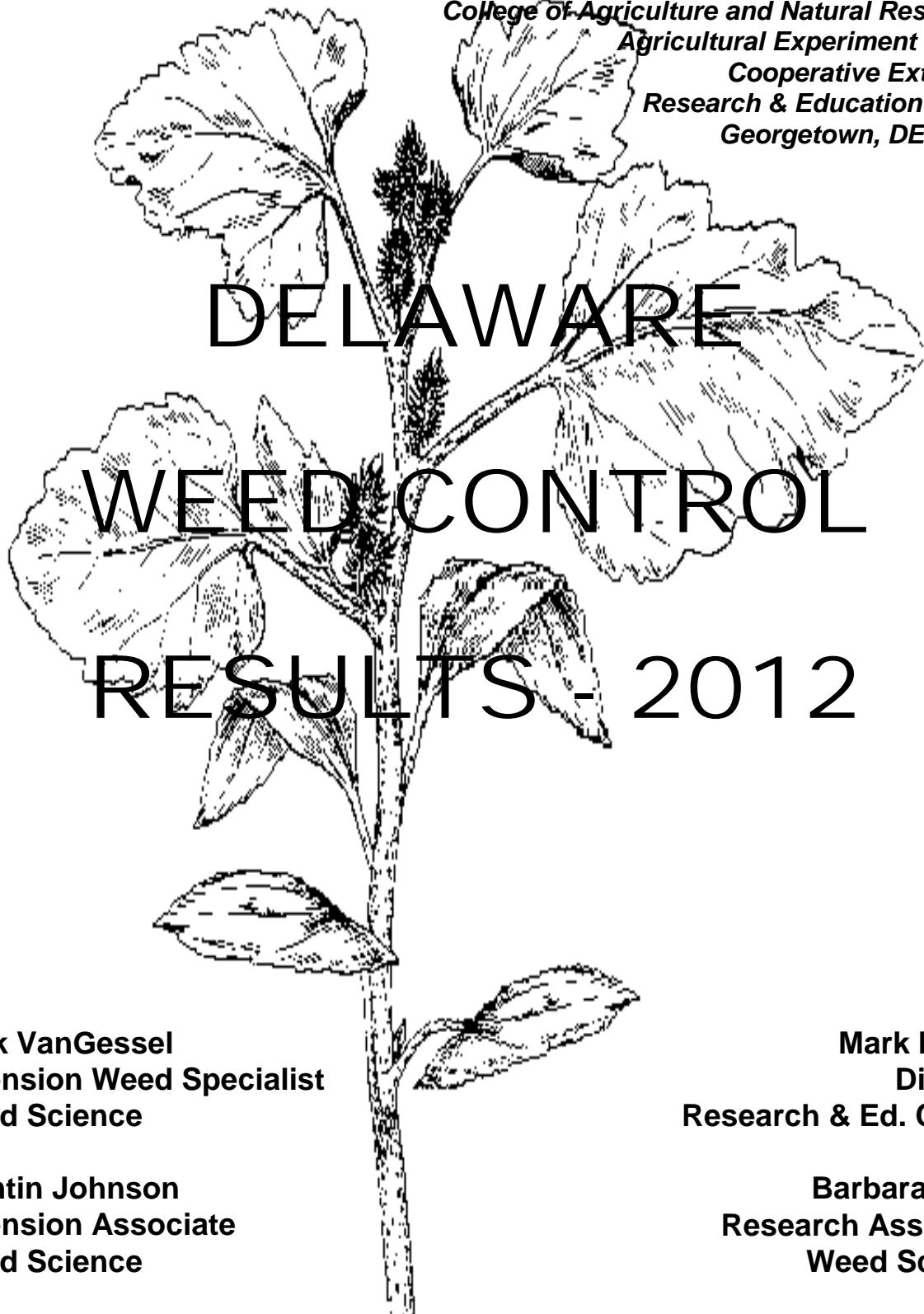


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WEED CONTROL RESULTS

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The purpose of this report is to present results and details of many of the 2012 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/weedscience/>.

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 sometimes 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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Amvac Chemical Corp.	J.G. Townsend, Inc.
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The research presented in this book is the combined effort of many dedicated individuals, without their help we would not have been able to have as extensive of a program. Besides the names on the cover we thank: Brian Hearn, Victor Green, Ward Harris, Bud Hawkins, Kyle Mitchell, Buddy Willey, Karen Adams, Lucas Johnson, Ashley Morley, Casey Thomas, Carl VanGessel, and Holly White.

WEED INDEX

<u>Common Name</u>	<u>WSSA Code</u>	<u>Scientific Name</u>	<u>Trial</u>
Amaranth, Palmer	AMAPA	<i>Amaranthus palmeri</i> S.Wats.	Corn19; SCRN3a; DSB1a, 5; Soy14; Cuke1; MELN2
Bittercress, Hairy	CARHI	<i>Cardamine hirsuta</i> L.	Soy1
Bluegrass, Annual	POAAN	<i>Poa annua</i> L.	SG13
Broadleaves, Wntr Ann	ANNBR		Corn13
Carpetweed	MOLVE	<i>Mollugo verticillata</i> L.	MELN1
Chickweed, Common	STEME	<i>Stellaria media</i> (L.) Vill./cyr.	SG11, 15; For1
Chickweed, Jagged	HLOUM	<i>Holosteum umbellatum</i> L.	SG2
Chickweed, Mouseear	CERVU	<i>Cerastium vulgatum</i> L.	SG2, 15; Brndwn4; For1, 2
Corn, Volunteer	ZEAMX	<i>Zea mays</i> L.	SG1
Crabgrass, Large	DIGSA	<i>Digitaria sanguinalis</i> (L.) Scop.	Corn2, 7, 9a, 9b, 10a, 10b, 15, 17, 19, 20, 30; SCRN5; DSB2, 6; Soy2, 3, 4, 5, 8, 9, 14, 30; Pea2
Deadnettle, Purple	LAMPU	<i>Lamium purpureum</i> L.	For2
E.primrose, Cutleaf	OEOLA	<i>Oenothera laciniata</i> Hill	Corn1, 2, 13, 15, 16, 17, 18, 19; SG15; DSB2; Soy2, 3, 30; Brndwn4, 5, 6
Filaree, Redstem	EROCI	<i>Erodium cicutarium</i> (L.) L'Her. ex Ait.	Corn1; Brndwn1
Fleabane, Daisy	ERIPH	<i>Erigeron philadelphicus</i> L.	For1
Goosegrass	ELEIN	<i>Eleusine indica</i> (L.) Gaertn.	MELN2
Grass, Annual	GGGAN		Corn7, 10a, 10b, 13, 15, 30; SCRN1, 2, 5, 6; DSB1a; Soy5, 7, 8, 10, 30; Bean3; Pmkn1
Henbit	LAMAM	<i>Lamium amplexicaule</i> L.	SG2, 3, 4, 7, 8, 9, 13; Soy1; Brndwn1

<u>Common Name</u>	<u>WSSA Code</u>	<u>Scientific Name</u>	<u>Trial</u>
Horsenettle, Carolina	SOLCA	<i>Solanum carolinense</i> L.	Corn18
Horseweed	ERICA	<i>Erigeron canadensis</i> L.	Corn1, 2, 15, 16, 18; SG15; DSB2; Soy2, 3, 4, 16, 30; Brndwn3, 4, 6
Jimsonweed	DATST	<i>Datura stramonium</i> L.	Bean4
Knawel	SCRAN	<i>Scleranthus annuus</i> L.	Corn2, 13; SG3, 7; Brndwn1
Lambsquarters, Cmn.	CHEAL	<i>Chenopodium album</i> L.	Corn2, 7, 9b, 10a, 10b, 15, 16, 17, 18; SCRNI; DSB1a, 3; Soy2, 3, 5, 8, 30; Bean4; MELN2; Pea2
Morngly Species	IPOSS	<i>Ipomoea</i> ssp.	Corn4, 7, 8, 9a, 10a, 13, 14, 15, 16, 17, 18, 19, 20, 30; SCRNI, 2, 3, 3a, 5, 6; DSB1a, 2, 3, 6; Soy2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 30; Bean3, 4, 6; Cuke1
Nutsedge, Yellow	CYPES	<i>Cyperus esculentus</i> L.	Corn2, 17, 18, 19
Panicum, Fall	PANDI	<i>Panicum dichotomiflorum</i> (L.) Michx.	Corn9a
Panicum, Texas	PANTE	<i>Panicum texanum</i> Buckl.	Corn11, 11b, 12; DSB4
Pansy, Field	VIORA	<i>Viola rafinesquii</i> Greene	Corn1, 2, 15, 16; SG2, 4, 15; DSB2; Soy2, 3
Pigweed, Smooth	AMACH	<i>Amaranthus hybridus</i> L.	Corn11
Pigweed Species	AMASS	<i>Amaranthus</i> ssp.	Corn2, 7, 8, 9a, 10a, 13, 15, 16, 17, 18, 19, 20, 30; SCRNI, 2, 3, 5, 6; DSB1a, 2, 3, 6; Soy2, 3, 5, 7, 8, 9, 10, 12a, 30; Bean3, 4, 6; Pea2; Pmkn1
Plantain, Wolly	PLAPR	<i>Plantago patagonica</i> Jacq.	For1
Radish, Tillage	RAPSN	<i>Raphanus sativus</i> L.	Brndwn2

<u>Common Name</u>	<u>WSSA Code</u>	<u>Scientific Name</u>	<u>Trial</u>
Ragweed, Common	AMBEL	Ambrosia elatior L.	Corn9a, 10a, 16, 19; SCRN1, 2; DSB1a, 2; Soy3, 5, 7, 8, 10, 30
Ryegrass, Annual	LOLMU	Lolium multiflorum Lam.	Corn2
Sida, Prickly	SIDSP	Sida spinosa L.	DSB1a, 2; Soy2, 3
Speedwell, Purslane	VERPG	Veronica peregrina L.	SG11
Stinkgrass	ERACN	Eragrostis cilianensis (All.) E. Mosher	MELN1, 2
Velvetleaf	ABUTH	Abutilon theophrasti Medik.	Bean4
Vetch Species	VICSS	Vicia ssp.	Corn1, 2, 13, 17; SG3, 7, 8; Brndwn3
Wood sorrel, Yellow	OXAST	Oxalis stricta L.	Corn18

INDEX OF CHEMICALS

<u>Trade Name</u>	<u>Common Name</u>	<u>Trial</u>
Aatrex	atrazine	Corn2, 4, 7, 8, 9a, 9b, 10a, 10b, 11, 11b, 12, 13, 14, 16, 17, 18, 19, 20; SCRN1, 2, 3, 3a, 4, 7; Brndwn3, 5
Abundit	glyphosate	Corn7, 18; Soy4
Accent Q	nicosulfuron + safener	Corn5, 12
Accent SP	nicosulfuron	Corn5
Aim	carfentrazone	Corn4; SCRN4; SG2; Brndwn1; For1, 2
Anthem ATZ Premix	pyroxasulfone + fluthiacet + atrazine	Corn7
Anthem Premix	pyroxasulfone + fluthiacet	Corn7; Soy8
Armezon	topramezone	Corn17
Authority First Premix	sulfentrazone + cloransulam	DSB2, 3; Soy5, 10, 30
Authority MTZ Premix	sulfentrazone + metribuzin	DSB5; Soy5, 8
Authority XL Premix	sulfentrazone + chlorimuron	DSB2, 3; Soy5, 10, 30
Axial Star Premix	pinoxaden + fluroxypyr	SG12
Axial XL	pinoxaden	SG1, 12, 13, 14
Axiom Premix	flufenacet + metribuzin	SG3, 8
Balance Flexx	isoxaflutole	Corn6, 11, 11b, 15, 18
Banvel	dicamba	Corn8; SG4, 9, 15; For1, 2
Basagran	bentazon	SCRN1, 4; DSB1a; Bean4; Brndwn5; Pea1, 2
Basis Blend Premix	rimsulfuron + thifensulfuron	Soy1
Basis Premix	rimsulfuron + thifensulfuron	Corn6; Brndwn3
Bicep II Magnum Premix	s-metolachlor + atrazine	Corn2, 6, 9a, 9b, 10a, 10b, 11, 11b, 13, 20; SCRN2, 7; Brndwn3
Boundary Premix	s-metolachlor + metribuzin	Soy3, 5
Cadet	fluthiacet	Corn4, 7; SCRN1, 4, 5; Soy5, 11

<u>Trade Name</u>	<u>Common Name</u>	<u>Trial</u>
Callisto	mesotrione	Corn4, 8, 13, 14, 16, 17; SCRN7
Camix Premix	s-metolachlor + mesotrione	Corn15; SCRN2
Canopy EX Premix	chlorimuron + tribenuron	DSB2, 3; Soy1
Canopy Premix	chlorimuron + metribuzin	DSB2, 3; Soy1, 4, 10, 16, 30
Capreno Premix	tembotrione + thiencarbazone + Isoxadifen	Corn6, 8, 11, 11b, 12, 14, 15, 18, 20
Chateau	flumioxazin	MELN2, 3, 4, 5
Cinch ATZ Premix	s-metolachlor + atrazine	Corn7, 18
Cinch	s-metolachlor	Soy4
Clarity	dicamba	Soy1, 30
Classic	chlorimuron	Soy5, 9
Cobra	lactofen	DSB6
Command	clomazone	DSB4; Soy5; Cuke1
Corvus Premix	thiencarbazone + isoxaflutole	Corn2, 6, 9a, 9b, 11, 11b, 15, 18, 30
Crossbow Premix	triclopyr + 2,4-D	For1
Curbit	ethalfluralin	Cuke1; MELN2; Pmkn1
Dicamba XP	dicamba	Corn5
Distinct Premix	dicamba + diflufenzopyr	Corn5
Dual II Magnum	s-metolachlor	SCRN1, 2, 6; DSB6; Soy2, 3, 14; Bean5, 11
Dual II	metolachlor	MELN1, 3
Dual Magnum	s-metolachlor	SCRN5; DSB1a, 4, 5; Soy7, 9; Bean3, 4, 6; MELN5; Pea2
Durango DMA	glyphosate	Corn19; Soy5
Edict	pyraflufen	For1
Envive Premix	chlorimuron + flumioxazin + thifensulfuron	Soy1, 4
Everest	flucarbazone	SG13, 14

<u>Trade Name</u>	<u>Common Name</u>	<u>Trial</u>
Fierce Premix	flumioxazin + pyroxasulfone	Corn2, 15
Finesse Premix	chlorsulfuron + metsulfuron	SG1
Firstrate	cloransulam	Soy5
Flexstar GT Premix	fomesafen + glyphosate	Soy2, 5
Flexstar	fomesafen	Soy5, 30
Glyphosate	glyphosate	DSB1a, 6
Gramoxone Inteon	paraquat	SG1; DSB3; Brndwn2, 3; MELN5
Gramoxone SL	paraquat	Corn1, 13, 19; Soy16; Brndwn4, 5; MELN2, 3
Halex GT Premix	s-metolachlor + glyphosate + mesotrione	Corn10a, 10b, 13, 14, 18, 19, 20, 30
Harmony Extra SG Premix	thifensulfuron + tribenuron	SG7, 8, 11, 12, 13, 14; Brndwn2, 4
Harmony GT	thifensulfuron	Corn5
Harmony SG	thifensulfuron	Corn7; SG9; Soy11
Harness Xtra Premix	acetochlor + atrazine	Corn9a, 9b, 10a, 10b
Harness	acetochlor	Soy10, 30
Hornet WDG Premix	flumetsulam + clopyralid	Corn6
Ignite 280	glufosinate	SCRN2; Soy14, 16; Brndwn4
Impact	topramezone	Corn7, 8, 12, 14, 20; SCRN1, 2, 3, 3a, 4, 7
Instigate Premix	rimsulfuron + mesotrione	Corn6, 11, 11b, 15, 18
Keystone Premix	acetochlor + atrazine	Corn19
KIH-485	pyroxasulfone	Pea2
Latigo Premix	dicamba + 2,4-D	For1
Laudis	tembotriione	Corn8, 12; SCRN7
Lexar EZ Premix	s-metolachlor + mesotrione + atrazine	Corn13, 19
Lexar Premix	s-metolachlor + mesotrione + atrazine	Corn9a, 9b, 11, 11b, 13

<u>Trade Name</u>	<u>Common Name</u>	<u>Trial</u>
Liberty 280	glufosinate	SCRN1, 6; DSB1a, 2, 6; Soy3, 4
Lorox	linuron	Soy14; Bean5; Brndwn5
Lumax EZ Premix	s-metolachlor + mesotrione + atrazine	Corn2, 13, 18, 19
Lumax Premix	s-metolachlor + mesotrione + atrazine	Corn1, 9a, 9b, 10a, 10b, 13; SCRN2; Brndwn3
Maverick	sulfosulfuron	SG1, 13, 14
Metribuzin	metribuzin	SG1, 3, 4, 5a, 5b, 5c, 7, 9, 10, 11, 12, 15; Soy7, 8, 9; Brndwn5
Mirage	glyphosate	Brndwn2
MON 76754	“experimental”	Soy10, 30
Olympus Flex Premix	mesosulfuron + propoxycarbazone	SG13, 14
Olympus	propoxycarbazone	SG13, 14
OpTill Premix	saflufenacil + imazethapyr	DSB3
Option	foramsulfuron	Corn12; SCRN2
Osprey	mesosulfuron	SG1, 7, 8, 9, 13, 14
PastureGard Premix	triclopyr + fluroxypyr	For1
Permit Plus Premix	halosulfuron + thifensulfuron	Corn17; Soy4
PowerFlex HL	pyroxsulam	SG1, 7, 8, 9, 13, 14
Prefar	bensulide	MELN1
Prefix Premix	s-metolachlor + fomesafen	DSB1a, 5, 6; Soy5, 8, 9
Prequel Premix	rimsulfuron + isoxaflutole	Corn2, 6, 9a, 9b, 11, 11b, 15, 18
Princep	simazine	Corn1, 9a, 9b, 18, 19; Brndwn3, 5
Prowl	pendimethalin	DSB1a, 4
Prowl H ₂ O	pendimethalin	Corn9a, 9b, 10a, 10b, 11, 11b, 13, 19; SCRN1, 2; Soy4
Pulsar Premix	dicamba + fluroxypyr	SG8
Pursuit	imazethapyr	Bean6, 11; Pea2

<u>Trade Name</u>	<u>Common Name</u>	<u>Trial</u>
Racer	ammonium pelargonate	Brndwn1
Rage D-Tech Premix	carfentrazone + 2,4-D ester	For1, 2
Raptor	imazamox	Soy14; Bean4; Pea1
Realm Q Premix	rimsulfuron + mesotrione	Corn6, 7, 8, 10a, 10b, 14, 18, 20
Reflex	fomesafen	DSB1a, 6; Soy3, 9, 11, 12a; Bean3, 4; Meln1, 2, 3; Pea2
Remedy Ultra	triclopyr	For1
Require Q multi-pak	rimsulfuron + dicamba + safener	Corn5
Resolve DF	rimsulfuron	Corn5, 9a, 9b, 10a, 10b, 12
Resolve Q multi-pak	rimsulfuron + thifensulfuron + safener	Corn5, 8, 14
Resolve SG	rimsulfuron	Corn7, 16
Resource	flumiclorac	Corn4; Soy11
Roundup PowerMax	glyphosate	Corn7, 14, 17, 18, 20; DSB4, 5; Soy1, 2, 3, 4, 8, 10, 14, 16, 30; Brndwn4, 6
Roundup WeatherMax	glyphosate	Corn2, 4, 6, 8, 10a, 10b, 12, 13, 15, 16; SG1; Soy11
Sandea	halosulfuron	Corn8; Bean3, 4; Cuke1; MELN1, 3; Pmkn1
Scythe	pelargonic acid	Brndwn1
Select Max	clethodim	DSB1a, 4, 6; Soy5, 11
Sencor	metribuzin	DSB1a; Soy10, 30; Brndwn2
Sequence Premix	glyphosate + s-metolachlor	Soy5
Sharpen	saflufenacil	Corn2, 7, 17; SCRN1, 5; SG2, 3, 4; Soy1, 12a, 13; Bean3, 5; Brndwn4; MELN2, 3, 4, 5; Pea2
Simazine	simazine	Corn13
Sinbar	terbacil	Brndwn5; MELN1, 3
Sonic Premix	sulfentrazone + cloransulam	Soy5
Spartan	sulfentrazone	SG2

<u>Trade Name</u>	<u>Common Name</u>	<u>Trial</u>
Spartan Charge Premix	carfentrazone + sulfentrazone	Bean2, 2b, 6, 11
Starane Ultra	fluroxypyr	SCRN1; SG3, 4, 7, 8, 11, 15
Status Premix	diflufenzoxypr + dicamba + safener	Corn4, 5, 8, 14, 17, 20
Steadfast Premix	nicosulfuron + rimsulfuron	Corn5
Steadfast Q Premix	nicosulfuron + rimsulfuron + safener	Corn5, 14
Stinger	clopyralid	SG9
Storm Premix	bentazon + acifluorfen	Soy2, 14
Strategy Premix	ethalfluralin + clomazone	Cuke1; Pmkn1
SureStart Premix	acetochlor + clopyralid + flumetsulam	Corn15, 30
Synchrony STS Premix	chlorimuron + thifensulfuron	DSB1a; Soy4
Taps	pelargonic acid	Brndwn1, 6
Thistrol	MCPB	Pea1, 2
Touchdown HiTech	glyphosate	Corn1; Soy11
Touchdown Total	glyphosate	Corn19, 30; DSB2; Soy5
Tricor DF	metribuzin	Soy2
Ultra Blazer	acifluorfen	Soy2, 14
Unison	2,4-D acid	SG4, 15; For1
V-10206	"experimental"	Soy9
V-10349	"experimental"	Brndwn4
Valor SX	flumioxazin	SG2; DSB5, 6; Soy7, 8, 9, 12a, 13; Brndwn3
Valor XLT Premix	flumioxazin + chlorimuron	DSB1a, 2, 3, 5; Soy3, 4, 10, 30
Verdict Premix	saflufenacil + dimethenamid-p	Corn15, 30; SCRN2
Vida	pyraflufen	Soy4
Warrant	acetochlor	Soy10, 30
Weedmaster Premix	dicamba + 2,4-D	For1
Yukon Premix	halosulfuron + dicamba	Corn1

