.07
	Replicate F							0.766	0.528	2.681	0.495
	Replicate Prob(F)							0.5305	0.6695	0.0843	0.6909
	Treatment F							5.161	4.873	3.546	1.191
	Treatment Prob(F)							0.0060	0.0076	0.0258	0.3597

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	SOLME	CPSAN	CPSAN	LYPES
	Crop Code							SOLME	CPSAN	CPSAN	LYPES
	Weed or Crop Name							Eggplant	Aristotl	Snapper	Tomato
	Weed or Crop Name								bell	bell	
	Rating Data Type							Drift	Stunting	Stunting	Stunting
	Rating Unit							Inj %	%	%	%
	Rating Date							06/10/14	06/18/14	06/18/14	06/18/14
1	Pre-transplant					PTrnsplt	A	6.5 a	2.5 ab	4.3 a	1.8 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
2	Pre-transplant					PTrnsplt	A	11.3 a	3.8 ab	3.0 a	0.0 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
3	10 to 14 days post-transplant					POSTTns	B	21.3 a	8.5 a	5.5 a	1.8 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
4	10 to 14 days post-transplant					POSTTns	B	18.3 a	7.8 a	6.3 a	2.5 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
5	Untreated					Ptrnsplt	A	0.0 a	0.0 b	0.0 a	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	Ptrnsplt	A				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSTTns	B	4.8 a	0.0 b	2.5 a	0.0 a
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
	LSD P=.05							18.74	6.44	9.34	4.32
	Standard Deviation							12.44	4.27	6.20	2.87
	CV							120.34	113.97	172.93	286.55
	Replicate F							0.665	1.925	0.464	1.028
	Replicate Prob(F)							0.5866	0.1689	0.7114	0.4081
	Treatment F							1.735	2.989	0.533	0.621
	Treatment Prob(F)							0.1874	0.0456	0.7482	0.6861

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	SOLME	CPSAN	CPSAN	LYPES
Crop Code								SOLME	CPSAN	CPSAN	LYPES
Weed or Crop Name								Eggplant	Aristotl	Snapper	Tomato
Weed or Crop Name									bell	bell	
Rating Data Type								Stunting	Stunting	Stunting	Stunting
Rating Unit								%	%	%	%
Rating Date								06/18/14	07/01/14	07/01/14	07/01/14
1	Pre-transplant					PTrnsplt	A	6.0 a	4.8 a	5.5 a	2.5 b
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
2	Pre-transplant					PTrnsplt	A	6.8 a	3.5 a	6.0 a	0.0 b
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
3	10 to 14 days post-transplant					POSTTns	B	18.8 a	7.3 a	7.5 a	8.0 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
4	10 to 14 days post-transplant					POSTTns	B	6.3 a	5.5 a	7.3 a	1.8 b
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
5	Untreated					Ptrnsplt	A	0.0 a	0.0 a	0.0 a	0.0 b
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	Ptrnsplt	A				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSTTns	B	8.8 a	0.0 a	3.0 a	3.5 ab
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
LSD P=.05								14.58	6.85	7.50	5.14
Standard Deviation								9.67	4.54	4.97	3.41
CV								124.81	129.85	102.01	129.86
Replicate F								2.221	0.769	1.884	2.997
Replicate Prob(F)								0.1279	0.5289	0.1756	0.0640
Treatment F								1.611	1.709	1.341	3.044
Treatment Prob(F)								0.2173	0.1932	0.3003	0.0430