<u>Trade Name</u>	<u>Common Name</u>	<u>Trial</u>
Zemax Premix	s-metolachlor + mesotrione	Corn17, 30
Zidua	pyroxasulfone	Corn2, 9a, 9b, 11, 11b, 17; SCRN1, 2; DSB4, 5; Soy3, 8, 9; Bean3
2,4-D amine	2,4-D amine	SCRN2; SG4, 7, 8, 9, 15; For1
2,4-D ester	2,4-D ester	DSB2, 3; Soy1, 2, 3, 4, 10, 30; Brndwn2

Daily Temperature Record
 October 2011 - September 2012
 University of Delaware, Research and Education Center
 Georgetown, Delaware

2011																										
	Oct		Nov		Dec		Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sept			
	Max	Min	Max	Min	Max	Min																				
1	63	52	57	36	49	31	57	29	65	47	67	41	58	42	80	57	83	61	96	71	81	68	89	89	71	
2	51	45	60	31	56	27	52	31	51	40	51	30	56	41	63	50	73	57	91	69	89	65	83	83	68	
3	55	41	62	34	50	29	32	23	45	27	55	45	65	31	74	49	77	55	94	64	93	71	84	71	71	
4	65	43	54	37	60	27	30	26	46	25	47	33	74	45	79	53	73	58	93	74	90	73	87	87	75	
5	72	51	51	31	67	36	42	25	42	26	40	28	60	38	73	55	67	52	99	78	90	75	85	85	74	
6	69	44	58	31	65	58	60	27	49	22	45	26	57	35	65	47	71	48	96	74	86	71	75	75	63	
7	69	39	64	32	69	42	63	37	52	32	63	35	60	34	70	42	79	51	101	73	86	69	86	86	60	
8	74	41	69	33	43	28	50	26	44	29	70	53	69	29	75	57	82	56	96	76	87	71	85	85	64	
9	81	43	69	34	55	25	39	26	43	29	63	38	65	48	69	58	88	63	81	72	90	72	76	76	59	
10	81	46	53	43	46	30	50	27	49	31	44	29	65	42	66	50	92	63	85	70	84	70	73	73	54	
11	73	55	48	35	42	24	54	24	41	26	57	26	52	37	69	45	89	66	83	67	83	72	75	48		
12	69	62	59	27	48	22	56	44	31	21	68	40	58	38	76	47	74	67	83	65	83	69	78	49		
13	78	55	63	46	48	25	54	31	43	20	72	54	62	34	78	56	80	66	87	63	87	64	80	50		
14	73	55	71	58	53	27	36	25	54	32	75	53	71	40	74	61	74	62	84	66	85	68	81	54		
15	69	49	68	57	62	44	30	23	52	30	73	46	81	61	79	64	76	57	89	74	85	70	74	53		
16	70	48	65	53	61	40	43	13	49	29	61	46	85	63	82	63	76	53	91	74	86	66	73	49		
17	72	55	53	36	44	30	41	39	53	30	61	44	79	56	71	50	71	52	96	72	88	66	75	51		
18	74	51	44	28	38	22	57	28	54	25	67	39	57	50	70	46	72	46	97	76	79	65	82	67		
19	71	59	56	28	50	21	41	19	42	32	73	38	65	45	75	46	83	63	92	73	80	59	71	52		
20	70	53	64	48	53	39	42	27	45	26	65	48	73	38	71	50	95	65	82	69	77	65	73	49		
21	62	46	60	52	62	45	41	28	50	20	70	46	79	51	74	62	96	72	73	69	81	63	77	50		
22	60	40	62	51	61	44	39	28	60	41	76	46	58	44	76	62	94	71	82	66	83	61	82	59		
23	64	36	66	44	65	37	55	40	63	44	79	48	50	41	79	63	89	69	89	67	83	62	68	47		
24	67	39	55	34	43	26	57	33	63	45	55	41	60	40	81	60	89	63	93	73	82	63	68	43		
25	64	46	65	36	51	23	47	32	45	35	41	38	66	36	82	67	86	69	85	66	75	66	72	45		
26	72	49	63	37	48	29	53	35	47	29	56	34	65	48	86	62	78	58	94	66	81	66	81	62		
27	72	46	68	45	43	41	63	42	58	31	52	30	59	40	86	66	86	53	94	70	85	73	82	63		
28	48	38	71	56	48	33	51	29	53	32	71	34	57	33	88	70	91	59	91	68	86	68	81	63		
29	49	35	70	46	42	25	46	27	57	31	65	42	64	41	87	73	100	71	85	66	82	63	66	53		
30	51	31	50	41	56	32	43	30			53	32	63	43	74	66	92	70	83	69	85	61	71	48		
31	57	28			60	43	60	36			52	44		84	63		83	70	89	69						

Data Collected Midnight- Midnight

Daily Rainfall Record
 October 2011 - September 2012
 University of Delaware, Research and Education Center
 Georgetown, Delaware

	2011											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
1	0.02	0.05	0.00	0.00	0.01	0.01	0.02	0.21	0.17	0.00	0.06	0.00
2	0.00	0.00	0.00	0.00	0.26	0.23	0.14	0.04	0.25	0.17	0.00	2.36
3	0.01	0.00	0.00	0.00	0.00	0.07	0.00	0.02	0.00	0.00	0.38	0.26
4	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.11	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.03	0.00	0.00	0.00
6	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
7	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00
8	0.00	0.01	0.02	0.00	0.20	0.00	0.00	0.00	0.00	0.03	0.01	0.30
9	0.00	0.00	0.05	0.01	0.01	0.17	0.01	1.15	0.00	0.77	0.00	0.03
10	0.00	0.03	0.00	0.01	0.00	0.00	0.01	0.05	0.00	0.00	1.77	0.00
11	0.00	0.01	0.00	0.59	0.10	0.00	0.00	0.00	0.01	0.00	0.13	0.00
12	0.06	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.00
13	0.01	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
14	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00
15	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
16	0.00	1.37	0.00	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.23	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.31	0.00
19	0.82	0.00	0.00	0.00	0.10	0.00	0.02	0.00	0.05	0.00	0.05	0.00
20	0.03	0.01	0.01	0.00	0.08	0.00	0.00	0.85	0.00	0.28	0.00	0.00
21	0.00	0.14	0.19	0.46	0.00	0.00	0.47	0.05	0.00	0.00	0.00	0.00
22	0.00	0.06	0.19	0.00	0.06	0.01	1.83	0.01	0.00	0.02	0.00	0.00
23	0.00	0.59	0.04	0.03	0.18	0.00	0.01	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.67	0.10	0.00	0.00	0.00	0.00	0.00	0.00
25	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	1.22	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
27	0.01	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.07	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.65	0.00	0.00
29	1.11	0.54	0.00	0.00	1.21	0.00	0.30	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.11	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00	0.05	0.00	0.01	0.01	0.00	0.00	0.00	0.00
Total	2.29	3.04	1.27	1.61	3.05	0.79	3.06	3.22	1.26	1.95	4.93	2.96

Total for Period = 29.43 Inches

Data Collected Midnight- Midnight
 Measurements shown in Inches

Daily Irrigation Record (Inches H₂O)

April-August 2012

University of Delaware, Research and Education Center
Georgetown, Delaware

	April Fields 14a+b* 18a+b*	April Fields 14c+d^ 18c^	May Fields 14a+b* 18a+b*	May Fields 14c+d^ 18c^	June Fields 14a+b* 18a+b*	June Fields 14c+d^ 18c^	July Fields 14a+b* 18a+b*	July Fields 14c+d^ 18c^	August Fields 14a+b* 18a+b*	August Fields 14c+d^ 18c^
1										
2									0.5	0.5
3										
4										
5								0.5		
6		0.5					0.5	0.3		
7										
8					0.5	0.5				
9		0.5								
10										
11										
12										
13		0.5					0.5	0.5		
14										
15										
16							0.5	0.5		
17		0.75								
18					0.5	0.25				
19										
20										
21										
22										
23										
24							0.5	0.5		
25										
26										
27										
28					0.5	0.5				
29			0.3	0.3	0.5	0.5				
30										
31										
Total	0.0	2.25	0.3	0.3	2.0	1.75	2.0	2.3	0.5	0.5

*Fields 14a+b/18a+b applies to Corn 4, 6, 7, 8, 9a, 20, 30; SCRN 5; DSB 6, Soy 5, 7, 8, 12a; Bean 3, 4, 5, 6; Pmkn 1.

[^]Fields 14c+d/18c applies to Corn 3, 5, 10a, 15, 16; SCRN 1, 2, 3, 3a, 4, 6, 7; DSB 1a, 3; Cuke 1; Pea 1, 2.

Horsweed Control in No-till Corn

Trial ID: Corn1-12 Cooperator: Gowan
 Location: Field # 35 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
3.	Redstem Filaree	EROCI	Erodium cicutarium (L.) L'Her. ex Ait.
4.	Vetch species	VICSS	Vicia Ssp.

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/Soybean Stubble

SOIL DESCRIPTION

% Sand: 82 % OM: 1.2 Texture: loamy sand
% Silt: 11 pH: 6.4
% Clay: 7 CEC: 7.0 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: 0.1 **Unit:** mi

APPLICATION DESCRIPTION

	A
Application Date:	03/30/12
Time of Day:	9:45 am
Application Method:	Spray
Application Timing:	14EPP
Appl. Placement:	Brdcst
Air Temp., Unit:	48 F
% Relative Humidity:	53
Wind Velocity, Unit:	1 mph
Wind Direction:	North
Dew Presence (Y/N):	N
Soil Temp., Unit:	45 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	70

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	ERICA
Growth Stage:	rosette
Height, Unit:	5 in
Density,Unit:	60-400 m ²
Weed 2 Code:	OEOLA
Growth Stage:	rosette
Height, Unit:	9 in
Density,Unit:	0-12 m ²
Weed 3 Code:	EROCI
Growth Stage:	flower
Height, Unit:	13 in
Density,Unit:	0-12 m ²
Weed 4 Code:	VICSS
Growth Stage:	vegetative
Height, Unit:	7 in
Density,Unit:	0-4 m ²

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIR MIX
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

3-30-12: Horseweed density impacted height; Plants were shorter in denser areas. Horseweed ranged from 1.5 to 6 inches wide and 0.5 to 5 inches tall.

4-19-12: Appears that treatment 6 had an agitation problem; rep 1 looked the worse and rep 3 looked much better. Yukon was weak on jagged chickweed, mouseear chickweed, and knawl.

Horesweed Control in No-till Corn

Trial ID: Corn1-12 Cooperator: Gowan
 Location: Field # 35 Investigator: Mark VanGessel

Weed Code		ERICA Horse-weed Control %	ERICA Horse-weed Control %	EROCI Redstem Filaree Control %	OEOLA Cutleaf EPrimrse Control %	VIORA Field Pansy Control %	VICSS Vetch Species Control %			
Weed or Crop Name										
Weed or Crop Name										
Rating Data Type										
Rating Unit										
Rating Date										
Trt Treatment No.	Form Name	Form Conc	Rate Type	Grow Unit	Appl Stg	Code				
1 Untreated Check					0.0 e	0.0 d	0.0 a	0.0 b	0.0 d	0.0 d
2 Yukon Premix Crop Oil Concentrate	67.5 WG 100 L	0.169 lb ai/A 1 % v/v	14EPP A 14EPP A		43.3 c	46.7 c	23.6 a	40.0 a	41.5 c	51.7 c
3 Yukon Premix Crop Oil Concentrate	67.5 WG 100 L	0.253 lb ai/A 1 % v/v	14EPP A 14EPP A		50.0 bc	60.0 b	45.9 a	50.0 a	39.9 c	61.4 b
4 Yukon Premix Crop Oil Concentrate	67.5 WG 100 L	0.337 lb ai/A 1 % v/v	14EPP A 14EPP A		56.7 b	74.3 a	49.4 a	63.3 a	55.9 b	57.0 bc
5 Gramoxone SL....paraquat Princep.....simazine Nonionic Surfactant	2 SL 4 L 100 L	1 lb ai/A 1 lb ai/A 0.25 % v/v	14EPP A 14EPP A 14EPP A		73.3 a	43.3 c	48.9 a	60.0 a	95.0 a	96.3 a
6 Lumax Premix Touchdown HiTech..glyphosate Nonionic Surfactant Liquid Ammonium Sulfate 34%	3.95 SC 5 SL 100 L 100 L	2.47 lb ai/A 0.86 lb ae/A 0.25 % v/v 2.5 % v/v	14EPP A 14EPP A 14EPP A 14EPP A		33.3 d	73.3 a	25.2 a	63.0 a	63.3 b	57.3 bc
LSD (P=.05)					7.36	10.51	85.73	25.47	8.94	7.97
Standard Deviation					4.05	5.78	8.26	14.00	4.26	2.27
CV					9.46	11.65	25.7	30.4	8.64	4.21
Replicate F					7.712	2.228	0.103	0.765	1.044	4.774
Replicate Prob(F)					0.0094	0.1584	0.9103	0.4906	0.4180	0.1732
Treatment F					113.424	68.128	16.859	9.039	162.503	557.428
Treatment Prob(F)					0.0001	0.0001	0.1827	0.0018	0.0001	0.0018

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code							ERIC
Weed or Crop Name							A
Weed or Crop Name							Horse-
Rating Data Type							weed
Rating Unit							Control
Rating Date							%
							04/30/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1	Untreated Check						0.0 d
2	Yukon Premix Crop Oil Concentrate	67.5 WG 100 L	0.169 lb ai/A 1 % v/v	14EPP A	71.7 b		
3	Yukon Premix Crop Oil Concentrate	67.5 WG 100 L	0.253 lb ai/A 1 % v/v	14EPP A	82.7 ab		
4	Yukon Premix Crop Oil Concentrate	67.5 WG 100 L	0.337 lb ai/A 1 % v/v	14EPP A	87.7 a		
5	Gramoxone SL....paraquat Princep.....simazine Nonionic Surfactant	2 SL 4 L 100 L	1 lb ai/A 1 lb ai/A 0.25 % v/v	14EPP A	40.0 c		
6	Lumax Premix Touchdown HiTech..glyphosate Nonionic Surfactant Liquid Ammonium Sulfate 34%	3.95 SC 5 SL 100 L 100 L	2.47 lb ai/A 0.86 lb ae/A 0.25 % v/v 2.5 % v/v	14EPP A	76.7 ab		
LSD (P=.05)							11.26
Standard Deviation							6.19
CV							10.36
Replicate F							0.071
Replicate Prob(F)							0.9319
Treatment F							89.131
Treatment Prob(F)							0.0001

Utility of Flumioxazin as Part of Burndown Treatments

Trial ID: Corn2-12 Cooperator: Valent
 Location: Field #28 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Woolly Plantain	PLAPR	Plantago patagonica Jacq.
3.	Cutleaf Evening Primrose	OEOLA	Oenothera lacinata Hill
4.	Knawel	SCRAN	Scleranthus annuus L.
5.	Annual Ryegrass	LOLMU	Lolium multiflorum Lam.
6.	Vetch species	VICSS	Vicia Ssp.
7.	Mouseear Cress	ARBTH	Arabidopsis thaliana (L.) Heynh.
8.	Henbit	LAMAM	Lamium amplexicaule L.
9.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.

Crop 1: Field Corn **ZEAMX** **Variety:** H4600RC2P
Planting Date: 04/19/12 **Planting Method:** Row- Unit Planter **Depth:** 2 in
Rate: 19000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Firm/Trashy
Soil Temperature: 67 F **Soil Moisture:** Dry **Emergence Date:** 05/02/12

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/Wheat Stubble

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.1 Texture: sandy loam
% Silt: 2 pH: 6.0
% Clay: 17 CEC: 5.0 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:	04/13/12
Time of Day:	9:10 am
Application Method:	Spray
Application Timing:	7 DPP
Applc. Placement:	Brdcst
Air Temp., Unit:	52 F
% Relative Humidity:	47
Wind Velocity, Unit:	3 mph
Wind Direction:	North
Dew Presence (Y/N):	N
Soil Temp., Unit:	49 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Dry
Leaf Surf. Moisture:	Dry
% Cloud Cover:	10

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	ERICA
Growth Stage:	rosette
Height, Unit:	6 in
Density,Unit:	0-8 m ²
Weed 2 Code:	PLAPR
Growth Stage:	rosette
Height, Unit:	8 in
Density,Unit:	0-8 m ²
Weed 3 Code:	OEOLA
Growth Stage:	rosette
Height, Unit:	7 in
Density,Unit:	8-50 m ²
Weed 4 Code:	SCRAN
Growth Stage:	vegetative
Height, Unit:	2 in
Density,Unit:	40-120 m ²
Weed 5 Code:	LOLMU
Growth Stage:	2-5 tiller
Height, Unit:	10 in
Density,Unit:	0-40 m ²
Weed 6 Code:	VICSS
Growth Stage:	vegetative
Height, Unit:	7 in
Density,Unit:	0-16 m ²
Weed 7 Code:	ARBTH
Growth Stage:	flower
Height, Unit:	11 in
Density,Unit:	0-16 m ²
Weed 8 Code:	LAMAM
Growth Stage:	flower
Height, Unit:	8 in
Density,Unit:	0-16 m ²
Weed 9 Code:	HLOUM
Growth Stage:	seed rain
Height, Unit:	10 in
Density,Unit:	0-16 m ²

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIR MIX
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

5/9/12: No corn injury observed.

5/27/12: Corn is approx 18 inches tall and is at the V5/6 stage.

Chamomile and knawel was present in all untreated checks but none were seen in any treatment.

Note: POST treatments of glyphosate were not applied.

8/6/12: Late season ratings are difficult due to severe drought. Ratings for most treatments were not very consistent.

Corvus was poor for Crabgrass control. Bicep or Lumax or Sharpen + Zidua + Atrazine were consistently above 85% control for Crabgrass.

Utility of Flumioxazin as Part of Burndown Treatments								
Trial ID: Corn2-12		Cooperator: Valent						
Location: Field #28		Investigator: Mark VanGessel						
Weed Code				ERICA	OEOLA	LOLMU	SCRAN	VICSS
Crop Code				Horseweed Control %	Cutleaf EPrimrse Control %	Annual Ryegrass Control %	Knawel Control %	Vetch Species Control %
Weed or Crop Name				05/09/12	05/09/12	05/09/12	05/09/12	Horseweed Control %
Weed or Crop Name								05/27/12
Rating Data Type								
Rating Unit								
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code		
1	Untreated Check							
2	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	66.3 cd	43.3 f	73.3 bc
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B			75.0 b
3	Fierce Premix Roundup WeatherMax..glyphosate	76 WG	0.142 lb ai/A	7 DPP	A	73.0 bcd	60.0 de	80.0 ab
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A			83.3 a
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B			66.3 c
4	Fierce Premix Atrazine 4L Roundup WeatherMax..glyphosate	76 WG	0.142 lb ai/A	7 DPP	A	68.9 bcd	82.7 b	81.7 ab
	Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DPP	A			80.0 ab
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A			63.5 c
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B			86.7 ab
5	Sharpen.....saflufenacil Zidua.....pyroxasulfone	2.85 SC	0.0445 lb ai/A	7 DPP	A	83.9 abc	76.7 bc	85.0 a
	Roundup WeatherMax..glyphosate	85 WG	0.106 lb ai/A	7 DPP	A			81.7 a
	Methylated Seed Oil							96.2 ab
	Roundup WeatherMax..glyphosate	100 L	1 % v/v	7 DPP	A			90.0 ab
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B			
6	Sharpen.....saflufenacil Zidua.....pyroxasulfone	2.85 SC	0.0445 lb ai/A	7 DPP	A	73.0 bcd	96.3 a	71.7 bc
	Atrazine 4L	85 WG	0.106 lb ai/A	7 DPP	A			81.7 a
	Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DPP	A			96.3 ab
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A			88.3 ab
	Methylated Seed Oil							
	Roundup WeatherMax..glyphosate	100 L	1 % v/v	7 DPP	A			
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B			
7	Prequel Premix _Resolve SG.....rimsulfuron	45 DF	0.045 lb ai/A	7 DPP		56.7 d	53.3 ef	85.0 a
	_Balance.....isoxaflutole	25 SG	0.0156 lb ai/A	7 DPP	A			81.7 a
	Roundup WeatherMax..glyphosate	75 WG	0.031 lb ai/A	7 DPP	A			66.3 c
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A			81.7 b
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B			
8	Prequel Premix _Resolve SG.....rimsulfuron	45 DF	0.045 lb ai/A	7 DPP		76.3 a-d	74.3 bc	81.7 ab
	_Balance.....isoxaflutole	25 SG	0.0156 lb ai/A	7 DPP	A			83.3 a
	Atrazine 4L	75 WG	0.031 lb ai/A	7 DPP	A			97.5 ab
	Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DAP	A			90.0 ab
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A			
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B			

Weed Code					ERICA	OEOLA	LOLMU	SCRAN	VICSS	ERICA
Crop Code					Horse-weed Control %	Cutleaf EPrimrse Control %	Annual Ryegrass Control %	Knawel Control %	Vetch Species Control %	Horse-weed Control %
Weed or Crop Name					05/09/12	05/09/12	05/09/12	05/09/12	05/09/12	05/27/12
Weed or Crop Name										
Rating Data Type										
Rating Unit										
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code			
9	Corvus Premix Roundup WeatherMax..glyphosate Roundup WeatherMax..glyphosate	2.63 SC 4.5 AS 4.5 AS	0.068 lb ai/A 1.12 lb ai/A 1 lb ai/A	7 DPP 7 DPP 4 WAP	A	76.3 a-d	60.0 de	78.3 ab	83.3 a	75.4 bc
10	Bicep II Magnum Premix Roundup WeatherMax..glyphosate Roundup WeatherMax..glyphosate	5.5 L 4.5 AS 4.5 AS	2.75 lb ai/A 1.12 lb ai/A 1 lb ai/A	7 PPD 7 DPP 4 WAP	A	89.3 ab	70.0 cd	76.7 ab	81.7 a	99.3 a
11	Lumax EZ Premix Atrazine 4L Roundup WeatherMax..glyphosate Roundup WeatherMax..glyphosate	3.67 SC 4 L 4.5 AS 4.5 AS	2.3 lb ai/A 0.75 lb ai/A 1.12 lb ai/A 1 lb ai/A	7 DPP 7 DAP 7 DPP 4 WAP	A	99.0 a	78.3 bc	65.0 c	78.3 ab	99.0 a
12	No PRE Herbicides Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	0.0 e	0.0 g	0.0 d	0.0 c	0.0 d
	LSD (P=.05)					22.78	11.38	10.97	5.94	22.57
	Standard Deviation					13.37	6.72	6.48	3.51	13.10
	CV					21.04	11.61	9.99	5.2	19.34
	Replicate F					15.339	1.535	1.505	0.508	4.077
	Replicate Prob(F)					0.0001	0.2378	0.2439	0.6088	0.0358
	Treatment F					16.779	61.710	67.938	243.631	22.162
	Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Weed Code	Crop Code	OEOLA	VICSS	VIORA	ZEAMX	AMASS
Weed or Crop Name	Weed or Crop Name	Cutleaf EPrimrse Control % 05/27/12	Vetch Species Control % 05/27/12	Field Pansy Control % 05/27/12	Field Corn Stunting % 05/27/12	Pigweed Species Control % 05/27/12
Rating Data Type	Rating Unit					
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code
1	Untreated Check			0.0 d	0.0 e	0.0 b
2	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	60.0 c
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	
3	Fierce Premix Roundup WeatherMax..glyphosate	76 WG	0.142 lb ai/A	7 DPP	A	63.3 c
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	
4	Fierce Premix Atrazine 4L	76 WG	0.142 lb ai/A	7 DPP	A	91.0 ab
	Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	
5	Sharpen.....saflufenacil Zidua.....pyroxasulfone	2.85 SC	0.0445 lb ai/A	7 DPP	A	65.0 c
	Roundup WeatherMax..glyphosate	85 WG	0.106 lb ai/A	7 DPP	A	
	Methylated Seed Oil	4.5 AS	1.12 lb ai/A	7 DPP	A	
	Roundup WeatherMax..glyphosate	100 L	1 % v/v	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	
6	Sharpen.....saflufenacil Zidua.....pyroxasulfone	2.85 SC	0.0445 lb ai/A	7 DPP	A	96.7 a
	Atrazine 4L	85 WG	0.106 lb ai/A	7 DPP	A	
	Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	
	Methylated Seed Oil	100 L	1 % v/v	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	
7	Prequel Premix _Resolve SG.....rimsulfuron	45 DF	0.045 lb ai/A	7 DPP		66.7 c
	_Balance.....isoxaflutole	25 SG	0.0156 lb ai/A	7 DPP	A	71.7 bcd
	Roundup WeatherMax..glyphosate	75 WG	0.031 lb ai/A	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	
8	Prequel Premix _Resolve SG.....rimsulfuron	45 DF	0.045 lb ai/A	7 DPP		82.0 b
	_Balance.....isoxaflutole	25 SG	0.0156 lb ai/A	7 DPP	A	86.7 abc
	Atrazine 4L	75 WG	0.031 lb ai/A	7 DPP	A	
	Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DAP	A	
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	
9	Corvus Premix Roundup WeatherMax..glyphosate	2.63 SC	0.068 lb ai/A	7 DPP	A	81.7 b
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	90.0 ab
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	100.0 a
						2.3 cd
						100.0 a

Weed Code	Crop Code	OEOLA	VICSS	VIORA	ZEAMX	AMASS
Weed or Crop Name		Cutleaf EPrimrse Control %	Vetch Species Control %	Field Pansy Control %	Field Corn Stunting %	Pigweed Species Control %
Rating Data Type		05/27/12	05/27/12	05/27/12	05/27/12	05/27/12
Rating Unit						
Rating Date						
Trt	Treatment	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
No.	Name					
10	Bicep II Magnum Premix	5.5 L	2.75 lb ai/A	7 PPD	A	
	Roundup	4.5 AS	1.12 lb ai/A	7 DPP	A	
	WeatherMax..glyphosate					
	Roundup	4.5 AS	1 lb ai/A	4 WAP	B	
	WeatherMax..glyphosate					
11	Lumax EZ Premix	3.67 SC	2.3 lb ai/A	7 DPP	A	
	Atrazine 4L	4 L	0.75 lb ai/A	7 DAP	A	
	Roundup	4.5 AS	1.12 lb ai/A	7 DPP	A	
	WeatherMax..glyphosate					
	Roundup	4.5 AS	1 lb ai/A	4 WAP	B	
	WeatherMax..glyphosate					
12	No PRE Herbicides					
	Roundup	4.5 AS	1 lb ai/A	4 WAP	B	
	WeatherMax..glyphosate					
LSD (P=.05)		13.21	21.07	20.77	5.48	3.13
Standard Deviation		7.80	12.44	12.27	3.20	1.83
CV		12.08	17.92	15.23	64.34	2.04
Replicate F		0.478	10.525	0.517	1.805	1.000
Replicate Prob(F)		0.6264	0.0006	0.6035	0.1930	0.3874
Treatment F		51.422	23.935	29.067	7.968	894.333
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0001

Weed Code	Crop Code	Yellow Nutsedge Control %	CYPES	ERICA	OEOLA	LOLMU	VICSS
Weed or Crop Name	Weed or Crop Name	Horse-weed Control %	Cutleaf EPrimrse Control %	Annual Ryegrass Control %	Vetch Species Control %		
Rating Data Type	Rating Unit	05/27/12	06/04/12	06/04/12	06/04/12	06/04/12	06/04/12
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1	Untreated Check					66.7 a	66.7 a
2	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	0.0 d	56.7 a
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B		48.3 a
3	Fierce Premix Roundup WeatherMax..glyphosate	76 WG	0.142 lb ai/A	7 DPP	A	53.3 c	66.7 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		53.3 a
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B		
4	Fierce Premix Atrazine 4L	76 WG	0.142 lb ai/A	7 DPP	A	75.0 ab	86.7 a
	Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DPP	A		86.7 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B		
5	Sharpen.....saflufenacil Zidua.....pyroxasulfone	2.85 SC	0.0445 lb ai/A	7 DPP	A	53.3 c	48.3 a
	Roundup WeatherMax..glyphosate	85 WG	0.106 lb ai/A	7 DPP	A		48.3 a
	Methylated Seed Oil	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	100 L	1 % v/v	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B		
6	Sharpen.....saflufenacil Zidua.....pyroxasulfone	2.85 SC	0.0445 lb ai/A	7 DPP	A	68.3 abc	56.7 a
	Atrazine 4L	85 WG	0.106 lb ai/A	7 DPP	A		58.3 a
	Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DPP	A		
	Methylated Seed Oil	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	100 L	1 % v/v	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B		
7	Prequel Premix _Resolve SG.....rimsulfuron	45 DF	0.045 lb ai/A	7 DPP		80.0 ab	86.7 a
	_Balance.....isoxaflutole	25 SG	0.0156 lb ai/A	7 DPP	A		70.0 a
	Roundup WeatherMax..glyphosate	75 WG	0.031 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B		
8	Prequel Premix _Resolve SG.....rimsulfuron	45 DF	0.045 lb ai/A	7 DPP		62.7 bc	86.7 a
	_Balance.....isoxaflutole	25 SG	0.0156 lb ai/A	7 DPP	A		60.0 a
	Atrazine 4L	75 WG	0.031 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DAP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B		
9	Corvus Premix Roundup WeatherMax..glyphosate	2.63 SC	0.068 lb ai/A	7 DPP	A	71.7 abc	86.7 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		80.0 a
	Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B		

Weed Code			CYPES	ERICA	OEOLA	LOLMU	VICSS			
Crop Code										
Weed or Crop Name			Yellow	Horse-	Cutleaf	Annual	Vetch			
Weed or Crop Name			Nutsedge	weed	EPrimrse	Ryegrass	Species			
Rating Data Type			Control	Control	Control	Control	Control			
Rating Unit			%	%	%	%	%			
Rating Date			05/27/12	06/04/12	06/04/12	06/04/12	06/04/12			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code				
10	Bicep II Magnum Premix Roundup WeatherMax..glyphosate Roundup WeatherMax..glyphosate	5.5 L 4.5 AS 4.5 AS	2.75 lb ai/A 1.12 lb ai/A 1 lb ai/A	7 PPD 7 DPP 4 WAP	A A B	81.7 a	95.0 a	68.3 a	100.0 a	75.0 a
11	Lumax EZ Premix Atrazine 4L Roundup WeatherMax..glyphosate Roundup WeatherMax..glyphosate	3.67 SC 4 L 4.5 AS 4.5 AS	2.3 lb ai/A 0.75 lb ai/A 1.12 lb ai/A 1 lb ai/A	7 DPP 7 DAP 7 DPP 4 WAP	A A A B	78.3 ab	100.0 a	68.3 a	100.0 a	100.0 a
12	No PRE Herbicides Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B		43.3 a	20.0 a	30.0 a	36.7 a
LSD (P=.05)				18.84	48.59	50.46	49.24	50.67		
Standard Deviation				10.98	28.69	29.80	29.08	29.84		
CV				17.59	39.13	50.48	34.15	42.83		
Replicate F				3.451	2.523	0.142	0.011	2.348		
Replicate Prob(F)				0.0539	0.1032	0.8688	0.9894	0.1201		
Treatment F				14.577	1.345	1.055	1.996	1.202		
Treatment Prob(F)				0.0001	0.2657	0.4362	0.0808	0.3435		

Weed Code	Crop Code	Pigweed Species Control	CHEAL Common Lambqtrs Control	CYPES Yellow Nutsedge Control	DIGSA Large Crabgras Control
Rating Data Type	Rating Unit	% 06/04/12	% 06/04/12	% 06/04/12	% 06/04/12
Trt Treatment No.	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1 Untreated Check				86.7 b	99.2 a
2 Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	0.0 c
Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	0.0 b
3 Fierce Premix Roundup WeatherMax..glyphosate	76 WG	0.142 lb ai/A	7 DPP	A	98.3 a
Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	96.7 a
Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	53.3 c
4 Fierce Premix Atrazine 4L	76 WG	0.142 lb ai/A	7 DPP	A	100.0 a
Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DPP	A	100.0 a
Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	66.7 abc
Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	96.0 a
5 Sharpen.....saflufenacil Zidua.....pyroxasulfone	2.85 SC	0.0445 lb ai/A	7 DPP	A	100.0 a
Roundup WeatherMax..glyphosate	85 WG	0.106 lb ai/A	7 DPP	A	100.0 a
Methylated Seed Oil	4.5 AS	1.12 lb ai/A	7 DPP	A	77.1 a
Roundup WeatherMax..glyphosate	100 L	1 % v/v	7 DPP	A	95.7 a
Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	
6 Sharpen.....saflufenacil Zidua.....pyroxasulfone	2.85 SC	0.0445 lb ai/A	7 DPP	A	100.0 a
Atrazine 4L	85 WG	0.106 lb ai/A	7 DPP	A	100.0 a
Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DPP	A	71.7 abc
Methylated Seed Oil	4.5 AS	1.12 lb ai/A	7 DPP	A	100.0 a
Roundup WeatherMax..glyphosate	100 L	1 % v/v	7 DPP	A	
Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	
7 Prequel Premix _Resolve SG.....rimsulfuron	45 DF	0.045 lb ai/A	7 DPP		91.7 ab
_Balance.....isoxaflutole	25 SG	0.0156 lb ai/A	7 DPP	A	93.3 a
Roundup WeatherMax..glyphosate	75 WG	0.031 lb ai/A	7 DPP	A	82.0 a
Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	90.0 a
Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	
8 Prequel Premix _Resolve SG.....rimsulfuron	45 DF	0.045 lb ai/A	7 DPP		100.0 a
_Balance.....isoxaflutole	25 SG	0.0156 lb ai/A	7 DPP	A	100.0 a
Atrazine 4L	75 WG	0.031 lb ai/A	7 DPP	A	70.0 abc
Roundup WeatherMax..glyphosate	4 L	1.5 lb ai/A	7 DAP	A	85.0 a
Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	
Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	
9 Corvus Premix Roundup WeatherMax..glyphosate	2.63 SC	0.068 lb ai/A	7 DPP	A	95.0 ab
Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	100.0 a
Roundup WeatherMax..glyphosate	4.5 AS	1 lb ai/A	4 WAP	B	68.3 abc
					90.0 a

Weed Code	Crop Code	Pigweed Species	CHEAL Common Lambqtrs Control	CYPES Yellow Nutsedge Control	DIGSA Large Crabgras Control
Rating Data Type	Rating Unit	Control %	Control %	Control %	Control %
Rating Date		06/04/12	06/04/12	06/04/12	06/04/12
Trt	Treatment	Form Conc	Form Type	Rate Unit	Grow Stg
No.	Name				Appl Code
10	Bicep II Magnum Premix	5.5 L	2.75 lb ai/A	7 PPD	A
	Roundup	4.5 AS	1.12 lb ai/A	7 DPP	A
	WeatherMax..glyphosate				
	Roundup	4.5 AS	1 lb ai/A	4 WAP	B
	WeatherMax..glyphosate				
11	Lumax EZ Premix	3.67 SC	2.3 lb ai/A	7 DPP	A
	Atrazine 4L	4 L	0.75 lb ai/A	7 DAP	A
	Roundup	4.5 AS	1.12 lb ai/A	7 DPP	A
	WeatherMax..glyphosate				
	Roundup	4.5 AS	1 lb ai/A	4 WAP	B
	WeatherMax..glyphosate				
12	No PRE Herbicides				
	Roundup	4.5 AS	1 lb ai/A	4 WAP	B
	WeatherMax..glyphosate				
LSD (P=.05)			11.11	8.76	19.28
Standard Deviation			6.45	5.08	11.19
CV			7.38	5.68	9.69
Replicate F			0.505	0.923	17.93
Replicate Prob(F)			0.6123	0.4163	3.239
Treatment F			62.243	102.872	0.0643
Treatment Prob(F)			0.0001	0.0001	26.218
				0.0001	0.0001

Morningglory Control in Field Corn

Trial ID: Corn4-12 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

CROP AND WEED DESCRIPTION

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

Crop 1: Field Corn **ZEAMX** **Variety:** H4600RC2P
Planting Date: 05/03/12 **Planting Method:** Row- Unit Planter **Depth:** 2 in
Rate: 24000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Smooth
Soil Temperature: 75 F **Soil Moisture:** Moist **Emergence Date:** 05/12/12

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 and field cultivated

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 220 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Unit
1.	05/04/12	Hornet WDG	78.5	WG	4	oz wt/A
2.	05/04/12	Dual II Magnum	7.64	E	1.25	pt/A

SOIL DESCRIPTION

% Sand: 79 % OM: 1.0 Texture: sandy loam
 % Silt: 10 pH: 6.2
 % Clay: 11 CEC: 4.6 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: 0.3 **Unit:** mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/31/12	06/07/12
Time of Day:	10:20 am	1:00 pm
Application Method:	Spray	Spray
Application Timing:	V4-5	V8
Appli. Placement:	Brdcst	Brdcst
Air Temp., Unit:	76 F	77 F
% Relative Humidity:	71	38
Wind Velocity, Unit:	2 mph	4 mph
Wind Direction:	Northeast	West
Dew Presence (Y/N):	Y	N
Soil Temp., Unit:	74 F	75 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Moist	Dry
% Cloud Cover:	30	25

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	ZEAMX	ZEAMX
Growth Stage:	V6	V7-8
Height, Unit:	15 in	24 in
Crop Health:	Good	Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	IPOSS	IPOSS
Growth Stage:	cot-6 leaf	vegetative
Height, Unit:	3.5 in	5 in
Density,Unit:	2-10 m ²	1-7 m ²

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:	29 in	38 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

6/5/12: Treatment 14 - No injury observed.

6/14/12: Injury is leaf burn and speckling.

Morninglory Control in Field Corn

Trial ID: Corn4-12 Cooperator:
 Location: Field #14 Investigator: Mark VanGessel

Weed Code Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date	ZEAMX Field Corn Injury % 06/14/12	IPOSS Mornglry Species Control % 06/26/12	IPOSS Mornglry Species Control % 08/23/12	ZEAMX Field Corn Yield Bu/A 09/17/12
Trt Treatment No Name	Form Conc Form Type Rate Unit	Rate Stg	Grow Appl Code	
1 Untreated Check		0.0 c	46.7 f	0.0 e 126.1 a
2 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	V8 B	0.0 c 58.3 ef 56.7 cd 135.4 a
3 Roundup WeatherMax..glyphosate	4.5 AS	1 lb ae/A	V8 B	0.0 c 71.7 de 60.0 bcd 125.1 a
4 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	V4-5 A	0.0 c 96.0 a 68.3 a-d 129.3 a
Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	V8 B	
5 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	V8 B	10.3 b 73.3 d 53.3 d 117.5 a
Cadet.....fluthiacet	0.91 EC	0.0064 lb ai/A	V8 B	
6 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	V8 B	9.7 b 74.3 d 65.0 a-d 152.7 a
Resource.....flumiclorac	0.86 EC	0.0403 lb ai/A	V8 B	
7 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	V8 B	14.7 a 90.0 abc 73.3 abc 134.5 a
Aim.....carfentrazone	2 EW	0.0156 lb ai/A	V8 B	
8 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	V8 B	0.0 c 74.3 d 63.3 a-d 130.3 a
Atrazine 4L	4 L	0.75 lb ai/A	V8 B	
9 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	V8 B	0.0 c 85.7 a-d 68.3 a-d 118.4 a
Atrazine 4L	4 L	1.25 lb ai/A	V8 B	
10 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	V8 B	0.0 c 79.3 cd 76.7 ab 135.1 a
Status Premix	56 WG	0.105 lb ai/A	V8 B	
11 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	V8 B	0.0 c 81.0 bcd 68.3 a-d 131.0 a
Status Premix	56 WG	0.28 lb ai/A	V8 B	
12 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	V8 B	0.0 c 76.7 cd 75.0 ab 152.7 a
Callisto.....mesotrione	4 SC	0.094 lb ai/A	V8 B	
13 Callisto.....mesotrione	4 SC	0.094 lb ai/A	V8 B	8.7 b 96.3 a 75.0 ab 145.3 a
Atrazine 4L	4 L	0.75 lb ai/A	V8 B	
Crop Oil Concentrate	100 L	1.25 % v/v	V8 B	
30% Urea Ammonium Nitrate	100 L	2.5 % v/v	V8 B	
14 Callisto.....mesotrione	4 SC	0.094 lb ai/A	V4-5 A	0.0 c 94.0 ab 80.0 a 147.1 a
Atrazine 4L	4 L	0.75 lb ai/A	V4-5 A	
Crop Oil Concentrate	100 L	1.25 % v/v	V4-5 A	
30% Urea Ammonium Nitrate	100 L	2.5 % v/v	V4-5 A	
LSD (P=.05)		2.90	14.33	16.75 33.28
Standard Deviation		1.73	8.54	9.98 19.82
CV		55.87	10.89	15.82 14.76
Replicate F		0.151	2.417	0.221 1.107
Replicate Prob(F)		0.8604	0.1090	0.8031 0.3458
Treatment F		27.493	8.192	11.752 1.002
Treatment Prob(F)		0.0001	0.0001	0.0001 0.4770

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Effectiveness of Corn Safeners

Trial ID: Corn5-12 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

Crop 1: Field Corn	ZEAMX	Variety: H5707VT3 and H5753VT3
Planting Date: 04/19/12	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: 05/03/12

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 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 220 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Unit
1.	04/20/12	Bicep II Magnum	5.5	L	1.6	pt/A
2.	05/25/12	Roundup WeatherMax	4.5	AS	22	fl oz/A

SOIL DESCRIPTION

% Sand: 79 % OM: 1.5 Texture: loamy sand
 % Silt: 14 pH: 6.2
 % Clay: 7 CEC: 4.9 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: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	05/31/12
Time of Day:	10:00 am
Application Method:	Spray
Application Timing:	POST
Applic. Placement:	Brdcst
Air Temp., Unit:	76 F
% Relative Humidity:	71
Wind Velocity, Unit:	2 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	Y
Soil Temp., Unit:	74 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Moist
% Cloud Cover:	30

CROP STAGE AT EACH APPLICATION	
	A
Crop 1 Code:	ZEAMX
Growth Stage:	V6
Height, Unit:	15 in
Crop Health:	Good

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
6/13/12 - NO stunting or twisting/leaning observed. 6/29/12 - Corn just starting to tassel. Tassels are not exposed yet.