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
	Crop Code							SOLME	SOLME	CPSAN	CPSAN
	Weed or Crop Name							Eggplant	Eggplant	Aristotl	Snapper
	Weed or Crop Name									bell	bell
	Rating Data Type							Stunting	Height	Stunting	Stunting
	Rating Unit							%	Inches	%	%
	Rating Date							07/01/14	07/16/14	07/17/14	07/17/14
1	Pre-transplant					PTrnsplt	A	2.2 a	27.0 a	7.3 a	6.8 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
2	Pre-transplant					PTrnsplt	A	5.7 a	26.4 a	0.0 c	1.8 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
3	10 to 14 days post-transplant					POSTTns	B	8.3 a	26.7 a	6.0 ab	2.5 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
4	10 to 14 days post-transplant					POSTTns	B	1.2 a	26.8 a	1.8 bc	1.8 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
5	Untreated					Ptrnsplt	A	0.0 a	27.7 a	0.0 c	0.0 a
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	Ptrnsplt	A				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSTTns	B	5.4 a	27.7 a	0.0 c	1.8 a
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
	LSD P=.05							8.11 - 14.82	1.75	4.72	5.03
	Standard Deviation							0.59t	1.16	3.13	3.34
	CV							102.94t	4.31	125.29	138.14
	Replicate F							0.448	11.351	0.895	2.537
	Replicate Prob(F)							0.7222	0.0004	0.4667	0.0958
	Treatment F							1.515	0.880	4.413	1.863
	Treatment Prob(F)							0.2436	0.5179	0.0114	0.1609

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	LYPES	SOLME	CPSAN	CPSAN
	Crop Code							LYPES	SOLME	CPSAN	CPSAN
	Weed or Crop Name							Tomato	Eggplant	Aristotl	Aristotl
	Weed or Crop Name									bell	bell
	Rating Data Type							Stunting	Stunting	YieldTtl	YieldTtl
	Rating Unit							%	%	# plants	# pepprs
	Rating Date							07/17/14	07/17/14		
1	Pre-transplant					PTrnsplt	A	0.0 a	4.8 a	9.5 a	27.0 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
2	Pre-transplant					PTrnsplt	A	2.5 a	3.0 a	9.5 a	36.0 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
3	10 to 14 days post-transplant					POSTTns	B	0.0 a	7.0 a	10.0 a	28.5 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
4	10 to 14 days post-transplant					POSTTns	B	3.5 a	5.0 a	10.0 a	28.3 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
5	Untreated					Ptrnsplt	A	0.0 a	0.0 a	9.5 a	30.3 a
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	Ptrnsplt	A				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSTTns	B	1.8 a	6.0 a	10.0 a	33.5 a
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
	LSD P=.05							4.66	8.40	1.04	8.02
	Standard Deviation							3.09	5.58	0.69	5.32
	CV							239.28	129.91	7.09	17.4
	Replicate F							0.609	1.999	1.279	1.182
	Replicate Prob(F)							0.6193	0.1574	0.3175	0.3497
	Treatment F							0.967	0.799	0.628	1.711
	Treatment Prob(F)							0.4683	0.5672	0.6813	0.1928

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
	Crop Code							CPSAN	CPSAN	CPSAN	CPSAN
	Weed or Crop Name							Aristotl	Snapper	Snapper	Snapper
	Weed or Crop Name							bell	bell	bell	bell
	Rating Data Type							YieldTtl	YieldTtl	YieldTtl	YieldTtl
	Rating Unit							wt/gr	# plants	# pepprs	wt/gr
	Rating Date										
1	Pre-transplant					PTrnsplt	A	2835 a	8.5 a	11.8 a	1314 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
2	Pre-transplant					PTrnsplt	A	3838 a	9.3 a	12.0 a	1261 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	PTrnsplt	A				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A				
3	10 to 14 days post-transplant					POSTTns	B	2835 a	8.8 a	13.0 a	1298 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
4	10 to 14 days post-transplant					POSTTns	B	2894 a	8.0 a	9.8 a	1012 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSTTns	B				
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
5	Untreated					Ptrnsplt	A	3192 a	9.0 a	11.3 a	1220 a
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	Ptrnsplt	A				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSTTns	B	3676 a	9.5 a	10.8 a	1173 a
	----carfentrazone	0.35		0.0137							
	----sulfentrazone	3.15		0.123							
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B				
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B				
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B				
	LSD P=.05							1021.8	2.59	5.85	674.6
	Standard Deviation							678.0	1.72	3.88	447.6
	CV							21.11	19.43	34.01	36.9
	Replicate F							0.181	0.377	0.991	0.846
	Replicate Prob(F)							0.9079	0.7707	0.4236	0.4898
	Treatment F							1.731	0.396	0.329	0.246
	Treatment Prob(F)							0.1883	0.8438	0.8874	0.9352