Effectiveness of Corn Safeners

Trial ID: Corn5-12 Cooperator:

Location: Field #14 Investigator: Mark VanGessel

Crop Code		ZEAMX H5707	ZEAMX H5707	ZEAMX H5753	ZEAMX H5753	ZEAMX H5707	ZEAMX H5707
Weed or Crop Name		Stand Ct #25ftrow	#Not Normal	Stand Ct #25ftrow	#Not Normal	Stunting %	Twisting %
Rating Data Type		06/04/12	06/04/12	06/04/12	06/04/12	06/01/12	06/01/12
Rating Unit							
Rating Date							
Trt Treatment No Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code	
1 Untreated Check							
2 Distinct Premix Nonionic Surfactant 30% Urea Ammonium Nitrate	70 WG 100 L 100 L	0.525 lb ai/A 0.25 % v/v 1.25 % v/v	Ib ai/A POST A	29.0 a	2.7 a	34.0 a	1.3 a 6.7 c 15.7 b
3 Status Premix Nonionic Surfactant 30% Urea Ammonium Nitrate	56 WG 100 L 100 L	0.525 lb ai/A 0.25 % v/v 1.25 % v/v	Ib ai/A POST A	30.3 a	2.0 a	35.3 a	1.7 a 13.0 ab 20.7 a
4 Resolve.....rimsulfuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	25 WG 100 L 100 L	0.0312 lb ai/A 1 % v/v 2 % v/v	Ib ai/A POST A	28.7 a	0.7 a	38.0 a	2.3 a 14.0 ab 0.0 d
5 Resolve.....rimsulfuron Harmony GT.....thifensulfuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	25 WG 75 DF 100 L 100 L	0.028 lb ai/A .00586 lb ai/A 1 % v/v 2 % v/v	Ib ai/A POST A	26.7 a	1.7 a	33.0 a	2.0 a 14.7 ab 0.0 d
6 Resolve Q Multi-Pak _Resolve.....rimsulfuron _Harmony SG.....thifensulfuron _isoxadifen-ethyl Crop Oil Concentrate 30% Urea Ammonium Nitrate	22.4 DF 25 WG 50 SG 50 WG 100 L 100 L	0.035 lb ai/A 0.0288 lb ai/A 0.00625 lb ai/A 0.0144 lb ai/A 1 % v/v 2 % v/v	Ib ai/A POST A	29.0 a	2.0 a	32.0 a	2.7 a 14.7 ab 0.0 d
7 Require Q Multi-Pak _Resolve.....rimsulfuron _Dicamba XP.....dicamba _isoxadifen-ethyl Crop Oil Concentrate 30% Urea Ammonium Nitrate	59.19 WG 25 WG 70 WG 50 WG 100 L 100 L	0.296 lb ai/A 0.0313 lb ai/A 0.24 lb ai/A 0.0156 lb ai/A 1 % v/v 2 % v/v	Ib ai/A POST A	30.0 a	1.0 a	33.0 a	1.3 a 12.0 ab 6.3 c
8 Resolve.....rimsulfuron Dicamba XP.....dicamba Crop Oil Concentrate 30% Urea Ammonium Nitrate	25 WG 70 WG 100 L 100 L	0.0312 lb ai/A 0.24 lb ai/A 1 % v/v 2 % v/v	Ib ai/A POST A	29.7 a	1.3 a	31.3 a	2.0 a 14.7 ab 10.7 c
9 Accent SP.....nicosulfuron Crop Oil Concentrate 30% Urea Ammonium Nitrate	75 D 100 L 100 L	0.0513 lb ai/A 1 % v/v 2 % v/v	Ib ai/A POST A	23.7 a	1.7 a	34.3 a	2.7 a 16.3 a 0.0 d
10 Accent Q.....nicosulfuron _isoxadifen-ethyl Crop Oil Concentrate 30% Urea Ammonium Nitrate	75 D 50 WG 100 L 100 L	0.0513 lb ai/A 0.0156 lb ai/A 1 % v/v 2 % v/v	Ib ai/A POST A	26.0 a	0.3 a	36.0 a	1.3 a 9.7 bc 0.0 d
11 Steadfast Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	75 WG 100 L 100 L	0.07 lb ai/A 1 % v/v 2 % v/v	Ib ai/A POST A	26.0 a	2.3 a	33.7 a	2.0 a 11.3 abc 0.0 d
12 Steadfast Q Premix _isoxadifen-ethyl Crop Oil Concentrate 30% Urea Ammonium Nitrate	75 WG 50 WG 100 L 100 L	0.07 lb ai/A 0.0156 lb ai/A 1 % v/v 2 % v/v	Ib ai/A POST A	25.0 a	3.3 a	33.0 a	3.7 a 15.7 a 0.0 d
LSD (P=.05)				8.66	2.58	7.24	2.41
Standard Deviation				5.12	1.52	4.28	1.42
CV				18.45	85.6	12.52	69.28
Replicate F				0.692	0.228	0.127	1.822
Replicate Prob(F)				0.5111	0.7980	0.8810	0.1853
Treatment F				0.539	0.951	0.614	0.712
Treatment Prob(F)				0.8555	0.5144	0.7974	0.7149
						0.0001	0.0001

Crop Code	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	ZEAMX H5707	ZEAMX H5753	ZEAMX H5753	ZEAMX H5753	ZEAMX H5707	ZEAMX H5707
Trt Treatment No	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code					
1 Untreated Check					0.0 d	0.0 d	0.0 c	0.0 d	0.0 d	0.0 b
2 Distinct Premix Nonionic Surfactant	70 WG	0.525 lb ai/A	POST A		0.0 d	0.0 d	15.7 a	0.0 d	5.7 cd	17.3 a
30% Urea Ammonium Nitrate	100 L	0.25 % v/v	POST A							
3 Status Premix Nonionic Surfactant	56 WG	0.525 lb ai/A	POST A		0.0 d	7.0 c	13.3 a	0.0 d	7.3 bc	14.7 a
30% Urea Ammonium Nitrate	100 L	0.25 % v/v	POST A							
4 Resolve.....rimsulfuron Crop Oil Concentrate	25 WG	0.0312 lb ai/A	POST A		12.3 a	15.7 a	0.0 c	14.0 a	12.3 ab	0.0 b
30% Urea Ammonium Nitrate	100 L	1 % v/v	POST A							
5 Resolve.....rimsulfuron Harmony GT.....thifensulfuron	25 WG	0.028 lb ai/A	POST A		11.3 ab	15.7 a	0.0 c	8.7 bc	17.3 a	0.0 b
Crop Oil Concentrate	75 DF	.00586 lb ai/A	POST A							
30% Urea Ammonium Nitrate	100 L	1 % v/v	POST A							
6 Resolve Q Multi-Pak	22.4 DF	0.035 lb ai/A			8.7 bc	10.3 bc	0.0 c	9.7 abc	13.0 ab	0.0 b
_Resolve.....rimsulfuron	25 WG	0.0288 lb ai/A	POST A							
_Harmony SG.....thifensulfuron	50 SG	.00625 lb ai/A	POST A							
_isoxadifen-ethyl	50 WG	0.0144 lb ai/A	POST A							
Crop Oil Concentrate	100 L	1 % v/v	POST A							
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A							
7 Require Q Multi-Pak	59.19 WG	0.296 lb ai/A			7.0 c	12.3 ab	7.3 b	6.3 c	14.0 a	0.0 b
_Resolve.....rimsulfuron	25 WG	0.0313 lb ai/A	POST A							
_Dicamba XP.....dicamba	70 WG	0.24 lb ai/A	POST A							
_isoxadifen-ethyl	50 WG	0.0156 lb ai/A	POST A							
Crop Oil Concentrate	100 L	1 % v/v	POST A							
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A							
8 Resolve.....rimsulfuron Dicamba XP.....dicamba	25 WG	0.0312 lb ai/A	POST A		9.0 bc	10.3 bc	7.0 b	6.3 c	18.0 a	2.3 b
Crop Oil Concentrate	70 WG	0.24 lb ai/A	POST A							
30% Urea Ammonium Nitrate	100 L	1 % v/v	POST A							
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A							
9 Accent SP.....nicosulfuron	75 D	0.0513 lb ai/A	POST A		8.0 c	13.0 ab	0.0 c	8.0 bc	15.7 a	0.0 b
Crop Oil Concentrate	100 L	1 % v/v	POST A							
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A							
10 Accent Q.....nicosulfuron	75 D	0.0513 lb ai/A	POST A		0.0 d	7.0 c	0.0 c	0.0 d	11.7 abc	0.0 b
_isoxadifen-ethyl	50 WG	0.0156 lb ai/A	POST A							
Crop Oil Concentrate	100 L	1 % v/v	POST A							
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A							
11 Steadfast Premix	75 WG	0.07 lb ai/A	POST A		8.7 bc	14.7 ab	0.0 c	11.3 ab	15.7 a	0.0 b
Crop Oil Concentrate	100 L	1 % v/v	POST A							
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A							
12 Steadfast Q Premix	75 WG	0.07 lb ai/A	POST A		0.0 d	12.0 ab	0.0 c	0.0 d	17.3 a	0.0 b
_isoxadifen-ethyl	50 WG	0.0156 lb ai/A	POST A							
Crop Oil Concentrate	100 L	1 % v/v	POST A							
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A							
LSD (P=.05)					3.31	4.97	2.70	5.00	6.61	3.36
Standard Deviation					1.96	2.94	1.59	2.95	3.90	1.98
CV					36.11	29.87	44.16	55.05	31.65	69.28
Replicate F					0.850	2.907	1.191	0.443	5.519	0.198
Replicate Prob(F)					0.4412	0.0758	0.3229	0.6475	0.0114	0.8219
Treatment F					19.440	10.188	39.631	9.154	5.900	29.344
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0002	0.0001

Means followed by same letter do not significantly differ ($P=.05$, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Code			ZEAMX H5707	ZEAMX H5753	ZEAMX H5753	ZEAMX H5753	ZEAMX H5707	ZEAMX H5753
Weed or Crop Name			Chloross %	Stunting %	Twisting %	Chloross %	Stunting %	Stunting %
Rating Data Type			06/04/12	06/04/12	06/04/12	06/04/12	06/13/12	06/13/12
Rating Unit								
Rating Date								
Trt Treatment	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
No Name								
1 Untreated Check					0.0 f	0.0 d	0.0 b	0.0 f
2 Distinct Premix	70 WG	0.525 lb ai/A	POST A		0.0 f	5.0 cd	19.0 a	0.0 f
Nonionic Surfactant	100 L	0.25 % v/v	POST A					
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A					
3 Status Premix	56 WG	0.525 lb ai/A	POST A		0.0 f	6.3 bcd	17.3 a	0.0 f
Nonionic Surfactant	100 L	0.25 % v/v	POST A					
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A					
4 Resolve.....rimsulfuron	25 WG	0.0312 lb ai/A	POST A		17.3 a	14.7 a	0.0 b	23.3 a
Crop Oil Concentrate	100 L	1 % v/v	POST A					
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A					
5 Resolve.....rimsulfuron	25 WG	0.028 lb ai/A	POST A		14.0 a-d	15.7 a	0.0 b	18.3 b
Harmony GT.....thifensulfuron	75 DF	.00586 lb ai/A	POST A					
Crop Oil Concentrate	100 L	1 % v/v	POST A					
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A					
6 Resolve Q Multi-Pak	22.4 DF	0.035 lb ai/A			10.7 de	12.0 abc	0.0 b	10.7 de
_Resolve.....rimsulfuron	25 WG	0.0288 lb ai/A	POST A					
_Harmony SG.....thifensulfuron	50 SG	.00625 lb ai/A	POST A					
_isoxadifen-ethyl	50 WG	0.0144 lb ai/A	POST A					
Crop Oil Concentrate	100 L	1 % v/v	POST A					
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A					
7 Require Q Multi-Pak	59.19 WG	0.296 lb ai/A			12.3 b-e	12.3 ab	0.0 b	11.3 cd
_Resolve.....rimsulfuron	25 WG	0.0313 lb ai/A	POST A					
_Dicamba XP.....dicamba	70 WG	0.24 lb ai/A	POST A					
_isoxadifen-ethyl	50 WG	0.0156 lb ai/A	POST A					
Crop Oil Concentrate	100 L	1 % v/v	POST A					
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A					
8 Resolve.....rimsulfuron	25 WG	0.0312 lb ai/A	POST A		16.3 ab	12.3 ab	5.0 b	16.3 b
Dicamba XP.....dicamba	70 WG	0.24 lb ai/A	POST A					
Crop Oil Concentrate	100 L	1 % v/v	POST A					
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A					
9 Accent SP.....nicosulfuron	75 D	0.0513 lb ai/A	POST A		15.7 abc	14.7 a	0.0 b	17.3 b
Crop Oil Concentrate	100 L	1 % v/v	POST A					
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A					
10 Accent Q.....nicosulfuron	75 D	0.0513 lb ai/A	POST A		8.0 e	7.3 bc	0.0 b	6.3 e
_isoxadifen-ethyl	50 WG	0.0156 lb ai/A	POST A					
Crop Oil Concentrate	100 L	1 % v/v	POST A					
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A					
11 Steadfast Premix	75 WG	0.07 lb ai/A	POST A		14.0 a-d	15.7 a	0.0 b	15.7 bc
Crop Oil Concentrate	100 L	1 % v/v	POST A					
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A					
12 Steadfast Q Premix	75 WG	0.07 lb ai/A	POST A		11.3 cde	14.7 a	0.0 b	10.0 de
_isoxadifen-ethyl	50 WG	0.0156 lb ai/A	POST A					
Crop Oil Concentrate	100 L	1 % v/v	POST A					
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A					
LSD (P=.05)					4.78	7.17	6.05	4.58
Standard Deviation					2.82	4.23	3.57	2.70
CV					28.3	38.86	103.75	25.1
Replicate F					5.568	0.560	1.868	2.624
Replicate Prob(F)					0.0110	0.5791	0.1780	0.0951
Treatment F					16.077	4.272	11.620	25.411
Treatment Prob(F)					0.0001	0.0018	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Code	ZEAMX H5707	ZEAMX H5753	ZEAMX H5707	ZEAMX H5753	ZEAMX H5707	ZEAMX H5753
Weed or Crop Name	Stunting %	Stunting %	Stunting %	Stunting %	Yield Bu/A	Yield Bu/A
Rating Data Type	06/21/12	06/21/12	06/29/12	06/29/12	09/13/12	09/13/12
Rating Unit						
Rating Date						
Trt Treatment	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
No Name						
1 Untreated Check			0.0 h	0.0 d	0.0 d	138.2 a
2 Distinct Premix	70 WG	0.525 lb ai/A	POST A	9.0 fg	13.3 bc	8.0 abc
Nonionic Surfactant	100 L	0.25 % v/v	POST A			156.1 a
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			126.1 a
3 Status Premix	56 WG	0.525 lb ai/A	POST A	10.7 efg	10.7 c	8.7 abc
Nonionic Surfactant	100 L	0.25 % v/v	POST A			122.2 a
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			124.8 a
4 Resolve.....rimsulfuron	25 WG	0.0312 lb ai/A	POST A	14.7 def	12.3 bc	5.7 c
Crop Oil Concentrate	100 L	1 % v/v	POST A			129.7 a
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A			131.3 a
5 Resolve.....rimsulfuron	25 WG	0.028 lb ai/A	POST A	40.0 a	25.0 a	17.0 a
Harmony GT.....thifensulfuron	75 DF	.00586 lb ai/A	POST A			95.0 a
Crop Oil Concentrate	100 L	1 % v/v	POST A			113.9 a
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A			
6 Resolve Q Multi-Pak	22.4 DF	0.035 lb ai/A		21.7 bcd	16.3 bc	4.7 cd
_Resolve.....rimsulfuron	25 WG	0.0288 lb ai/A	POST A			120.9 a
_Harmony SG.....thifensulfuron	50 SG	.00625 lb ai/A	POST A			113.5 a
_isoxadifen-ethyl	50 WG	0.0144 lb ai/A	POST A			
Crop Oil Concentrate	100 L	1 % v/v	POST A			
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A			
7 Require Q Multi-Pak	59.19 WG	0.296 lb ai/A		18.3 cde	16.7 b	10.7 abc
_Resolve.....rimsulfuron	25 WG	0.0313 lb ai/A	POST A			145.4 a
_Dicamba XP.....dicamba	70 WG	0.24 lb ai/A	POST A			128.3 a
_isoxadifen-ethyl	50 WG	0.0156 lb ai/A	POST A			
Crop Oil Concentrate	100 L	1 % v/v	POST A			
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A			
8 Resolve.....rimsulfuron	25 WG	0.0312 lb ai/A	POST A	26.7 b	17.3 b	14.7 a
Dicamba XP.....dicamba	70 WG	0.24 lb ai/A	POST A			130.1 a
Crop Oil Concentrate	100 L	1 % v/v	POST A			149.6 a
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A			
9 Accent SP.....nicosulfuron	75 D	0.0513 lb ai/A	POST A	19.0 bcd	15.0 bc	10.7 abc
Crop Oil Concentrate	100 L	1 % v/v	POST A			7.0 bc
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A			98.5 a
10 Accent Q.....nicosulfuron	75 D	0.0513 lb ai/A	POST A	3.3 gh	0.0 d	0.0 d
_isoxadifen-ethyl	50 WG	0.0156 lb ai/A	POST A			131.5 a
Crop Oil Concentrate	100 L	1 % v/v	POST A			124.1 a
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A			
11 Steadfast Premix	75 WG	0.07 lb ai/A	POST A	23.3 bc	13.7 bc	14.7 a
Crop Oil Concentrate	100 L	1 % v/v	POST A			8.3 abc
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A			129.2 a
12 Steadfast Q Premix	75 WG	0.07 lb ai/A	POST A	21.7 bcd	15.7 bc	5.7 bcd
_isoxadifen-ethyl	50 WG	0.0156 lb ai/A	POST A			4.0 cd
Crop Oil Concentrate	100 L	1 % v/v	POST A			131.5 a
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST A			126.7 a
LSD (P=.05)			8.06	5.67	6.71	5.62
Standard Deviation			4.76	3.35	3.96	3.32
CV			27.4	25.76	47.06	48.76
Replicate F			1.975	0.743	0.197	2.439
Replicate Prob(F)			0.1627	0.4871	0.8230	0.1105
Treatment F			15.612	13.205	6.312	5.214
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0005
						0.3396
						0.5102

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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

Trial ID: Corn6-12 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

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.	Annual Grasses	GGGAN	

Crop 1: Field Corn	ZEAMX	Variety: H5505, H5707, H5753
Planting Date:	04/19/12	Planting Method: Row- Unit Planter Depth: 2 in
Rate:	24000 Sd/A	Row Spacing: 30 in Seed Bed: Smooth
Soil Temperature:	65 F	Soil Moisture: Moist Emergence Date: 05/02/12

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 and Field Cultivated

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 220 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/25/12	Roundup WeatherMax	4.5	AS	22	fl oz/A

SOIL DESCRIPTION

% Sand: 79 % OM: 1.0 Texture: sandy loam
 % Silt: 10 pH: 6.2
 % Clay: 11 CEC: 4.6 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: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	04/20/12	05/17/12
Time of Day:	12:15 pm	3:30 pm
Application Method:	Spray	Spray
Application Timing:	PRE	28 DAT
Appli. Placement:	Brdcst	Brdcst
Air Temp., Unit:	67 F	71 F
% Relative Humidity:	61	40
Wind Velocity, Unit:	1 mph	4 mph
Wind Direction:	Northeast	Northeast
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	66 F	70 F
Soil Surf. Moisture:	Dry	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	N/A	Dry
% Cloud Cover:	60	50

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	ZEAMX	ZEAMX
Growth Stage:		V3-4
Height, Unit:		8 in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	AMAPA	AMAPA
Growth Stage:		3-7 leaf
Height, Unit:		1 in
Density,Unit:		90-150 m ²
Weed 2 Code:	IPOSS	IPOSS
Growth Stage:		2-3 leaf
Height, Unit:		2 in
Density,Unit:		2-5 m ²
Weed 3 Code:	GGGAN	GGGAN
Growth Stage:		3-4 leaf
Height, Unit:		1.5 in
Density,Unit:		20 m ²

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	24 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

Trt No	Treatment Application Comment
2	Plot 210 accidentally oversprayed with trt 3 at PRE timing

Trial Comments	
5/14/12: One plant in Rep 1 had leaf whitening. Very little to no leaf discoloration was observed. Stunting was not rated.	
8/23/12: Only treatments 9 and 10 provided F - G Morningglory control. All the other treatments were poor to none. (not acceptable level of control)	
Note: Plots did receive a total POST application of glyphosate on 5-25-12 and still Morningglory control was not acceptable.	

Tolerance to ALS-Herbicides and Isoxaflutole Applied at Planting at 2X Rates									
Trial ID: Corn6-12		Cooperator:							
Location: Field #14		Investigator: Mark VanGessel							
Crop Code		ZEAMX		ZEAMX		ZEAMX		ZEAMX	
Weed or Crop Name		FldCrn		FldCrn		FldCrn		FldCrn	
Weed or Crop Name		H5505		H5707		H5753		H5505	
Rating Data Type		Stunting		Stunting		Stunting		Stunting	
Rating Unit		%		%		%		%	
Rating Date		05/24/12		05/24/12		05/24/12		06/04/12	
Trt Treatment	No Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Appl Code		
1 Untreated Check									
Bicep II Magnum Premix		5.5 L	2.2 lb ai/A	PRE	A	0.0 c	0.0 c	0.0 b	0.0 c
2 Hornet WDG Premix		78.5 WG	0.392 lb ai/A	PRE	A	10.4 a	10.9 ab	7.3 abc	0.9 b
Bicep II Magnum Premix		5.5 L	2.2 lb ai/A	PRE	A			3.6 bc	5.1 bc
3 Basis Premix		75 DF	0.047 lb ai/A	PRE	A	8.3 ab	9.7 ab	12.3 a	8.0 a
Bicep II Magnum Premix		5.5 L	2.2 lb ai/A	PRE	A			11.3 a	10.3 ab
4 Capreno Premix		3.45 SC	0.258 % v/v	PRE	A	0.0 c	0.0 c	0.0 b	2.3 c
Bicep II Magnum Premix		5.5 L	2.2 lb ai/A	PRE	A				0.0 c
5 Prequel Premix		45 DF	0.09 lb ai/A	PRE		8.0 ab	12.3 a	9.7 ab	4.7 ab
_Resolve SG.....rimsulfuron		25 SG	0.0312 lb ai/A	PRE	A				
_Balance.....isoxaflutole		75 WG	0.061 lb ai/A	PRE	A				
Bicep II Magnum Premix		5.5 L	2.2 lb ai/A	PRE	A				
6 Corvus Premix		2.63 SC	0.136 lb ai/A	PRE	A	9.7 a	10.0 ab	10.7 a	4.0 ab
Bicep II Magnum Premix		5.5 L	2.2 lb ai/A	PRE	A			8.7 ab	10.3 ab
7 Balance Flexx...isoxaflutole		2 L	0.094 lb ai/A	PRE	A	0.0 c	0.0 c	1.7 bc	0.0 b
Bicep II Magnum Premix		5.5 L	2.2 lb ai/A	PRE	A			0.0 c	0.0 c
8 Instigate Premix		45.8 WG	0.343 lb ai/A	PRE		5.7 b	11.7 a	11.3 a	5.7 a
_Resolve SG.....rimsulfuron		25 SG	0.0312 lb ai/A	PRE	A				
_Callisto.....mesotrione		50 WG	0.312 lb ai/A	PRE	A				
Bicep II Magnum Premix		5.5 L	2.2 lb ai/A	PRE	A				
9 Instigate Premix		45.8 WG	0.343 lb ai/A	PRE		8.7 ab	14.7 a	14.7 a	6.3 a
_Resolve SG.....rimsulfuron		25 SG	0.0312 lb ai/A	PRE	A				
_Callisto.....mesotrione		50 WG	0.312 lb ai/A	PRE	A				
Bicep II Magnum Premix		5.5 L	2.2 lb ai/A	PRE	A				
Realm Q Premix		38.7 WG	0.193 lb ai/A	28 DAT					
_Resolve SG.....rimsulfuron		25 SG	0.0375 lb ai/A	28 DAT B					
_Callisto.....mesotrione		50 WG	0.156 lb ai/A	28 DAT B					
_isoxadifen-ethyl		50 WG	0.0187 lb ai/A	28 DAT B					
Roundup WeatherMax..glyphosate		4.5 AS	0.77 lb ae/A	28 DAT B					
Liquid Ammonium Sulfate 34%		100 L	3 % v/v	28 DAT B					
10 Realm Q Premix		38.7 WG	0.193 lb ai/A	28 DAT		0.0 c	3.3 bc	2.3 bc	5.7 a
_Resolve SG.....rimsulfuron		25 SG	0.0375 lb ai/A	28 DAT B					
_Callisto.....mesotrione		50 WG	0.156 lb ai/A	28 DAT B					
_isoxadifen-ethyl		50 WG	0.0187 lb ai/A	28 DAT B					
Roundup WeatherMax..glyphosate		4.5 AS	0.77 lb ae/A	28 DAT B					
Liquid Ammonium Sulfate 34%		100 L	3 % v/v	28 DAT B					
LSD (P=.05)						3.85	8.06	8.31	4.70
Standard Deviation						2.24	4.68	4.82	2.73
CV						44.12	64.52	68.96	77.33
Replicate F						2.397	0.030	1.936	3.460
Replicate Prob(F)						0.1211	0.9704	0.1748	0.0549
Treatment F						12.296	4.564	3.936	3.706
Treatment Prob(F)						0.0001	0.0035	0.0073	0.0097
									0.0003
									0.0065

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Code			ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Weed or Crop Name		FldCrn	FldCrn	H5505	H5707	NotNrml	Stand Ct	FldCrn	FldCrn
Weed or Crop Name								H5753	H5753
Rating Data Type								NotNrml	NotNrml
Rating Unit		#25ftrow	#25ftrow	#25ftrow	#25ftrow	#25ftrow	#25ftrow	#25ftrow	#25ftrow
Rating Date		06/04/12	06/04/12	06/04/12	06/04/12	06/04/12	06/04/12	06/04/12	06/04/12
Trt Treatment	Form	Form	Rate	Grow	Appl				
No Name	Conc	Type	Rate	Unit	Stg	Code			
1 Untreated Check									
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A	32.7 a	1.0 bcd	31.3 a	1.0 a	30.0 d
2 Hornet WDG Premix	78.5 WG	0.392 lb ai/A	PRE	A	34.1 a	0.2 d	32.7 a	1.5 a	34.9 ab
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A					1.3 a
3 Basis Premix	75 DF	0.047 lb ai/A	PRE	A	33.3 a	1.3 a-d	30.0 a	0.3 a	36.3 a
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A					1.3 a
4 Capreno Premix	3.45 SC	0.258 % v/v	PRE	A	34.0 a	0.3 cd	30.3 a	0.0 a	33.3 abc
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A					0.7 a
5 Prequel Premix	45 DF	0.09 lb ai/A	PRE		32.3 a	2.0 ab	29.7 a	1.3 a	33.0 bcd
_Resolve SG.....rimsulfuron	25 SG	0.0312 lb ai/A	PRE	A					0.7 a
_Balance.....isoxaflutole	75 WG	0.061 lb ai/A	PRE	A					
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A					
6 Corvus Premix	2.63 SC	0.136 lb ai/A	PRE	A	35.7 a	2.7 a	30.7 a	1.3 a	35.3 ab
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A					1.3 a
7 Balance Flexx...isoxaflutole	2 L	0.094 lb ai/A	PRE	A	34.0 a	1.3 a-d	27.7 a	0.7 a	30.7 cd
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A					1.0 a
8 Instigate Premix	45.8 WG	0.343 lb ai/A	PRE		35.0 a	1.7 abc	29.3 a	0.3 a	33.3 abc
_Resolve SG.....rimsulfuron	25 SG	0.0312 lb ai/A	PRE	A					0.7 a
_Callisto.....mesotrione	50 WG	0.312 lb ai/A	PRE	A					
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A					
9 Instigate Premix	45.8 WG	0.343 lb ai/A	PRE		33.3 a	0.7 bcd	30.7 a	1.3 a	32.3 bcd
_Resolve SG.....rimsulfuron	25 SG	0.0312 lb ai/A	PRE	A					0.3 a
_Callisto.....mesotrione	50 WG	0.312 lb ai/A	PRE	A					
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A					
Realm Q Premix	38.7 WG	0.193 lb ai/A	28 DAT						
_Resolve SG.....rimsulfuron	25 SG	0.0375 lb ai/A	28 DAT B						
_Callisto.....mesotrione	50 WG	0.156 lb ai/A	28 DAT B						
_isoxadifen-ethyl	50 WG	0.0187 lb ai/A	28 DAT B						
Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	28 DAT B						
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	28 DAT B						
10 Realm Q Premix	38.7 WG	0.193 lb ai/A	28 DAT		34.3 a	0.0 d	27.7 a	1.0 a	33.3 abc
_Resolve SG.....rimsulfuron	25 SG	0.0375 lb ai/A	28 DAT B						2.3 a
_Callisto.....mesotrione	50 WG	0.156 lb ai/A	28 DAT B						
_isoxadifen-ethyl	50 WG	0.0187 lb ai/A	28 DAT B						
Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	28 DAT B						
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	28 DAT B						
LSD (P=.05)					2.61	1.45	3.60	1.47	3.12
Standard Deviation					1.51	0.84	2.09	0.85	1.81
CV					4.47	75.4	6.97	96.19	5.45
Replicate F					6.364	6.431	0.625	0.091	0.452
Replicate Prob(F)					0.0086	0.0083	0.5472	0.9136	0.6439
Treatment F					1.337	3.084	1.640	1.142	3.532
Treatment Prob(F)					0.2893	0.0218	0.1815	0.3878	0.0121
									0.1570

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Crop Code			ZEAMX	ZEAMX	ZEAMX
Weed or Crop Name			FldCrn	FldCrn	FldCrn
Weed or Crop Name			H5505	H5707	H5753
Rating Data Type			Yield	Yield	Yield
Rating Unit			Bu/A	Bu/A	Bu/A
Rating Date			09/18/12	09/18/12	09/18/12
Trt Treatment No Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1 Untreated Check					
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A	142.2 a
2 Hornet WDG Premix	78.5 WG	0.392 lb ai/A	PRE	A	117.2 a
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A	102.3 a
3 Basis Premix	75 DF	0.047 lb ai/A	PRE	A	141.3 a
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A	105.0 a
4 Capreno Premix	3.45 SC	0.258 % v/v	PRE	A	114.8 a
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A	107.2 a
5 Prequel Premix	45 DF	0.09 lb ai/A	PRE		129.9 a
_Resolve SG.....rimsulfuron	25 SG	0.0312 lb ai/A	PRE	A	97.8 a
_Balance.....isoxaflutole	75 WG	0.061 lb ai/A	PRE	A	112.6 a
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A	
6 Corvus Premix	2.63 SC	0.136 lb ai/A	PRE	A	157.6 a
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A	118.6 a
7 Balance Flexx...isoxaflutole	2 L	0.094 lb ai/A	PRE	A	135.0 a
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A	109.9 a
8 Instigate Premix	45.8 WG	0.343 lb ai/A	PRE		132.7 a
_Resolve SG.....rimsulfuron	25 SG	0.0312 lb ai/A	PRE	A	99.4 a
_Callisto.....mesotrione	50 WG	0.312 lb ai/A	PRE	A	98.5 a
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A	
9 Instigate Premix	45.8 WG	0.343 lb ai/A	PRE		154.4 a
_Resolve SG.....rimsulfuron	25 SG	0.0312 lb ai/A	PRE	A	117.0 a
_Callisto.....mesotrione	50 WG	0.312 lb ai/A	PRE	A	123.6 a
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A	
Realm Q Premix	38.7 WG	0.193 lb ai/A	28 DAT		
_Resolve SG.....rimsulfuron	25 SG	0.0375 lb ai/A	28 DAT B		
_Callisto.....mesotrione	50 WG	0.156 lb ai/A	28 DAT B		
_isoxadifen-ethyl	50 WG	0.0187 lb ai/A	28 DAT B		
Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	28 DAT B		
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	28 DAT B		
10 Realm Q Premix	38.7 WG	0.193 lb ai/A	28 DAT	178.8 a	119.9 a
_Resolve SG.....rimsulfuron	25 SG	0.0375 lb ai/A	28 DAT B		121.8 a
_Callisto.....mesotrione	50 WG	0.156 lb ai/A	28 DAT B		
_isoxadifen-ethyl	50 WG	0.0187 lb ai/A	28 DAT B		
Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	28 DAT B		
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	28 DAT B		
LSD (P=.05)				37.27	32.68
Standard Deviation				21.63	18.97
CV				15.41	20.25
Replicate F				4.975	3.558
Replicate Prob(F)				0.0199	0.0512
Treatment F				2.393	0.958
Treatment Prob(F)				0.0580	0.5047

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Preemergence and Early Postemergence Programs in Corn

Trial ID: Corn7-12 Cooperator: FMC, DuPont

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

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.

Crop 1: Field Corn ZEAMX Variety: H4600RC2P

Planting Date: 05/03/12 Planting Method: Row- Unit Planter Depth: 2 in

Rate: 24000 Sd/A Row Spacing: 30 in Seed Bed: Smooth

Soil Temperature: 72 F Soil Moisture: Moist Emergence Date: 05/12/12

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 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 220 lb/A.

SOIL DESCRIPTION

% Sand: 79 % OM: 1.0 Texture: sandy loam

% Silt: 10 pH: 6.2

% Clay: 11 CEC: 4.6 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: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	05/04/12	05/17/12	05/31/12
Time of Day:	3:00 pm	3:30 pm	2:30 pm
Application Method:	Spray	Spray	Spray
Application Timing:	PRE	14DAP	28DAP
Appli. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	80 F	71 F	82 F
% Relative Humidity:	63	40	50
Wind Velocity, Unit:	4 mph	4 mph	3 mph
Wind Direction:	Northeast	Northeast	Northeast
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	79 F	70 F	80 F
Soil Surf. Moisture:	Dry	Dry	Moist
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry
% Cloud Cover:	80	50	30

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX
Growth Stage:		V2	V6
Height, Unit:		4 in	15 in
Crop Health:		Good	Good

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:		cot-3 leaf	
Height, Unit:		0.6 in	
Density,Unit:		30 m ²	
Weed 2 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:		cot-1 leaf	vegetative
Height, Unit:		1.3 in	4 in
Density,Unit:		2-5 m ²	2-12 m ²
Weed 3 Code:	DIGSS	DIGSS	DIGSS
Growth Stage:		1-2 leaf	4lf-2tillr
Height, Unit:		0.4 in	3.5 in
Density,Unit:		0-50 m ²	0-5 m ²

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:	18 in	20 in	30 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
6/5/12: Some leaf speckling (<5%) from liquid AMS on corn leaf.
6/6/12: IPOSS ratings are based on weeds present at time of application. All plots had some morningglory in the cotyledon stage. Treatments applied 14 DAP provided excellent POST control, but morningglories emerged shortly after applicaiton and treatments are not providing residual control.
8/23/12: Only morningglory was rated because all other species were controlled (at least 90%) in all treatments.

Preemergence and Early Postemergence Programs in Corn

Trial ID: Corn7-12 Cooperator: FMC, DuPont
 Location: Field #14 Investigator: Mark VanGessel

Weed Code		ZEAMX	ZEAMX	AMASS	IPOSS	DIGSA	AMASS
Crop Code		Field	Field	Pigweed	Mornlry	Large	Pigweed
Weed or Crop Name		Corn	Corn	Species	Species	Crabgras	Species
Weed or Crop Name		Leafburn	Stunting	Control %	Control %	Control %	Control %
Rating Data Type							
Rating Unit							
Rating Date		05/25/12	05/25/12	05/25/12	05/25/12	05/25/12	06/06/12
Trt Treatment	Form No Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1 Untreated Check							
2 Anthem ATZ Premix	4.5 SE	1.12 lb	ai/A	PRE	A		
Roundup PowerMax..glyphosate	4.5 AS	1.12 lb	ae/A	28DAP	C		
3 Anthem ATZ Premix	4.5 SE	1.69 lb	ai/A	PRE	A		
Roundup PowerMax..glyphosate	4.5 AS	1.12 lb	ae/A	28DAP	C		
4 Anthem Premix	2.15 SE	0.134 lb	ai/A	PRE	A		
Impact.....topramezone	2.8 SC	0.0164 lb	ai/A	28DAP	C		
Atrazine 4L		4 L		0.5 lb	ai/A	28DAP	
Roundup PowerMax..glyphosate	4.5 AS	1.12 lb	ae/A	28DAP	C		
5 Anthem ATZ Premix	4.5 SE	1.12 lb	ai/A	PRE	A		
Impact.....topramezone	2.8 SC	0.0164 lb	ai/A	28DAP	C		
Atrazine 4L		4 L		0.5 lb	ai/A	28DAP	
Roundup PowerMax..glyphosate	4.5 AS	1.12 lb	ae/A	28DAP	C		
6 Anthem ATZ Premix	4.5 SE	1.12 lb	ai/A	PRE	A		
Sharpen.....saflufenacil	2.85 SC	0.0445 lb	ai/A	PRE	A		
Roundup PowerMax..glyphosate	4.5 AS	1.12 lb	ae/A	28DAP	C		
7 Anthem ATZ Premix	4.5 SE	1.12 lb	ai/A	14DAP	B		
Roundup PowerMax..glyphosate	4.5 AS	1.12 lb	ae/A	14DAP	B		
8 Anthem ATZ Premix	4.5 SE	1.12 lb	ai/A	14DAP	B		
Impact.....topramezone	2.8 SC	0.0164 lb	ai/A	14DAP	B		
Roundup PowerMax..glyphosate	4.5 AS	1.12 lb	ae/A	14DAP	B		
9 Cadet.....fluthiacet	0.91 EC	.00427 lb	ai/A	14DAP	B		
Impact.....topramezone	2.8 SC	0.0164 lb	ai/A	14DAP	B		
Atrazine 4L		4 L		1.5 lb	ai/A	14DAP	
Roundup PowerMax..glyphosate	4.5 AS	1.12 lb	ae/A	14DAP	B		
10 Cinch ATZ Premix	5.5 L	1.38 lb	ai/A	PRE	A		
Realm Q Premix	38.7 WG	0.097 lb	ai/A	28DAP	C		
Abundit.....glyphosate	3 SC	0.75 lb	ae/A	28DAP	C		
Nonionic Surfactant	100 L	0.25 %	v/v	28DAP	C		
Liquid Ammonium Sulfate 34%	100 L	3 %	v/v	28DAP	C		
11 Cinch ATZ Premix	5.5 L	2.75 lb	ai/A	PRE	A		
Resolve SG.....rimsulfuron	25 SG	0.0156 lb	ai/A	PRE	A		
Harmony SG.....thifensulfuron	50 SG	0.0078 lb	ai/A	PRE	A		
12 Realm Q Premix	38.7 WG	0.097 lb	ai/A	14DAP	B		
Abundit.....glyphosate	3 SC	0.75 lb	ae/A	14DAP	B		
Atrazine 4L		4 L		1.5 lb	ai/A	14DAP	
Nonionic Surfactant	100 L	0.25 %	v/v	14DAP	B		
Liquid Ammonium Sulfate 34%	100 L	3 %	v/v	14DAP	B		
LSD (P=.05)				1.25	4.76	7.98	10.13
Standard Deviation				0.74	2.81	4.71	5.98
CV				22.72	70.72	5.25	7.63
Replicate F				0.000	4.037	1.396	0.587
Replicate Prob(F)				1.0000	0.0321	0.2688	0.5644
Treatment F				191.125	3.982	110.523	55.544
Treatment Prob(F)				0.0001	0.0028	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	CHEAL	IPOSS	DIGSA	AMASS	IPOSS
Crop Code	Common Lambqtrs Control	Mornlgy Species Control	Large Crabgras Control	Pigweed Species Control	Mornlgy Species Control
Weed or Crop Name	%	%	%	%	%
Weed or Crop Name	06/06/12	06/06/12	06/06/12	06/26/12	06/26/12
Rating Data Type					
Rating Unit					
Rating Date					
Trt Treatment No Name	Form Conc Form Type Rate Rate	Grow Unit Stg	Appl Code		
1 Untreated Check				0.8 b	0.0 f
2 Anthem ATZ Premix Roundup PowerMax..glyphosate	4.5 SE 4.5 AS	1.12 lb ai/A 1.12 lb ae/A	PRE 28DAP C	100.0 a	91.7 ab
3 Anthem ATZ Premix Roundup PowerMax..glyphosate	4.5 SE 4.5 AS	1.69 lb ai/A 1.12 lb ae/A	PRE 28DAP C	100.0 a	96.3 a
4 Anthem Premix Impact.....topramezone Atrazine 4L Roundup PowerMax..glyphosate	2.15 SE 2.8 SC 4 L 4.5 AS	0.134 lb ai/A 0.0164 lb ai/A 0.5 lb ai/A 1.12 lb ae/A	PRE 28DAP C	100.0 a	97.7 a
5 Anthem ATZ Premix Impact.....topramezone Atrazine 4L Roundup PowerMax..glyphosate	4.5 SE 2.8 SC 4 L 4.5 AS	1.12 lb ai/A 0.0164 lb ai/A 0.5 lb ai/A 1.12 lb ae/A	PRE 28DAP C	100.0 a	99.0 a
6 Anthem ATZ Premix Sharpen.....saflufenacil Roundup PowerMax..glyphosate	4.5 SE 2.85 SC 4.5 AS	1.12 lb ai/A 0.0445 lb ai/A 1.12 lb ae/A	PRE 28DAP C	100.0 a	91.0 ab
7 Anthem ATZ Premix Roundup PowerMax..glyphosate	4.5 SE 4.5 AS	1.12 lb ai/A 1.12 lb ae/A	14DAP B	100.0 a	70.0 d
8 Anthem ATZ Premix Impact.....topramezone Roundup PowerMax..glyphosate	4.5 SE 2.8 SC 4.5 AS	1.12 lb ai/A 0.0164 lb ai/A 1.12 lb ae/A	14DAP B	100.0 a	70.0 d
9 Cadet.....fluthiacet Impact.....topramezone Atrazine 4L Roundup PowerMax..glyphosate	0.91 EC 2.8 SC 4 L 4.5 AS	.00427 lb ai/A 0.0164 lb ai/A 1.5 lb ai/A 1.12 lb ae/A	14DAP B	100.0 a	73.3 cd
10 Cinch ATZ Premix Realm Q Premix Abundit.....glyphosate Nonionic Surfactant Liquid Ammonium Sulfate 34%	5.5 L 38.7 WG 3 SC 100 L 100 L	1.38 lb ai/A 0.097 lb ai/A 0.75 lb ae/A 0.25 % v/v 3 % v/v	PRE 28DAP C	100.0 a	92.0 ab
11 Cinch ATZ Premix Resolve SG.....rimsulfuron Harmony SG.....thifensulfuron	5.5 L 25 SG 50 SG	2.75 lb ai/A 0.0156 lb ai/A 0.0078 lb ai/A	PRE A	100.0 a	56.7 e
12 Realm Q Premix Abundit.....glyphosate Atrazine 4L Nonionic Surfactant Liquid Ammonium Sulfate 34%	38.7 WG 3 SC 4 L 100 L 100 L	0.097 lb ai/A 0.75 lb ae/A 1.5 lb ai/A 0.25 % v/v 3 % v/v	14DAP B	100.0 a	84.3 bc
LSD (P=.05)		0.40	11.80	4.75	5.04
Standard Deviation		0.24	6.97	2.81	2.97
CV		0.26	9.07	3.1	3.27
Replicate F		0.909	0.290	1.285	0.759
Replicate Prob(F)		0.4189	0.7510	0.2966	0.4807
Treatment F		43988.188	47.358	310.963	279.247
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	GGGAN	IPOSS	ZEAMX
							Annual Grasses Control %	Mornlry Species Control %	Field Corn Yield Bu/A
						06/26/12	08/23/12	09/17/12	
Trt Treatment No	Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
1	Untreated Check					0.1 d		122.8 a	
2	Anthem ATZ Premix Roundup PowerMax..glyphosate	4.5 SE 4.5 AS	1.12 lb ai/A 1.12 lb ae/A	PRE 28DAP C		100.0 a	73.3 c	126.9 a	
3	Anthem ATZ Premix Roundup PowerMax..glyphosate	4.5 SE 4.5 AS	1.69 lb ai/A 1.12 lb ae/A	PRE 28DAP C		100.0 a	80.0 bc	136.0 a	
4	Anthem Premix Impact.....topramezone Atrazine 4L Roundup PowerMax..glyphosate	2.15 SE 2.8 SC 4 L 4.5 AS	0.134 lb ai/A 0.0164 lb ai/A 0.5 lb ai/A 1.12 lb ae/A	PRE 28DAP C		100.0 a	81.7 abc	123.7 a	
5	Anthem ATZ Premix Impact.....topramezone Atrazine 4L Roundup PowerMax..glyphosate	4.5 SE 2.8 SC 4 L 4.5 AS	1.12 lb ai/A 0.0164 lb ai/A 0.5 lb ai/A 1.12 lb ae/A	PRE 28DAP C		100.0 a	76.0 bc	136.2 a	
6	Anthem ATZ Premix Sharpen.....saflufenacil Roundup PowerMax..glyphosate	4.5 SE 2.85 SC 4.5 AS	1.12 lb ai/A 0.0445 lb ai/A 1.12 lb ae/A	PRE 28DAP C		100.0 a	90.0 a	141.4 a	
7	Anthem ATZ Premix Roundup PowerMax..glyphosate	4.5 SE 4.5 AS	1.12 lb ai/A 1.12 lb ae/A	14DAP B		100.0 a	36.7 e	130.6 a	
8	Anthem ATZ Premix Impact.....topramezone Roundup PowerMax..glyphosate	4.5 SE 2.8 SC 4.5 AS	1.12 lb ai/A 0.0164 lb ai/A 1.12 lb ae/A	14DAP B		100.0 a	40.0 e	110.6 a	
9	Cadet.....fluthiacet Impact.....topramezone Atrazine 4L Roundup PowerMax..glyphosate	0.91 EC 2.8 SC 4 L 4.5 AS	.00427 lb ai/A 0.0164 lb ai/A 1.5 lb ai/A 1.12 lb ae/A	14DAP B		90.0 c	40.0 e	128.4 a	
10	Cinch ATZ Premix Realm Q Premix Abundit.....glyphosate Nonionic Surfactant Liquid Ammonium Sulfate 34%	5.5 L 38.7 WG 3 SC 100 L 100 L	1.38 lb ai/A 0.097 lb ai/A 0.75 lb ae/A 0.25 % v/v 3 % v/v	PRE 28DAP C		100.0 a	82.7 ab	133.5 a	
11	Cinch ATZ Premix Resolve SG.....rimsulfuron Harmony SG.....thifensulfuron	5.5 L 25 SG 50 SG	2.75 lb ai/A 0.0156 lb ai/A 0.0078 lb ai/A	PRE A		97.3 b	43.3 e	133.5 a	
12	Realm Q Premix Abundit.....glyphosate Atrazine 4L Nonionic Surfactant Liquid Ammonium Sulfate 34%	38.7 WG 3 SC 4 L 100 L 100 L	0.097 lb ai/A 0.75 lb ae/A 1.5 lb ai/A 0.25 % v/v 3 % v/v	14DAP B		100.0 a	63.3 d	153.5 a	
LSD (P=.05)						1.26	8.78	27.03	
Standard Deviation						0.74	5.15	15.96	
CV						0.82	8.02	12.14	
Replicate F						1.135	0.763	2.500	
Replicate Prob(F)						0.3402	0.4794	0.1051	
Treatment F						4491.855	46.847	1.321	
Treatment Prob(F)						0.0001	0.0001	0.2776	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluating Residual Broadleaf Herbicides with Glyphosate for RR corn

Trial ID: Corn8-12 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

CROP AND WEED DESCRIPTION

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

Crop 1: Field Corn ZEAMX Variety: H4600RC2P

Planting Date: 04/19/12 Planting Method: Row- Unit Planter Depth: 2 in

Rate: 24000 Sd/A Row Spacing: 30 in Seed Bed: Smooth

Soil Temperature: 67 F Soil Moisture: Moist Emergence Date: 05/02/12

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 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 220 lb/A.