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	SOLME Eggplant	SOLME Eggplant	LYPES tomato	LYPES tomato	LYPES tomato
	Crop Code							SOLME	SOLME	LYPES	LYPES	LYPES
	Weed or Crop Name							Eggplant	Eggplant	tomato	tomato	tomato
	Weed or Crop Name											
	Rating Data Type							YieldTtl	YieldTtl	YieldTtl	YieldTtl	Yield1
	Rating Unit							# fruit	wt/kg	# fruit	wt/kg	% Ripe
	Rating Date											08/14/14
1	Pre-transplant					PTrnsplt	A	41.0 a	16.70 a	139 a	38.5 a	83.3 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	PTrnsplt	A					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A					
2	Pre-transplant					PTrnsplt	A	41.0 a	15.89 a	163 a	43.1 a	84.4 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	PTrnsplt	A					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	PTrnsplt	A					
3	10 to 14 days post-transplant					POSTTns	B	43.3 a	17.34 a	137 a	36.9 a	82.4 a
	Chateau.....flumioxazin	51	WG	0.127	lb ai/a	POSTTns	B					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B					
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B					
4	10 to 14 days post-transplant					POSTTns	B	36.8 a	15.23 a	137 a	36.8 a	86.8 a
	Sharpen.....saflufenacil	2.85	SC	0.111	lb ai/a	POSTTns	B					
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B					
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B					
5	Untreated					Ptrnsplt	A	49.0 a	20.04 a	148 a	40.1 a	86.2 a
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	Ptrnsplt	A					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B					
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B					
6	Spartan Charge Premix	3.5	F	0.137	lb ai/a	POSTTns	B	42.8 a	16.94 a	153 a	38.9 a	85.1 a
	----carfentrazone	0.35		0.0137								
	----sulfentrazone	3.15		0.123								
	Dual Magnum.....s-metolachlor	7.62	E	1.43	lb ai/a	POSTTns	B					
	Gramoxone SL....paraquat	2	SL	0.75	lb ai/a	POSTTns	B					
	Nonionic Surfactant	100	L	0.25	% v/v	POSTTns	B					
	LSD P=.05							9.58	5.576	32.7	8.35	6.67
	Standard Deviation							6.36	3.699	21.7	5.51	4.42
	CV							15.03	21.73	14.86	14.1	5.22
	Replicate F							4.840	2.487	3.102	1.382	1.151
	Replicate Prob(F)							0.0150	0.1002	0.0584	0.2893	0.3610
	Treatment F							1.588	0.807	0.958	0.733	0.588
	Treatment Prob(F)							0.2232	0.5622	0.4735	0.6105	0.7096

University of Delaware

Burndown and Residual Control with Afforia before Vegetables

Trial ID: Veg3-14 Cooperator: DuPont
Location: Field #4 Investigator: Mark VanGessel

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Knawel	SCRAN	Scleranthus annuus L.
3.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
4.	Field Pansy	VIORA	Viola rafinesquii Greene
5.	Vetch species	VICSS	Vicia Ssp.
6.	Horseweed	ERICA	Erigeron canadensis L.