SOIL DESCRIPTION

% Sand: 79 % OM: 1.0 Texture: sandy loam

% Silt: 10 pH: 6.2

% Clay: 11 CEC: 4.6 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: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	05/14/12
Time of Day:	12:30 pm
Application Method:	Spray
Application Timing:	V2
Applic. Placement:	Brdcst
Air Temp., Unit:	75 F
% Relative Humidity:	59
Wind Velocity, Unit:	4 mph
Wind Direction:	South
Dew Presence (Y/N):	N
Soil Temp., Unit:	73 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	85

CROP STAGE AT EACH APPLICATION	
	A
Crop 1 Code:	ZEAMX
Growth Stage:	V2
Height, Unit:	4 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:	5-12 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:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments
5/27/12: Excellent post control for all treatments.
06/04/12: Common ragweed and lambsquarters were present in the untreated check, but not observed in any treatments, including glyphosate alone.

Evaluating Residual Broadleaf Herbicides with Glyphosate for RR corn

Trial ID: Corn8-12 Cooperator:
 Location: Field #14 Investigator: Mark VanGessel

Weed Code Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date	AMASS Pigweed Species Control % 06/04/12	IPOSS Mornlry Species Control % 06/04/12	ZEAMX Field Corn Yield Bu/A 09/18/12
Trt Treatment No Name	Form Conc Form Type Rate Unit	Grow Stg Appl Code	
1 Untreated Check		0.0 c	0.0 e
2 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A V2 A	83.7 b
3 Roundup WeatherMax..glyphosate Atrazine 4L	4 L	1 lb ai/A V2 A	98.3 a
4 Roundup WeatherMax..glyphosate Atrazine 4L	4 L	1.5 lb ai/A V2 A	98.3 a
5 Roundup WeatherMax..glyphosate Banvel.....dicamba	4 EC	0.25 lb ai/A V2 A	89.3 b
6 Roundup WeatherMax..glyphosate Sandeal.....halosulfuron	75 DF	0.031 lb ai/A V2 A	87.7 b
7 Roundup WeatherMax..glyphosate Callisto.....mesotrione	4 SC	0.094 lb ai/A V2 A	98.3 a
8 Roundup WeatherMax..glyphosate Impact.....topramezone	2.8 SC	0.0164 lb ai/A V2 A	85.3 b
9 Roundup WeatherMax..glyphosate Laudis.....tembotriione	3.5 SC	0.082 lb ai/A V2 A	99.0 a
10 Roundup WeatherMax..glyphosate Callisto.....mesotrione Atrazine 4L	4 SC	0.094 lb ai/A V2 A	100.0 a
11 Roundup WeatherMax..glyphosate Resolve Q Multi-Pak	4.5 AS 22.4 DF	0.77 lb ae/A V2 A 0.0175 lb ai/A V2 A	72.7 cd
12 Roundup WeatherMax..glyphosate Status Premix	4.5 AS 56 WG	0.77 lb ae/A V2 A 0.175 lb ai/A V2 A	89.3 ab
13 Roundup WeatherMax..glyphosate Realm Q Premix	4.5 AS 38.7 WG	0.77 lb ae/A V2 A 0.097 lb ai/A V2 A	90.0 a
14 Roundup WeatherMax..glyphosate Capreno Premix	4.5 AS 3.45 SC	0.77 lb ae/A V2 A 0.081 lb ai/A V2 A	89.7 a
LSD (P=.05)		5.98	11.17
Standard Deviation		3.56	6.66
CV		4.02	24.24
Replicate F		6.428	12.664
Replicate Prob(F)		0.0054	0.5246
Treatment F		162.102	0.0001
Treatment Prob(F)		36.666	1.729
		0.0001	0.1137

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(Corn9a12)

University of Delaware

Soil-Applied Herbicide Evaluation in Corn

Trial ID: Corn9a12 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

Crop 1: Field Corn	ZEAMX	Variety: H4600RC2P
Planting Date: 04/19/12	Planting Method: Row- Unit Planter	Depth: 2 in
Rate: 24000 Sd/A	Row Spacing: 30 in	Seed Bed: Smooth
Soil Temperature: 67 F	Soil Moisture: Moist	Emergence Date: 05/02/12

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 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 220 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Unit
1.	06/07/12	Halex GT	4.38	SC	3.6	pt/A
2.	06/07/12	Atrazine	4	L	1	pt/A
3.	06/07/12	Nonionic Surfactant			0.25	% v/v

SOIL DESCRIPTION

% Sand: 79 % OM: 1.0 Texture: sandy loam
 % Silt: 10 pH: 6.2
 % Clay: 11 CEC: 4.6 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: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	04/20/12
Time of Day:	12:30 pm
Application Method:	Spray
Application Timing:	PRE
Appli. Placement:	Brdcst
Air Temp., Unit:	67 F
% Relative Humidity:	61
Wind Velocity, Unit:	1 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	66 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	N/A
% Cloud Cover:	60

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIR MIX
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

5-14-12: Injury is based on leaf twisting and malformed leaves, not on stunting.

6/2/12: Fall panicum pressure in Reps 2 & 3 dropped off to almost none.

Soil-Applied Herbicide Evaluation in Corn

Trial ID: Corn9a12 Cooperator:

Location: Field #14 Investigator: Mark VanGessel

Weed Code	ZEAMX	ZEAMX	AMASS	AMBEL	IPOSS	DIGSA	PANDI			
Crop Code	Field	Field	Pigweed	Common	Mornlry	Large	Fall			
Weed or Crop Name	Corn	Corn	Species	Ragweed	Species	Crabgras	Panicum			
Weed or Crop Name	Injury	Stunting	Control	Control	Control	Control	Control			
Rating Data Type	%	%	%	%	%	%	%			
Rating Unit										
Rating Date	05/14/12	06/02/12	06/02/12	06/02/12	06/02/12	06/02/12	06/02/12			
Trt Treatment	Form	Form	Rate	Grow						
No Name	Conc	Type	Rate	Unit	Stg					
1 Untreated Check			1.7 a	2.3 a	30.0 c	25.0 a	21.7 a	28.3 b	40.0 a	
2 Lumax Premix	3.95 SC	2.47 lb ai/A	PRE	0.0 a	0.0 a	91.0 a	66.7 a	43.3 a	99.0 a	93.5 a
3 Lexar Premix	3.7 FL	2.77 lb ai/A	PRE	3.7 a	0.0 a	98.3 a	91.7 a	55.0 a	90.0 a	87.5 a
4 Lumax Premix	3.95 SC	2.47 lb ai/A	PRE	2.3 a	0.0 a	91.7 a	82.7 a	53.3 a	93.3 a	92.5 a
Atrazine 4L	4 L	0.75 lb ai/A	PRE							
5 Lexar Premix	3.7 FL	2.77 lb ai/A	PRE	4.0 a	0.0 a	99.0 a	96.7 a	68.3 a	85.0 a	92.5 a
Princep.....simazine	4 L	1.5 lb ai/A	PRE							
6 Bicep II Magnum Premix	5.5 L	2.9 lb ai/A	PRE	2.0 a	0.0 a	92.7 a	78.3 a	66.0 a	95.0 a	92.5 a
7 Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	0.0 a	2.3 a	81.7 a	81.7 a	63.3 a	87.3 a	83.5 a
8 Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	1.7 a	0.0 a	46.0 bc	53.3 a	38.3 a	40.0 b	30.0 a
Resolve.....rimsulfuron	25 WG	0.0156 lb ai/A	PRE							
9 Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	0.0 a	0.0 a	81.7 a	88.3 a	63.3 a	93.3 a	97.0 a
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	2.7 a	5.0 a	85.7 a	78.3 a	60.0 a	82.3 a	88.5 a
11 Harness Xtra 5.6L Premix	5.6 L	4.2 lb ai/A	PRE	4.0 a	5.0 a	91.7 a	70.0 a	43.3 a	90.0 a	96.0 a
12 Zidua.....pyroxasulfone	85 WG	0.08 lb ai/A	PRE	1.7 a	8.7 a	92.3 a	66.7 a	33.3 a	90.0 a	92.5 a
Atrazine 4L	4 L	1.25 lb ai/A	PRE							
13 Prequel Premix	45 DF	0.045 lb ai/A	PRE	2.7 a	4.7 a	77.7 ab	76.7 a	40.0 a	83.3 a	90.0 a
14 Corvus Premix	2.63 SC	0.068 lb ai/A	PRE	2.3 a	2.3 a	76.7 ab	94.3 a	56.7 a	80.7 a	78.5 a
LSD (P=.05)			4.29	6.78	32.97	38.33	32.90	31.32	47.75	
Standard Deviation			2.56	4.04	19.64	22.84	19.60	18.65	22.10	
CV			124.83	186.48	24.2	30.44	38.87	22.96	26.81	
Replicate F			4.093	0.702	0.287	1.241	2.987	1.064	0.021	
Replicate Prob(F)			0.0285	0.5050	0.7525	0.3056	0.0680	0.3595	0.8867	
Treatment F			0.854	1.378	3.049	2.018	1.521	3.703	1.766	
Treatment Prob(F)			0.6050	0.2347	0.0075	0.0618	0.1757	0.0022	0.1587	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code		ZEAMX			
Crop Code		Field			
Weed or Crop Name		Corn			
Weed or Crop Name		Yield			
Rating Data Type		Bu/A			
Rating Unit					
Rating Date			09/18/12		
Trt Treatment No Name	Form Conc	Form Type	Rate Unit	Grow Stg	
1 Untreated Check					90.3 a
2 Lumax Premix	3.95	SC	2.47 lb ai/A	PRE	114.8 a
3 Lexar Premix	3.7	FL	2.77 lb ai/A	PRE	106.4 a
4 Lumax Premix Atrazine 4L	3.95 4 L	SC	2.47 lb ai/A 0.75 lb ai/A	PRE	112.4 a
5 Lexar Premix Princep.....simazine	3.7 4 L	FL	2.77 lb ai/A 1.5 lb ai/A	PRE	133.6 a
6 Bicep II Magnum Premix	5.5	L	2.9 lb ai/A	PRE	130.1 a
7 Bicep II Magnum Premix	5.5	L	2.2 lb ai/A	PRE	122.8 a
8 Bicep II Magnum Premix Resolve.....rimsulfuron	5.5 25 WG	L	2.2 lb ai/A 0.0156 lb ai/A	PRE	125.2 a
9 Bicep II Magnum Premix Prowl H2O.....pendimethalin	5.5 3.8 CS	L	2.2 lb ai/A 1.42 lb ai/A	PRE	143.9 a
10 Harness Xtra 5.6L Premix	5.6	L	2.38 lb ai/A	PRE	130.8 a
11 Harness Xtra 5.6L Premix	5.6	L	4.2 lb ai/A	PRE	126.7 a
12 Zidua.....pyroxasulfone Atrazine 4L	85 4 L	WG	0.08 lb ai/A 1.25 lb ai/A	PRE	115.6 a
13 Prequel Premix	45	DF	0.045 lb ai/A	PRE	122.0 a
14 Corvus Premix	2.63	SC	0.068 lb ai/A	PRE	148.6 a
LSD (P=.05)					33.15
Standard Deviation					19.75
CV					16.04
Replicate F					13.380
Replicate Prob(F)					0.0001
Treatment F					1.723
Treatment Prob(F)					0.1152

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Soil-Applied Herbicide Evaluation in Corn

Trial ID: Corn9b12 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

Crop 1: Field Corn	ZEAMX	Variety: P1376XR
Planting Date: 04/09/12	Planting Method: Row- Unit Planter	Depth: 2 in
Rate: 29900 Sd/A	Row Spacing: 30 in	Seed Bed: Medium
Soil Temperature: 61 F	Soil Moisture: Moist	Emergence Date: 04/15/12

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: Dairy effluent manure was applied in the fall and spring prior to establishment. Starter fertilizer (21-0-0) was applied at 87 lb/A at planting.

SOIL DESCRIPTION

% OM: 2.3	Texture: silt loam
pH: 7.74	Fert. Level: Optimum

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

APPLICATION DESCRIPTION

	A
Application Date:	04/16/12
Time of Day:	11:45 am
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	79 F
% Relative Humidity:	54
Wind Velocity, Unit:	2 mph
Wind Direction:	South
Dew Presence (Y/N):	N
Soil Temp., Unit:	77 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	5

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	ZEAMX
Growth Stage:	spike
Height, Unit:	1.2 in
Crop Health:	Good

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

5/29/12: Corn is at the V6-V7 stage and is 18-20" tall. Injury is not consistent across reps. It is quite variable.

Soil-Applied Herbicide Evaluation in Corn

Trial ID: Corn9b12 Cooperator:

Location: Newark Investigator: Mark VanGessel

Weed Code		ZEAMX	CHEAL	DIGSA	ZEAMX	CHEAL	DIGSA
Crop Code		Field	Common	Large	Field	Common	Large
Weed or Crop Name		Corn	Lambqtrs	Crabgras	Corn	Lambqtrs	Crabgras
Weed or Crop Name		Injury %	Control %	Control %	Stunting %	Control %	Control %
Rating Data Type							
Rating Unit							
Rating Date		05/20/12	05/20/12	05/20/12	05/29/12	05/29/12	05/29/12
Trt Treatment	Form	Form	Rate	Grow			
No Name	Conc	Type	Rate	Unit	Stg		
1 Untreated Check			0.0 a	0.0 f	0.0 c	0.0 d	0.0 f
2 Lumax Premix	3.95 SC	2.96 lb ai/A	PRE	0.0 a	100.0 a	4.0 bcd	100.0 a
3 Lexar Premix	3.7 FL	3.24 lb ai/A	PRE	2.3 a	96.7 a	100.0 a	97.3 a
4 Lumax Premix	3.95 SC	2.96 lb ai/A	PRE	4.0 a	100.0 a	100.0 a	100.0 a
Atrazine 4L	4 L	0.75 lb ai/A	PRE				
5 Lexar Premix	3.7 FL	3.24 lb ai/A	PRE	4.0 a	100.0 a	100.0 a	100.0 a
Princep.....simazine	4 L	1.5 lb ai/A	PRE				
6 Bicep II Magnum Premix	5.5 L	2.9 lb ai/A	PRE	2.3 a	40.0 e	100.0 a	0.0 d
7 Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	2.3 a	30.0 e	100.0 a	0.0 d
8 Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	9.7 a	83.3 b	100.0 a	11.7 a
Resolve.....rimsulfuron	25 WG	0.0156 lb ai/A	PRE				
9 Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	1.7 a	100.0 a	100.0 a	0.0 d
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	0.0 a	53.3 d	80.0 b	0.0 d
11 Harness Xtra 5.6L Premix	5.6 L	4.2 lb ai/A	PRE	2.3 a	80.0 bc	100.0 a	0.0 d
12 Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	PRE	5.0 a	70.0 c	100.0 a	10.0 ab
Atrazine 4L	4 L	1.25 lb ai/A	PRE				
13 Prequel Premix	45 DF	0.056 lb ai/A	PRE	4.7 a	96.7 a	100.0 a	4.0 bcd
14 Corvus Premix	2.63 SC	0.115 lb ai/A	PRE	1.7 a	100.0 a	100.0 a	2.3 cd
LSD (P=.05)		6.70	13.16	7.77	6.51	7.51	7.10
Standard Deviation		3.99	7.84	4.63	3.88	4.48	4.23
CV		139.74	10.46	5.06	96.91	5.78	4.84
Replicate F		2.097	1.771	1.000	2.529	0.415	1.628
Replicate Prob(F)		0.1431	0.1900	0.3816	0.0992	0.6647	0.2156
Treatment F		1.234	50.767	100.923	3.775	134.512	119.519
Treatment Prob(F)		0.3117	0.0001	0.0001	0.0019	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Comparison of Approaches to Weed Control in Field Corn

Trial ID: CRN10a12 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Annual Grasses	GGGAN	
2.	Common Ragweed	AMBEL	Ambrosia artemisifolia L.
3.	Morningglory Species	IPOSS	Ipomoea sp.
4.	Common Lambsquarters	CHEAL	Chenopodium album L.

Crop 1: Field Corn ZEAMX Variety: H5753VTS

Planting Date: 04/19/12 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: 05/03/12

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 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 220 lb/A.

SOIL DESCRIPTION

% Sand: 79 % OM: 1.5 Texture: loamy sand

% Silt: 14 pH: 6.2

% Clay: 7 CEC: 4.9 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: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	04/20/12	05/11/12	05/17/12	05/25/12
Time of Day:	10:00 am	8:30 am	3:30 pm	10:00 am
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	V1-2	V3	V5
Applc. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	62 F	55 F	71 F	75 F
% Relative Humidity:	70	55	40	83
Wind Velocity, Unit:	2 mph	3 mph	4 mph	0 mph
Wind Direction:	Northeast	Northwest	Northeast	N/A
Dew Presence (Y/N):	N	Y	N	N
Soil Temp., Unit:	61 F	52 F	70 F	75 F
Soil Surf. Moisture:	Dry	Moist	Dry	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist	Dry	Dry
% Cloud Cover:	85	0	50	100

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:		V2	V3	V5
Height, Unit:		3 in	7 in	10 in
Crop Health:		Good	Good	Good

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	GGGAN	GGGAN	GGGAN	GGGAN
Growth Stage:		1-2 leaf		
Height, Unit:		0.3 in		
Density,Unit:		30 m ²		
Weed 2 Code:	AMBEL	AMBEL	AMBEL	AMBEL
Growth Stage:		cot-2 leaf	2-4 leaf	
Height, Unit:		0.5 in	0.8 in	
Density,Unit:		5 m ²	5-10 m ²	
Weed 3 Code:	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:		cotyledon	cot-2 leaf	cot-4 leaf
Height, Unit:		1 in	1.3 in	2 in
Density,Unit:		1-4 m ²	2-5 m ²	0-5 m ²
Weed 4 Code:	CHEAL	CHEAL	CHEAL	CHEAL
Growth Stage:			2-4 leaf	vegetative
Height, Unit:			0.5 in	2 in
Density,Unit:			3-10 m ²	0-4 m ²

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:	18 in	20 in	23 in	26 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

Trial Comments
6-6-12: Corn is 28" tall and is at the V9 stage.
9/12/12: No treatment provided >80% control of Morningglory consistently. Most treatments provided good to excellent control of small-seeded broadleaves & grasses.

Comparison of Approaches to Weed Control in Field Corn

Trial ID: CRN10a12 Cooperator:

Location: Field #14

Investigator: Mark VanGessel

Weed Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	AMASS	AMBEL
Crop Code	Field	Field	Field	Field	Pigweed	Common
Weed or Crop Name	Corn	Corn	Corn	Corn	Species	Ragweed
Weed or Crop Name	Leafburn	Lflnjry	Stunting	Stunting	Control %	Control %
Rating Data Type	%	%	%	%	05/27/12	05/27/12
Rating Unit	05/14/12	05/14/12	05/14/12	05/27/12	05/27/12	05/27/12
Rating Date						
Trt Treatment	Form	Form	Rate	Grow Appl		
No Name	Conc	Type	Rate	Unit	Stg	Code
1 Untreated Check						
2 Lumax Premix	3.95 SC	2.47 lb ai/A	PRE	A	0.0 b	0.0 b
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	0.0 b	0.0 b
Resolve.....rimsulfuron	25 WG	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	0.0 b
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	0.0 b
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	0.0 b
Halex GT Premix	4.38 SC	1.97 lb ai/A	V3	C		
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	0.0 b
Realm Q Premix	38.7 WG	0.097 lb ai/A	V3	C		
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	0.0 b
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	0.0 b	0.0 b
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	0.0 b
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	8.7 a
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	12.3 a	0.0 b
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	V1-2	B		
Prowl H2O.....pendimethalin	3.8 CS	1.42 lb ai/A	V1-2	B		
LSD (P=.05)		1.23	1.41	2.95	4.90	2.02
Standard Deviation		0.73	0.83	1.74	2.89	1.19
CV		70.68	115.38	329.69	144.27	5.38
Replicate F		1.000	1.000	1.000	1.752	1.154
Replicate Prob(F)		0.3840	0.3840	0.3840	0.1979	0.3347
Treatment F		72.053	27.040	3.312	2.905	1761.873
Treatment Prob(F)		0.0001	0.0001	0.0081	0.0172	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	CHEAL	IPOSS	GGGAN	AMASS	AMBEL
Crop Code	Common Lambqtrs Control %	Mornglry Species Control %	Annual Grasses Control %	Pigweed Species Control %	Common Ragweed Control %
Weed or Crop Name	05/27/12	05/27/12	05/27/12	06/06/12	06/06/12
Weed or Crop Name					
Rating Data Type					
Rating Unit					
Rating Date					
Trt Treatment	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
No Name					
1 Untreated Check			0.0 c	0.0 c	0.0 c
2 Lumax Premix Atrazine 4L	3.95 SC 4 L	2.47 lb ai/A 0.75 lb ai/A	PRE A	100.0 a	79.3 b
3 Bicep II Magnum Premix Resolve.....rimsulfuron	5.5 L 25 WG	2.9 lb ai/A 0.0156 lb ai/A	PRE A	100.0 a	76.0 b
4 Bicep II Magnum Premix Roundup WeatherMax..glyphosate	5.5 L 4.5 AS	2.9 lb ai/A 0.77 lb ae/A	PRE A V5 D	100.0 a	76.7 b
5 Harness Xtra 5.6L Premix Roundup WeatherMax..glyphosate	5.6 L 4.5 AS	3.36 lb ai/A 0.77 lb ae/A	PRE A V5 D	100.0 a	75.0 b
6 Bicep II Magnum Premix Halex GT Premix Atrazine 4L Nonionic Surfactant	5.5 L 4.38 SC 4 L 100 L	1.79 lb ai/A 1.97 lb ai/A 0.5 lb ai/A 0.25 % v/v	PRE A V3 C V3 C V3 C	100.0 a	92.0 a
7 Bicep II Magnum Premix Realm Q Premix Atrazine 4L Nonionic Surfactant	5.5 L 38.7 WG 4 L 100 L	1.79 lb ai/A 0.097 lb ai/A 0.5 lb ai/A 0.25 % v/v	PRE A V3 C V3 C V3 C	100.0 a	90.7 a
8 Bicep II Magnum Premix Atrazine 4L Prowl H2O.....pendimethalin Nonionic Surfactant	5.5 L 4 L 3.8 CS 100 L	1.79 lb ai/A 1.25 lb ai/A 1.42 lb ai/A 0.25 % v/v	PRE A V3 C V3 C V3 C	78.3 b	90.0 a
9 Bicep II Magnum Premix Roundup WeatherMax..glyphosate	5.5 L 4.5 AS	1.79 lb ai/A 0.77 lb ae/A	PRE A V3 C	100.0 a	90.7 a
10 Atrazine 4L Prowl H2O.....pendimethalin Roundup WeatherMax..glyphosate	4 L 3.8 CS 4.5 AS	1.25 lb ai/A 1.42 lb ai/A 0.77 lb ae/A	PRE A PRE A V3 C	100.0 a	90.0 a
11 Halex GT Premix Atrazine 4L Nonionic Surfactant	4.38 SC 4 L 100 L	1.97 lb ai/A 1 lb ai/A 0.25 % v/v	V1-2 B V1-2 B V1-2 B	100.0 a	91.3 a
12 Roundup WeatherMax..glyphosate Bicep II Magnum Premix Prowl H2O.....pendimethalin	4.5 AS 5.5 L 3.8 CS	0.77 lb ae/A 2.2 lb ai/A 1.42 lb ai/A	V1-2 B V1-2 B V1-2 B	100.0 a	90.7 a
LSD (P=.05)		3.73	6.75	2.03	1.41
Standard Deviation		2.20	3.98	1.19	0.83
CV		2.45	5.07	1.31	0.91
Replicate F		1.000	0.338	0.955	1.000
Replicate Prob(F)		0.3840	0.7171	0.4011	0.3840
Treatment F		518.169	124.377	1746.763	3590.091
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	CHEAL	IPOSS	DIGSA	AMASS	AMBEL
Crop Code	Common Lambqtrs Control %	Morngly Species Control %	Large Crabgras Control %	Pigweed Species Control %	Common Ragweed Control %
Weed or Crop Name	06/06/12	06/06/12	06/06/12	06/25/12	06/25/12
Weed or Crop Name					
Rating Data Type					
Rating Unit					
Rating Date					
Trt Treatment	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
No Name					
1 Untreated Check			0.0 c	0.0 f	0.0 c
2 Lumax Premix Atrazine 4L	3.95 SC 4 L	2.47 lb ai/A 0.75 lb ai/A	PRE A	100.0 a	75.0 e
3 Bicep II Magnum Premix Resolve.....rimsulfuron	5.5 L 25 WG	2.9 lb ai/A 0.0156 lb ai/A	PRE A	100.0 a	73.3 e
4 Bicep II Magnum Premix Roundup WeatherMax..glyphosate	5.5 L 4.5 AS	2.9 lb ai/A 0.77 lb ae/A	PRE V5 D	100.0 a	93.7 a
5 Harness Xtra 5.6L Premix Roundup WeatherMax..glyphosate	5.6 L 4.5 AS	3.36 lb ai/A 0.77 lb ae/A	PRE V5 D	100.0 a	90.3 ab
6 Bicep II Magnum Premix Halex GT Premix Atrazine 4L Nonionic Surfactant	5.5 L 4.38 SC 4 L 100 L	1.79 lb ai/A 1.97 lb ai/A 0.5 lb ai/A 0.25 % v/v	PRE V3 C	100.0 a	87.7 abc
7 Bicep II Magnum Premix Realm Q Premix Atrazine 4L Nonionic Surfactant	5.5 L 38.7 WG 4 L 100 L	1.79 lb ai/A 0.097 lb ai/A 0.5 lb ai/A 0.25 % v/v	PRE V3 C	100.0 a	90.7 ab
8 Bicep II Magnum Premix Atrazine 4L Prowl H2O.....pendimethalin Nonionic Surfactant	5.5 L 4 L 3.8 CS 100 L	1.79 lb ai/A 1.25 lb ai/A 1.42 lb ai/A 0.25 % v/v	PRE V3 C	73.3 b	89.3 ab
9 Bicep II Magnum Premix Roundup WeatherMax..glyphosate	5.5 L 4.5 AS	1.79 lb ai/A 0.77 lb ae/A	PRE V3 C	100.0 a	80.3 cde
10 Atrazine 4L Prowl H2O.....pendimethalin Roundup WeatherMax..glyphosate	4 L 3.8 CS 4.5 AS	1.25 lb ai/A 1.42 lb ai/A 0.77 lb ae/A	PRE V3 C	100.0 a	80.3 cde
11 Halex GT Premix Atrazine 4L Nonionic Surfactant	4.38 SC 4 L 100 L	1.97 lb ai/A 1 lb ai/A 0.25 % v/v	V1-2 B	100.0 a	79.3 de
12 Roundup WeatherMax..glyphosate Bicep II Magnum Premix Prowl H2O.....pendimethalin	4.5 AS 5.5 L 3.8 CS	0.77 lb ae/A 2.2 lb ai/A 1.42 lb ai/A	V1-2 B	100.0 a	85.3 bcd
LSD (P=.05)		7.47	8.28	0.85	9.68
Standard Deviation		4.41	4.89	0.50	5.72
CV		4.93	6.34	0.55	6.43
Replicate F		1.000	2.265	1.000	0.707
Replicate Prob(F)		0.3840	0.1275	0.3840	0.5040
Treatment F		131.481	79.254	9982.819	73.419
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	CHEAL	IPOSS	GGGAN	ZEAMX			
Crop Code	Common Lambqtrs	Mornglry Species	Annual Grasses	Field Corn Yield			
Weed or Crop Name	Control %	Control %	Control %	Bu/A			
Rating Data Type	06/25/12	06/25/12	06/25/12	09/13/12			
Rating Unit							
Rating Date							
Trt Treatment	Form Conc	Form Type	Rate Unit	Grow Appl Stg Code			
No Name							
1 Untreated Check			0.0 c	0.0 d	0.0 d	124.5 a	
2 Lumax Premix Atrazine 4L	3.95 SC 4 L	2.47 lb ai/A 0.75 lb ai/A	PRE A	100.0 a	66.7 abc	96.7 abc	141.4 a
3 Bicep II Magnum Premix Resolve.....rimsulfuron	5.5 L 25 WG	2.9 lb ai/A 0.0156 lb ai/A	PRE A	96.7 a	56.7 c	89.0 c	141.3 a
4 Bicep II Magnum Premix Roundup WeatherMax..glyphosate	5.5 L 4.5 AS	2.9 lb ai/A 0.77 lb ae/A	PRE A V5 D	100.0 a	77.0 a	100.0 a	144.1 a
5 Harness Xtra 5.6L Premix Roundup WeatherMax..glyphosate	5.6 L 4.5 AS	3.36 lb ai/A 0.77 lb ae/A	PRE A V5 D	100.0 a	79.3 a	100.0 a	159.0 a
6 Bicep II Magnum Premix Halex GT Premix Atrazine 4L Nonionic Surfactant	5.5 L 4.38 SC 4 L 100 L	1.79 lb ai/A 1.97 lb ai/A 0.5 lb ai/A 0.25 % v/v	PRE A V3 C V3 C V3 C	100.0 a	71.7 abc	98.3 ab	129.4 a
7 Bicep II Magnum Premix Realm Q Premix Atrazine 4L Nonionic Surfactant	5.5 L 38.7 WG 4 L 100 L	1.79 lb ai/A 0.097 lb ai/A 0.5 lb ai/A 0.25 % v/v	PRE A V3 C V3 C V3 C	100.0 a	66.7 abc	99.0 ab	150.1 a
8 Bicep II Magnum Premix Atrazine 4L Prowl H2O.....pendimethalin Nonionic Surfactant	5.5 L 4 L 3.8 CS 100 L	1.79 lb ai/A 1.25 lb ai/A 1.42 lb ai/A 0.25 % v/v	PRE A V3 C V3 C V3 C	77.7 b	68.3 abc	95.0 abc	131.9 a
9 Bicep II Magnum Premix Roundup WeatherMax..glyphosate	5.5 L 4.5 AS	1.79 lb ai/A 0.77 lb ae/A	PRE A V3 C	100.0 a	61.7 bc	100.0 a	155.1 a
10 Atrazine 4L Prowl H2O.....pendimethalin Roundup WeatherMax..glyphosate	4 L 3.8 CS 4.5 AS	1.25 lb ai/A 1.42 lb ai/A 0.77 lb ae/A	PRE A PRE A V3 C	100.0 a	61.7 bc	95.0 abc	147.5 a
11 Halex GT Premix Atrazine 4L Nonionic Surfactant	4.38 SC 4 L 100 L	1.97 lb ai/A 1 lb ai/A 0.25 % v/v	V1-2 B V1-2 B V1-2 B	100.0 a	76.7 ab	97.3 ab	149.2 a
12 Roundup WeatherMax..glyphosate Bicep II Magnum Premix Prowl H2O.....pendimethalin	4.5 AS 5.5 L 3.8 CS	0.77 lb ae/A 2.2 lb ai/A 1.42 lb ai/A	V1-2 B V1-2 B V1-2 B	100.0 a	65.0 abc	91.7 bc	143.5 a
LSD (P=.05)		8.34	15.31	7.98	30.11		
Standard Deviation		4.92	9.04	4.71	17.78		
CV		5.5	14.44	5.32	12.43		
Replicate F		0.537	7.251	0.146	7.406		
Replicate Prob(F)		0.5917	0.0038	0.8646	0.0035		
Treatment F		103.442	16.007	106.629	1.008		
Treatment Prob(F)		0.0001	0.0001	0.0001	0.4704		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Comparison of Approaches to Weed Control in Field Corn

Trial ID: CRN10b12 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.
2.	Common Lambsquarters	CHEAL	Chenopodium album L.

Crop 1: Field Corn	ZEAMX	Variety: P1376XR
Planting Date: 04/09/12	Planting Method: Row- Unit Planter	Depth: 2 in
Rate: 29900 Sd/A	Row Spacing: 30 in	Seed Bed: Medium
Soil Temperature: 61 F	Soil Moisture: Moist	Emergence Date: 04/15/12

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: Dairy effluent manure was applied in the fall and spring prior to establishment. Starter fertilizer (21-0-0) was applied at 87 lb/A at planting.

SOIL DESCRIPTION

% OM: 2.3 Texture: silt loam
 pH: 7.74 Fert. Level: Optimum

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

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	04/16/12	05/18/12	05/18/12	05/29/12
Time of Day:	11:45 am	7:00 pm	7:00 pm	11:45 am
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	V1-2	V3	V5
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	79 F	70 F	70 F	88 F
% Relative Humidity:	54	35	35	53
Wind Velocity, Unit:	2 mph	9 mph	9 mph	6 mph
Wind Direction:	South	Southeast	Southeast	Southwest
Dew Presence (Y/N):	N	N	N	N
Soil Temp., Unit:	77 F	71 F	71 F	85 F
Soil Surf. Moisture:	Dry	Dry	Dry	Dry
Root Zone Moisture:	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry	Dry
% Cloud Cover:	5	0	0	10

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:	spike	V3-4	V3-4	V5-6
Height, Unit:	1.2 in	9 in	9 in	12 in
Crop Health:	Good	Good	Good	Good

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	DIGSA	DIGSA	DIGSA	DIGSA
Growth Stage:		4-6 leaf	4-6 leaf	1-tiller
Height, Unit:		4 in	4 in	6 in
Density,Unit:		1-50 m2	1-50 m2	0-50 m2
Weed 2 Code:	CHEAL	CHEAL	CHEAL	CHEAL
Growth Stage:		4-12 leaf	4-12 leaf	vegetative
Height, Unit:		3 in	3 in	5 in
Density,Unit:		1-10 m2	1-10 m2	0-10 m2

APPLICATION EQUIPMENT				
	A	B	C	D
Appl. Equipment:	Backpack	Backpack	Backpack	Backpack
Operating Pressure:	31 psi	31 psi	31 psi	24 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	XRTEEJET
Nozzle Size:	11002	11002	11002	8002
Nozzle Spacing, Unit:	18 in	18 in	18 in	15 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	9 nozl
Boom Height, Unit:	20 in	24 in	24 in	28 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

6/22/12: Annual grasses are mostly large crabgrass, some fall panicum, and scattered barnyardgrass plants.

Comparison of Approaches to Weed Control in Field Corn

Trial ID: CRN10b12 Cooperator:

Location: Newark Investigator: Mark VanGessel

Weed Code				ZEAMX Field Corn Stunting % 05/20/12	CHEAL Common Lambqtrs Control % 05/20/12	DIGSA Large Crabgras Control % 05/20/12	ZEAMX Field Corn Stunting % 05/29/12	CHEAL Common Lambqtrs Control % 05/29/12
Crop Code								
Weed or Crop Name								
Weed or Crop Name								
Rating Data Type								
Rating Unit								
Rating Date								
Trt Treatment	Form No	Form Conc	Rate Type	Grow Rate	Appl Unit	Stg	Code	
1 Untreated Check								
2 Lumax Premix Atrazine 4L	3.95 SC	2.47 lb	ai/A	PRE	A		0.0 b	0.0 f
	4 L	0.75 lb	ai/A	PRE	A		0.0 b	100.0 a
3 Bicep II Magnum Premix Resolve.....rimsulfuron	5.5 L	2.9 lb	ai/A	PRE	A		14.0 a	100.0 a
	25 WG	0.0156 lb	ai/A	PRE	A			100.0 a
4 Bicep II Magnum Premix Roundup WeatherMax..glyphosate	5.5 L	2.9 lb	ai/A	PRE	A		0.0 b	36.7 cde
	4.5 AS	0.77 lb	ae/A	V5	D			95.0 b
5 Harness Xtra 5.6L Premix Roundup WeatherMax..glyphosate	5.6 L	3.36 lb	ai/A	PRE	A		0.0 b	73.3 b
	4.5 AS	0.77 lb	ae/A	V5	D			100.0 a
6 Bicep II Magnum Premix Halex GT Premix	5.5 L	1.79 lb	ai/A	PRE	A		0.0 b	60.0 bc
	4.38 SC	1.97 lb	ai/A	V3	C			100.0 a
	4 L	0.5 lb	ai/A	V3	C			
	100 L	0.25 %	v/v	V3	C			
7 Bicep II Magnum Premix Realm Q Premix	5.5 L	1.79 lb	ai/A	PRE	A		0.0 b	53.3 bcd
	38.7 WG	0.097 lb	ai/A	V3	C			100.0 a
	4 L	0.5 lb	ai/A	V3	C			
	Nonionic Surfactant	100 L	0.25 %	v/v	V3	C		
8 Bicep II Magnum Premix Atrazine 4L	5.5 L	1.79 lb	ai/A	PRE	A		0.0 b	56.7 bcd
	4 L	1.25 lb	ai/A	V3	C			100.0 a
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 Roundup WeatherMax..glyphosate	5.5 L	1.79 lb	ai/A	PRE	A		0.0 b	33.3 de
	4.5 AS	0.77 lb	ae/A	V3	C			100.0 a
10 Atrazine 4L Prowl H2O.....pendimethalin	4 L	1.25 lb	ai/A	PRE	A		0.0 b	100.0 a
	3.8 CS	1.42 lb	ai/A	PRE	A			100.0 a
Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb	ae/A	V3	C			
11 Halex GT Premix Atrazine 4L	4.38 SC	1.97 lb	ai/A	V1-2	B		0.0 b	0.0 f
	4 L	1 lb	ai/A	V1-2	B			
Nonionic Surfactant	100 L	0.25 %	v/v	V1-2	B			
12 Roundup WeatherMax..glyphosate Bicep II Magnum Premix	4.5 AS	0.77 lb	ae/A	V1-2	B		0.0 b	0.0 f
	5.5 L	2.2 lb	ai/A	V1-2	B			
Prowl H2O.....pendimethalin	3.8 CS	1.42 lb	ai/A	V1-2	B			
13 Realm Q Premix Atrazine 4L	38.7 WG	0.097 lb	ai/A	V1-2	B		0.0 b	0.0 f
	4 L	0.5 lb	ai/A	V1-2	B			
Nonionic Surfactant	100 L	0.25 %	v/v	V1-2	B			
14 Atrazine 4L Realm Q Premix	4 L	1.25 lb	ai/A	PRE	A		0.0 b	23.3 ef
	38.7 WG	0.097 lb	ai/A	V5	D			66.7 c
	4 L	0.5 lb	ai/A	V5	D			
	Nonionic Surfactant	100 L	0.25 %	v/v	V5	D		
LSD (P=.05)					2.94	23.73	4.75	3.70
Standard Deviation					1.75	14.14	2.83	2.20
CV					175.25	31.08	4.12	132.26
Replicate F					1.000	0.012	0.520	1.475
Replicate Prob(F)					0.3816	0.9882	0.6006	0.2473
Treatment F					13.674	22.036	789.469	6.058
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code		DIGSA	CHEAL	GGGAN
Crop Code		Large Crabgras Control %	Common Lambqtrs Control %	Annual Grasses Control %
Weed or Crop Name		05/29/12	06/22/12	06/22/12
Weed or Crop Name				
Rating Data Type				
Rating Unit				
Rating Date				
Trt Treatment	Form Conc	Form Type	Rate Rate	Grow Stg Appl Code
No Name				
1 Untreated Check				0.0 e
2 Lumax Premix	3.95 SC	2.47 lb ai/A	PRE	A
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
Resolve.....rimsulfuron	25 WG	0.0156 lb ai/A	PRE	A
4 Bicep II Magnum Premix	5.5 L	2.9 lb ai/A	PRE	A
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
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
Halex GT Premix	4.38 SC	1.97 lb ai/A	V3	C
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
Realm Q Premix	38.7 WG	0.097 lb ai/A	V3	C
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
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
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
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
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
Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	V1-2	B
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
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
Realm Q Premix	38.7 WG	0.097 lb ai/A	V5	D
Atrazine 4L	4 L	0.5 lb ai/A	V5	D
Nonionic Surfactant	100 L	0.25 % v/v	V5	D
LSD (P=.05)		6.96	7.24	10.71
Standard Deviation		4.15	4.31	6.38
CV		4.85	5.3	7.37
Replicate F		0.946	1.950	1.301
Replicate Prob(F)		0.4011	0.1625	0.2893
Treatment F		139.286	113.920	51.604
Treatment Prob(F)		0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(CRN11-12)

University of Delaware

Preemergence Control of Texas Panicum in Corn

Trial ID: CRN11-12 Cooperator:

Location: Workman 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

Crop 1: Field Corn

ZEAMX

Planting Date: 04/19/12

Planting Method: Row- Unit Planter

Depth: 2 in

Row Spacing: 30 in

Soil Temperature: 67 F

Soil Moisture: Moist

Emergence Date: 05/02/12

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

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	06/07/12	Roundup WeatherMax	4.5	AS	1	qt/A
2.	06/07/12	Callisto	4	SC	3	fl oz/A

Overall Moisture Conditions:

See Temperature & Rainfall Charts at front of book

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

APPLICATION DESCRIPTION

	A
Application Date:	04/20/12
Time of Day:	9:00 am
Application Method:	Spray
Application Timing:	PRE
Appl. Placement:	Brdcst
Air Temp., Unit:	56 F
% Relative Humidity:	78
Wind Velocity, Unit:	0 mph
Wind Direction:	N/A
Dew Presence (Y/N):	N
Soil Temp., Unit:	55 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Dry
Leaf Surf. Moisture:	Dry
% Cloud Cover:	95

APPLICATION EQUIPMENT

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

Trial Comments

5/23/12: Corn is at the V-4 stage and is 10-12" tall.