Crop 1: Lima Bean PHSLU Variety: Cypress
Planting Date: 07/09/14 Planting Method: Row- Unit Planter Depth: 0.75 in
Rate: 4 Sd/row-ft Row Spacing: 30 in Seed Bed: Medium/Trashy
Soil Temperature: 88 F Soil Moisture: Moist Emergence Date: 07/14/14

SITE AND DESIGN
Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
Tillage Type: No Tillage

MAINTENANCE
Field Prep./Maintenance: The study was maintained weed free beginning 6-9-14.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/09/14	Roundup PowerMax	4.5	AS	1	qt/A
2.	06/27/14	Liberty 280	2.34	SL	1	qt/A
3.	07/11/14	Roundup PowerMax	4.5	AS	1	qt/A
4.	07/25/14	Raptor	1	AS	5	fl oz/A
5.	07/25/14	Basagran	4	L	12	fl oz/A
6.	07/30/14	Select Max	1	EC	16	fl oz/A

SOIL DESCRIPTION
% Sand: 79 % OM: 2.0 Texture: sandy loam
% Silt: 11 pH: 5.6
% Clay: 10 CEC: 6.0 Fert. Level: Optimum

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book
Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
Distance: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	04/21/14
Time of Day:	2:45 pm
Application Method:	Spray
Application Timing:	90EPP
Applic. Placement:	Brdcst
Air Temp., Unit:	64 F
% Relative Humidity:	50
Wind Velocity, Unit:	3 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	64 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	0

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	LAMAM
Growth Stage:	flower
Height, Unit:	7 in
Density,Unit:	60-120 m2
Weed 2 Code:	SCRAN
Growth Stage:	vegetative
Height, Unit:	6 in
Density,Unit:	20-120 m2
Weed 3 Code:	OEOLA
Growth Stage:	rosette
Height, Unit:	5 in
Density,Unit:	0-6 m2
Weed 4 Code:	VIORA
Growth Stage:	flower
Height, Unit:	7 in
Density,Unit:	0-80 m2
Weed 5 Code:	VICSS
Growth Stage:	vegetative
Height, Unit:	5 in
Density,Unit:	0-20 m2
Weed 6 Code:	ERICA
Growth Stage:	rosette
Height, Unit:	5 in
Density,Unit:	0-20 m2

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	22 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

07/16/14: Lima beans are at unifoliate leaf stage.

09/17/14: Yielded. Note that trial got no second nitrogen appl and no irrigation - only rain.

University of Delaware

Burndown and Residual Control with Afforia before Vegetables

Trial ID: Veg3-14 Cooperator: DuPont
Location: Field #4 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	ERICA	OEOLA	SCRAN	VICVI	VIORA
	Weed Code						ERICA	OEOLA	SCRAN	VICVI	VIORA
	Crop Code										
	Weed or Crop Name						Horse-	Cutleaf	Knawel	Vetch	Field
	Weed or Crop Name						weed	EPrimrse		Species	Pansy
	Rating Data Type						Control	Control	Control	Control	Control
	Rating Unit						%	%	%	%	%
	Rating Date						05/27/14	05/27/14	05/27/14	05/27/14	05/27/14
1	Harmony SG.....thifensulfuron	50	SG	0.0078	lb ai/a	90EPP	65.0 b	76.7 ab	100.0 a	68.3 ab	40.0 ab
	Express TS.....tribenuron	50	SG	0.0078	lb ai/a	90EPP					
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	90EPP					
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
2	Harmony SG.....thifensulfuron	50	SG	0.0156	lb ai/a	90EPP	60.0 b	91.7 a	100.0 a	75.0 a	50.0 ab
	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	90EPP					
	Valor SX.....flumioxazin	51	WG	0.127	lb ai/a	90EPP					
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	90EPP	46.7 b	60.0 bc	100.0 a	60.0 b	43.3 ab
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
4	Untreated Check						0.0 c	0.0 d	0.0 b	0.0 d	0.0 c
5	Spartan.....sulfentrazone	4	F	0.187	lb ai/a	90EPP	50.0 b	50.0 c	100.0 a	40.0 c	36.7 b
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	90EPP	93.8 a	68.3 bc	100.0 a	56.7 b	53.3 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
	LSD P=.05						19.54	20.39	.	11.86	14.73
	Standard Deviation						10.58	11.21	0.00	6.52	8.10
	CV						20.12	19.39	0.0	13.04	21.75
	Replicate F						6.871	0.575	0.000	4.804	1.102
	Replicate Prob(F)						0.0154	0.5801	1.0000	0.0345	0.3695
	Treatment F						25.295	23.991	0.000	52.314	16.966
	Treatment Prob(F)						0.0001	0.0001	1.0000	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Missing data estimates are included in columns:Yates=1,7
Could not calculate LSD (% mean diff) for columns 3,10 because error mean square = 0.

Weed Code						AMAPA	DIGSA	ERICA	OEOLA	SCRAN
Crop Code										
Weed or Crop Name						Palmer	Large	Horse-	Cutleaf	Knawel
Weed or Crop Name						Amaranth	Crabgras	weed	EPrimrse	
Rating Data Type						Control	Control	Control	Control	Control
Rating Unit						%	%	%	%	%
Rating Date						06/09/14	06/09/14	06/09/14	06/09/14	06/09/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg				
1	Harmony SG.....thifensulfuron	50	SG	0.0078	lb ai/a	90EPP	26.7 b	21.3 bc	70.0 b	71.7 ab	100.0 a
	Express TS.....tribenuron	50	SG	0.0078	lb ai/a	90EPP					
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	90EPP					
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
2	Harmony SG.....thifensulfuron	50	SG	0.0156	lb ai/a	90EPP	90.3 a	40.0 ab	71.7 b	81.7 a	100.0 a
	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	90EPP					
	Valor SX.....flumioxazin	51	WG	0.127	lb ai/a	90EPP					
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	90EPP	66.7 a	53.3 a	60.0 c	66.7 b	100.0 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
4	Untreated Check						0.0 b	0.0 c	0.0 d	0.0 c	0.0 b
5	Spartan.....sulfentrazone	4	F	0.187	lb ai/a	90EPP	81.0 a	43.3 ab	63.3 c	60.0 b	100.0 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	90EPP	0.0 b	10.0 c	100.0 a	83.3 a	100.0 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
LSD P=.05							27.30	26.70	5.99	12.39	.
Standard Deviation							15.00	14.45	3.29	6.81	0.00
CV							34.01	51.62	5.41	11.25	0.0
Replicate F							2.201	0.153	1.154	0.030	0.000
Replicate Prob(F)							0.1614	0.8602	0.3541	0.9706	1.0000
Treatment F							21.860	6.243	301.462	61.988	0.000
Treatment Prob(F)							0.0001	0.0091	0.0001	0.0001	1.0000

Weed Code						VICVI	VIORA			
Crop Code								PHSLU	PHSLU	PHSLU
Weed or Crop Name						Vetch	Field	Lima	Lima	Lima
Weed or Crop Name						Species	Pansy	Bean	Bean	Bean
Rating Data Type						Control	Control	Stunting	Stunting	Stunting
Rating Unit						%	%	%	%	%
Rating Date						06/09/14	06/09/14	07/16/14	08/15/14	08/24/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg				
1	Harmony SG.....thifensulfuron	50	SG	0.0078	lb ai/a	90EPP	53.3 a	30.0 b	12.0 a	9.7 b	9.7 a
	Express TS.....tribenuron	50	SG	0.0078	lb ai/a	90EPP					
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	90EPP					
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
2	Harmony SG.....thifensulfuron	50	SG	0.0156	lb ai/a	90EPP	65.0 a	50.0 a	11.3 a	11.3 ab	9.7 a
	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	90EPP					
	Valor SX.....flumioxazin	51	WG	0.127	lb ai/a	90EPP					
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	90EPP	53.3 a	40.0 ab	8.0 b	14.7 a	9.0 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
4	Untreated Check						0.0 c	0.0 c	0.0 c	0.0 c	0.0 b
5	Spartan.....sulfentrazone	4	F	0.187	lb ai/a	90EPP	33.3 b	30.0 b	0.0 c	4.7 c	9.7 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	90EPP	30.0 b	56.7 a	12.0 a	2.3 c	10.7 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
LSD P=.05							15.13	16.83	1.68	4.99	5.49
Standard Deviation							8.32	9.25	0.92	2.74	3.02
CV							21.23	26.85	12.81	38.57	37.24
Replicate F							0.422	0.065	0.065	2.533	0.847
Replicate Prob(F)							0.6671	0.9375	0.9375	0.1288	0.4575
Treatment F							23.602	13.974	117.455	12.827	5.286
Treatment Prob(F)							0.0001	0.0003	0.0001	0.0004	0.0124

Weed Code											
Crop Code							PHSLU	PHSLU	PHSLU	PHSLU	PHSLU
Weed or Crop Name							Lima	Lima	Lima	Lima	Lima
Weed or Crop Name							Bean	Bean	Bean	Bean	Bean
Rating Data Type							Stunting	Yield	TotPods	PlumpPod	FlatPods
Rating Unit							%	g/20'	#12plts	%	%
Rating Date							09/12/14	09/17/14	09/17/14	09/17/14	09/17/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg					
1	Harmony SG.....thifensulfuron	50	SG	0.0078	lb ai/a	90EPP	2.3 a	1163.0 a	77 a	75.0 a	22.8 a
	Express TS.....tribenuron	50	SG	0.0078	lb ai/a	90EPP					
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	90EPP					
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
2	Harmony SG.....thifensulfuron	50	SG	0.0156	lb ai/a	90EPP	4.0 a	1344.3 a	92 a	88.5 a	11.5 a
	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	90EPP					
	Valor SX.....flumioxazin	51	WG	0.127	lb ai/a	90EPP					
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	90EPP	6.3 a	1181.3 a	84 a	79.5 a	18.3 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
4	Untreated Check						0.0 a	1030.7 a	95 a	82.2 a	15.0 a
5	Spartan.....sulfentrazone	4	F	0.187	lb ai/a	90EPP	2.3 a	1216.7 a	84 a	82.8 a	17.2 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	90EPP	6.3 a	1188.7 a	90 a	91.2 a	8.8 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP					
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP					
LSD P=.05							5.15	394.72	43.2	15.61	18.34
Standard Deviation							2.83	216.97	23.8	8.58	10.08
CV							79.66	18.27	27.31	10.31	64.61
Replicate F							1.025	0.844	1.563	3.560	2.878
Replicate Prob(F)							0.3936	0.4583	0.2567	0.0680	0.1030
Treatment F							2.338	0.646	0.221	1.422	0.740
Treatment Prob(F)							0.1186	0.6711	0.9453	0.2968	0.6105

Weed Code							
Crop Code							PHSLU
Weed or Crop Name							Lima
Weed or Crop Name							Bean
Rating Data Type							DryPods
Rating Unit							%
Rating Date							09/17/14
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	
1	Harmony SG.....thifensulfuron	50	SG	0.0078	lb ai/a	90EPP	2.2 a
	Express TS.....tribenuron	50	SG	0.0078	lb ai/a	90EPP	
	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	90EPP	
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP	
2	Harmony SG.....thifensulfuron	50	SG	0.0156	lb ai/a	90EPP	0.0 a
	Express TS.....tribenuron	50	SG	0.0156	lb ai/a	90EPP	
	Valor SX.....flumioxazin	51	WG	0.127	lb ai/a	90EPP	
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP	
3	Valor SX.....flumioxazin	51	WG	0.064	lb ai/a	90EPP	2.1 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP	
4	Untreated Check						2.8 a
5	Spartan.....sulfentrazone	4	F	0.187	lb ai/a	90EPP	0.0 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP	
6	Sharpen.....saflufenacil	2.85	SC	0.089	lb ai/a	90EPP	0.0 a
	Abundit Extra...glyphosate	3	SC	0.75	lb ae/a	90EPP	
	Dry Ammonium Sulfate	100	D	1.2	% w/v	90EPP	
LSD P=.05							3.36
Standard Deviation							1.85
CV							155.3
Replicate F							0.243
Replicate Prob(F)							0.7887
Treatment F							1.538
Treatment Prob(F)							0.2628