6/4/12: Corn is at the V-8 stage and is 34" tall. Pigweed and lambsquarter control was >85% for all treatments

Preemergence Control of Texas Panicum in Corn

Trial ID: CRN11-12 Cooperator:

Location: Workman Investigator: Mark VanGessel

Weed Code	Crop Code	ZEAMX	PANTE	PANTE	PANTE
Weed or Crop Name		Field	Texas	Texas	Texas
Weed or Crop Name		Corn	Panicum	Panicum	Panicum
Rating Data Type		Stunting	Control	Control	Control
Rating Unit		%	%	%	%
Rating Date		05/15/12	05/15/12	05/23/12	06/04/12
Trt Treatment	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
No Name					
1 Untreated Check				0.0 a	0.0 c
2 Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	PRE A	5.7 a	73.3 ab
Atrazine 4L	4 L	1.5 lb ai/A	PRE A		46.7 c
3 Capreno Premix	3.45 SC	0.129 % v/v	PRE A	0.0 a	71.7 ab
4 Prequel Premix	45 DF	0.045 lb ai/A	PRE A	2.3 a	81.7 a
5 Corvus Premix	2.63 SC	0.068 lb ai/A	PRE A	0.0 a	78.3 ab
6 Balance Flexx...isoxaflutole	2 L	0.047 lb ai/A	PRE A	4.7 a	79.3 ab
7 Instigate Premix	45.8 WG	0.172 lb ai/A	PRE A	5.7 a	75.0 ab
8 Lexar Premix	3.7 FL	2.78 lb ai/A	PRE A	2.3 a	78.3 ab
9 Prowl H2O.....pendimethalin	3.8 CS	1.42 lb ai/A	PRE A	0.0 a	53.3 bc
Atrazine 4L	4 L	1.5 lb ai/A	PRE A		66.2 ab
10 Bicep II Magnum Premix	5.5 L	2.9 lb ai/A	PRE A	0.0 a	70.0 b
LSD (P=.05)				5.64	11.56
Standard Deviation				3.29	8.92
CV				159.21	17.44
Replicate F				2.141	5.20
Replicate Prob(F)				0.391	10.07
Treatment F				0.6820	10.47
Treatment Prob(F)				0.1465	15.49
				0.4386	4.111
				0.0001	0.0362
				42.589	16.542
				0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(CRN11b-12)

University of Delaware

Preemergence Control of Texas Panicum in Corn

Trial ID: CRN11b-12 Cooperator:
 Location: McDowell 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

Crop 1: Field Corn	ZEAMX	Variety: Hubner
Planting Date: 04/30/12	Planting Method: Row- Unit Planter	Depth: 1.5 in
Rate: 32000 Sd/A	Row Spacing: 30 in	Seed Bed: Medium
Soil Temperature: 64 F	Soil Moisture: Moist	Emergence Date: 05/09/12

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: At planting 30 lb/A Nitrogen was applied 2X2.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Unit
1.	06/06/12	Roundup WeatherMax	4.5	AS	1	qt/A

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book

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

APPLICATION DESCRIPTION

A	
Application Date:	04/30/12
Time of Day:	3:00 pm
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	56 F
% Relative Humidity:	54
Wind Velocity, Unit:	4 mph
Wind Direction:	South
Dew Presence (Y/N):	N
Soil Temp., Unit:	57 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	100

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

Trial Comments

5/15/12: No injury was observed.

Preemergence Control of Texas Panicum in Corn

Trial ID: CRN11b-12 Cooperator:

Location: McDowell Investigator: Mark VanGessel

Weed Code	AMACH	PANTE
Weed or Crop Name	Smooth	Texas
Weed or Crop Name	Pigweed	Panicum
Rating Data Type	Control	Control
Rating Unit	%	%
Rating Date	06/06/12	06/06/12
Trt Treatment	Form	Appl
No Name	Form Conc	Rate
	Type	Unit
1 Untreated Check		0.0 d
2 Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A PRE A
	4 L	1.5 lb ai/A PRE A
3 Capreno Premix	3.45 SC	0.129 % v/v PRE A
4 Prequel Premix	45 DF	0.045 lb ai/A PRE A
5 Corvus Premix	2.63 SC	0.068 lb ai/A PRE A
6 Balance Flexx...isoxaflutole	2 L	0.047 lb ai/A PRE A
7 Instigate Premix	45.8 WG	0.172 lb ai/A PRE A
8 Lexar Premix	3.7 FL	2.78 lb ai/A PRE A
9 Prowl H2O.....pendimethalin	3.8 CS	1.42 lb ai/A PRE A
	4 L	1.5 lb ai/A PRE A
10 Bicep II Magnum Premix	5.5 L	2.9 lb ai/A PRE A
LSD (P=.05)		17.52
Standard Deviation		10.00
CV		14.24
Replicate F		0.304
Replicate Prob(F)		0.7425
Treatment F		34.918
Treatment Prob(F)		0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(CRN12-12)

University of Delaware

Postemergence Control of Texas Panicum in Corn

Trial ID: CRN12-12 Cooperator:
 Location: McDowell 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Texas Panicum	PANTE	Panicum texanum Buckl.

Crop 1: Field Corn **ZEAMX** **Variety:** Hubner
Planting Date: 04/30/12 **Planting Method:** Row- Unit Planter **Depth:** 1.5 in
Rate: 32000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Medium
Soil Temperature: 64 F **Soil Moisture:** Moist **Emergence Date:** 05/09/12

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: At planting 30 lb/A Nitrogen was applied 2X2.

Overall Moisture Conditions: See Temperature & Rainfall Charts at front of book

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

APPLICATION DESCRIPTION

	A	B
Application Date:	05/23/12	06/07/12
Time of Day:	12:15 pm	2:00 pm
Application Method:	Spray	Spray
Application Timing:	4 WAP	6 WAP
Appl. Placement:	Brdcst	Brdcst
Air Temp., Unit:	78 F	78 F
% Relative Humidity:	64	36
Wind Velocity, Unit:	2 mph	2 mph
Wind Direction:	Southeast	West
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	78 F	76 F
Soil Surf. Moisture:	Moist	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	100	30

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	ZEAMX	ZEAMX
Growth Stage:	V3-4	V6
Height, Unit:	11 in	18 in
Crop Health:	Good	Good

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	PANTE	PANTE
Growth Stage:	1 tiller	2 tiller
Height, Unit:	4 in	4 in
Density,Unit:	10-120 m2	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:	28 in	34 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Postemergence Control of Texas Panicum in Corn

Trial ID: CRN12-12 Cooperator:
 Location: McDowell Investigator: Mark VanGessel

Weed Code	PANTE Texas Panicum Control %	PANTE Texas Panicum Control %	PANTE Texas Panicum Control %	IPOSS Morngly Species Control %
Rating Date	06/06/12	06/19/12	08/20/12	08/20/12
Trt Treatment	Form Conc	Form Type	Rate Rate	Grow Stg Appl Code
No Name				
1 Untreated Check			0.0 e	0.0 e 0.0 g 0.0 f
2 Accent Q.....nicosulfuron	75 D	0.042 lb ai/A	4 WAP A	91.0 a 90.7 a 88.7 b 68.3 bc
Crop Oil Concentrate	100 L	1 % v/v	4 WAP A	
Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP A	
3 Option.....foramsulfuron	35 WG	0.0328 lb ai/A	4 WAP A	87.7 a 80.7 b 79.3 cd 53.3 cd
Methylated Seed Oil	100 L	1 % v/v	4 WAP A	
Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP A	
4 Laudis.....tembotriione	3.5 SC	0.082 lb ai/A	4 WAP A	79.3 bcd 70.0 cd 73.3 de 65.4 bcd
Crop Oil Concentrate	100 L	1 % v/v	4 WAP A	
Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP A	
5 Capreno Premix	3.45 SC	0.081 lb ai/A	4 WAP A	86.7 ab 69.3 cd 71.7 de 55.4 cd
Crop Oil Concentrate	100 L	1 % v/v	4 WAP A	
Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP A	
6 Impact.....topramezone	2.8 SC	0.0219 lb ai/A	4 WAP A	77.7 d 61.7 d 60.0 f 30.4 e
Crop Oil Concentrate	100 L	1 % v/v	4 WAP A	
Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP A	
7 Impact.....topramezone	2.8 SC	0.0219 lb ai/A	4 WAP A	78.3 cd 61.7 d 68.3 ef 75.0 b
Atrazine 4L	4 L	0.75 lb ai/A	4 WAP A	
Crop Oil Concentrate	100 L	1 % v/v	4 WAP A	
Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP A	
8 Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	4 WAP A	84.3 a-d 74.1 bc 83.6 bc 50.4 d
Resolve DF.....rimsulfuron	25 DF	0.0156 lb ai/A	4 WAP A	
Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP A	
9 Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	4 WAP A	86.7 ab 78.3 bc 77.7 cd 65.0 bcd
Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP A	
10 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP A	86.0 abc 99.7 a 97.3 a 91.0 a
Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP A	
Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	6 WAP B	
Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	6 WAP B	
LSD (P=.05)		7.99	9.20	8.61 15.43
Standard Deviation		4.59	5.32	5.00 8.81
CV		6.06	7.75	7.14 15.89
Replicate F		0.069	0.348	2.953 0.365
Replicate Prob(F)		0.9334	0.7113	0.0793 0.7004
Treatment F		103.502	76.980	85.923 24.606
Treatment Prob(F)		0.0001	0.0001	0.0001 0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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

Trial ID: CRN13-12 Cooperator:

Location: Field #28 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Yellow Nutsedge	CYPES	Cyperus esculentus L.
2.	Hairy Vetch	VICVI	Vicia villosa Roth Ssp.villosa
3.	Horsenettle	SOLCA	Solanum carolinense L.

Crop 1: Field Corn ZEAMX Variety: H4600RC2P

Planting Date: 04/19/12 Planting Method: Row- Unit Planter Depth: 2 in

Rate: 19000 Sd/A Row Spacing: 30 in Seed Bed: Firm/Trashy

Soil Temperature: 67 F Soil Moisture: Dry Emergence Date: 05/02/12

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/Wheat Stubble

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.1 Texture: sandy loam

% Silt: 2 pH: 6.0

% Clay: 17 CEC: 5.0 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:	03/30/12	04/13/12	04/20/12	05/17/12	05/25/12
Time of Day:	9:45 am	8:20 am	9:00 am	3:30 pm	10:00 am
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	21DPP	7 DPP	PRE	V3	V5
Appl. Placement:	Brdcst	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	48 F	48 F	56 F	71 F	75 F
% Relative Humidity:	53	52	78	40	83
Wind Velocity, Unit:	1 mph	2 mph	0 mph	4 mph	0 mph
Wind Direction:	North	North	N/A	Northeast	N/A
Dew Presence (Y/N):	N	Y	N	N	N
Soil Temp., Unit:	45 F	46 F	55 F	70 F	75 F
Soil Surf. Moisture:	Dry	Dry	Dry	Dry	Moist
Root Zone Moisture:	Moist	Dry	Dry	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist	Dry	Dry	Dry
% Cloud Cover:	70	0	95	50	100

CROP STAGE AT EACH APPLICATION					
	A	B	C	D	E
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:				V3	V5
Height, Unit:				7 in	10 in
Crop Health:				Good	Fair

WEED STAGE AT EACH APPLICATION					
	A	B	C	D	E
Weed 1 Code:	CYPES	CYPES	CYPES	CYPES	CYPES
Growth Stage:				3-4 leaf	3-7 leaf
Height, Unit:				6 in	7 in
Density,Unit:				0-90 m ²	0-90 m ²
Weed 2 Code:	VICVI	VICVI	VICVI	VICVI	VICVI
Growth Stage:				flower	
Height, Unit:				10 in	
Density,Unit:				0-4 m ²	
Weed 3 Code:	SOLCA	SOLCA	SOLCA	SOLCA	SOLCA
Growth Stage:				vegetative	veg-flowr
Height, Unit:				5 in	6 in
Density,Unit:				0-2 m ²	0-2 m ²

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

Trt No	Treatment Application Comment
3	Plot 205 was accidentally sprayed with trt. 5 at PRE timing

Trial Comments	
5-9-12: Treatment 10 also missed horseweed and chamomile. Treatment 6 also missed horseweed.	
5-25-12: Corn appears to be nitrogen deficient.	
6-5-12: Corn is 28" tall and is at the V8 stage.	
8-6-12: All treatments had few weeds in them. Corn had severe moisture stress, 4 to 5.5" tall. Most leaves shriveled/shredded and dead. But treatment 10 stood out as cleanest plot. Treatment 12 had more weed biomass than other plots making it difficult to make later season ratings due to poor later season weed growth and emergence.	

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

Trial ID: CRN13-12 Cooperator:

Location: Field #28

Investigator: Mark VanGessel

Weed Code	OEOLA	SCRAN	VICSS	ANNBR	OEOLA
Crop Code	Cutleaf	Knawel	Vetch	WintrAn	Cutleaf
Weed or Crop Name	EPrimrse	Species	Species	Brdlvs	EPrimrse
Weed or Crop Name	Control	Control	Control	Burndown	Control
Rating Data Type	%	%	%	%	%
Rating Unit	05/09/12	05/09/12	05/09/12	05/09/12	06/05/12
Rating Date					
Trt Treatment	Form	Form	Rate	Grow	Appl
No Name	Conc	Type	Rate	Unit	Stg
1 Untreated Check					
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	
Simazine.....simazine	4 L	1.5 lb ai/A	21 DPP	A	
Nonionic Surfactant	100 L	0.25 % v/v	21 DPP	A	
Lumax Premix	3.95 SC	2.47 lb ai/A	PRE	C	
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	
Bicep II Magnum Premix	5.5 L	1.72 lb ai/A	21 DPP	A	
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	
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	
Bicep II Magnum Premix	5.5 L	2.9 lb ai/A	21 DPP	A	
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	
Bicep II Magnum Premix	5.5 L	1.72 lb ai/A	21 DPP	A	
Nonionic Surfactant	100 L	0.25 % v/v	21 DPP	A	
Lexar Premix	3.7 FL	1.57 lb ai/A	PRE	C	
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	
6 Gramoxone SL....paraquat	2 SL	0.5 lb ai/A	21 DPP	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	
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	
Lexar EZ Premix	3.7 SC	3.24 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	

Weed Code			OEOLA	SCRAN	VICSS	ANNBR	OEOLA
Crop Code			Cutleaf EPrimrse Control % 05/09/12	Knawel Species Control % 05/09/12	Vetch Burndown % 05/09/12	WintrAn Brdlvs Burndown % 05/09/12	Cutleaf EPrimrse Control % 06/05/12
Weed or Crop Name							
Weed or Crop Name							
Rating Data Type							
Rating Unit							
Rating Date							
Trt Treatment	Form	Form	Rate	Grow	Appl		
No Name	Conc	Type	Rate	Unit	Stg	Code	
8 Gramoxone SL....paraquat	2 SL	0.5 lb ai/A	7 DPP	B	97.7 a	78.3 def	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 Premix	3.95 SC	2.47 lb ai/A	PRE	C			
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	100.0 a	78.3 def	100.0 a
Lumax EZ Premix	3.67 SC	2.3 lb ai/A	7 DPP	B			
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	36.7 b	73.3 ef	30.0 de
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			
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	100.0 a	81.7 b-e	86.7 ab
Bicep II Magnum Premix	5.5 L	2.2 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-3	D			
Callisto.....mesotrione	4 SC	0.094 lb ai/A	V-3	D			
12 Gramoxone SL....paraquat	2 SL	0.5 lb ai/A	7 DPP	B	95.0 a	81.0 cde	86.7 ab
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			
LSD (P=.05)					16.96	8.56	24.47
Standard Deviation					9.98	5.04	14.41
CV					11.31	6.09	18.47
Replicate F					1.454	5.994	0.110
Replicate Prob(F)					0.2562	0.0087	0.8967
Treatment F					14.166	5.613	14.135
Treatment Prob(F)					0.0001	0.0004	0.0001
							2.605
							0.000
							5.56
							0.000
							11.283
							0.000
							0.0001
							1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	VICSS	AMASS	IPOSS	GGGAN	AMASS
Weed or Crop Name		Vetch Species Control %	Pigweed Species Control %	Mornlry Species Control %	Annual Grasses Control %	Pigweed Species Control %
Rating Data Type		06/05/12	06/05/12	06/05/12	06/05/12	06/19/12
Rating Unit						
Rating Date						
Trt Treatment No	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1 Untreated Check						
Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	B	0.0 c	0.0 c
2 Gramoxone SL....paraquat	2 SL	0.5 lb ai/A	21 DPP	A	100.0 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		
Lumax Premix	3.95 SC	2.47 lb ai/A	PRE	C		
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	100.0 a	99.8 a
Bicep II Magnum Premix	5.5 L	1.72 lb ai/A	21 DPP	A		
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		
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	99.0 b	100.0 a
Bicep II Magnum Premix	5.5 L	2.9 lb ai/A	21 DPP	A		
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	100.0 a	98.3 b
Bicep II Magnum Premix	5.5 L	1.72 lb ai/A	21 DPP	A		
Nonionic Surfactant	100 L	0.25 % v/v	21 DPP	A		
Lexar Premix	3.7 FL	1.57 lb ai/A	PRE	C		
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		
6 Gramoxone SL....paraquat	2 SL	0.5 lb ai/A	21 DPP	A	100.0 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		
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	100.0 a	100.0 a
Lexar EZ Premix	3.7 SC	3.24 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		

Weed Code	Crop Code	VICSS	AMASS	IPOSS	GGGAN	AMASS
Weed or Crop Name		Vetch Species Control %	Pigweed Species Control %	Mornlry Species Control %	Annual Grasses Control %	Pigweed Species Control %
Rating Data Type		06/05/12	06/05/12	06/05/12	06/05/12	06/19/12
Rating Unit						
Rating Date						
Trt Treatment No	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code	
8 Gramoxone SL....paraquat	2 SL	0.5 lb ai/A	7 DPP	B	100.0 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 Premix	3.95 SC	2.47 lb ai/A	PRE	C		
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	100.0 a	100.0 a
Lumax EZ Premix	3.67 SC	2.3 lb ai/A	7 DPP	B		
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	100.0 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		
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	100.0 a	100.0 a
Bicep II Magnum Premix	5.5 L	2.2 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-3	D		
Callisto.....mesotrione	4 SC	0.094 lb ai/A	V-3	D		
12 Gramoxone SL....paraquat	2 SL	0.5 lb ai/A	7 DPP	B	100.0 a	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		
LSD (P=.05)			0.87	1.44	8.43	4.33
Standard Deviation			0.51	0.85	4.97	2.55
CV			0.56	0.93	6.03	2.79
Replicate F			0.955	1.152	3.239	1.144
Replicate Prob(F)			0.4011	0.3352	0.0594	0.3377
Treatment F			9529.055	3456.413	84.941	382.078
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code		IPOSS	GGGAN	ZEAMX			
Weed or Crop Name	Weed or Crop Name		Mornlry Species Control %	Annual Grasses Control %	Field Corn Yield Bu/A			
Rating Data Type	Rating Unit		06/19/12	06/19/12	09/14/12			
Trt Treatment No	Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg Appl Code			
1	Untreated Check				0.0 f	0.0 b	15.1 a	
	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	77.7 de	99.0 a	14.1 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 Premix	3.95 SC	2.47 lb ai/A	PRE	C			
	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	78.2 de	98.4 a	19.9 a
	Bicep II Magnum Premix	5.5 L	1.72 lb ai/A	21 DPP	A			
	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			
	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	84.3 bcd	100.0 a	14.6 a
	Bicep II Magnum Premix	5.5 L	2.9 lb ai/A	21 DPP	A			
	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	84.0 bcd	100.0 a	12.0 a
	Bicep II Magnum Premix	5.5 L	1.72 lb ai/A	21 DPP	A			
	Nonionic Surfactant	100 L	0.25 % v/v	21 DPP	A			
	Lexar Premix	3.7 FL	1.57 lb ai/A	PRE	C			
	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			
6	Gramoxone SL....paraquat	2 SL	0.5 lb ai/A	21 DPP	A	96.3 a	100.0 a	9.7 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			
	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	79.3 cde	99.0 a	7.2 a
	Lexar EZ Premix	3.7 SC	3.24 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			

Weed Code			IPOSS	GGGAN	ZEAMX
Crop Code			Mornlry Species Control %	Annual Grasses Control %	Field Corn Yield Bu/A
Weed or Crop Name			06/19/12	06/19/12	09/14/12
Weed or Crop Name					
Rating Data Type					
Rating Unit					
Rating Date					
Trt Treatment No	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg Appl Code
8	Gramoxone SL....paraquat	2 SL	0.5 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
	Lumax Premix	3.95 SC	2.47 lb ai/A	PRE	C
	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
	Lumax EZ Premix	3.67 SC	2.3 lb ai/A	7 DPP	B
	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
	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
	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
	Bicep II Magnum Premix	5.5 L	2.2 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-3	D
	Callisto.....mesotrione	4 SC	0.094 lb ai/A	V-3	D
12	Gramoxone SL....paraquat	2 SL	0.5 lb ai/A	7 DPP	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
LSD (P=.05)				8.82	2.11
Standard Deviation				5.19	1.24
CV				6.68	1.36
Replicate F				1.202	2.200
Replicate Prob(F)				0.3203	0.1356
Treatment F				72.194	1598.359
Treatment Prob(F)				0.0001	0.0001
					0.6408

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

POST Weed Control Options in Systems without Atrazine

Trial ID: CRN14-12 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Yellow Nutsedge	CYPES	Cyperus esculentus L.
2.	Morningglory Species	IPOSS	Ipomoea sp.

Crop 1: Field Corn ZEAMX Variety: H4600RC2P

Planting Date: 04/25/12 Planting Method: Row- Unit Planter Depth: 2 in

Rate: 19000 Sd/A Row Spacing: 30 in Seed Bed: Firm/Trashy

Soil Temperature: 68 F Soil Moisture: Dry Emergence Date: 05/05/12

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/Soybean Stubble

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Unit
1.	04/11/12	Gramoxone Inteon	2	SL	2	qt/A
2.	04/11/12	Nonionic Surfactant			0.25	% v/v
3.	04/30/12	Zidua	85	WG	2	oz wt/A
4.	04/30/12	Roundup WeatherMax	4.5	AS	22	fl oz/A

SOIL DESCRIPTION

% Sand: 83 % OM: 0.9 Texture: loamy sand

% Silt: 8 pH: 6.2

% Clay: 9 CEC: 5.2 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:	05/25/12
Time of Day:	11:00 am
Application Method:	Spray
Application Timing:	V5
Appl. Placement:	Brdcst
Air Temp., Unit:	78 F
% Relative Humidity:	74
Wind Velocity, Unit:	1 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	76 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	35

CROP STAGE AT EACH APPLICATION	
	A
Crop 1 Code:	ZEAMX
Growth Stage:	V5
Height, Unit:	12 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	CYPES
Growth Stage:	3-6 leaf
Height, Unit:	4 in
Density, Unit:	10-100 m2
Weed 2 Code:	IPOSS
Growth Stage:	cot-5 leaf
Height, Unit:	2.5 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:	26 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

5/11/12: Corn emergence looks good. Some Primrose in plots; Also, occasional ERICA plants.

6/4/12: Injury is stunting except for treatment 10 which is leaf burn.

8/6/12: Morningglory was only species at densities to rate.

POST Weed Control Options in Systems Without Atrazine

Trial ID: CRN14-12 Cooperator:
 Location: Field #30 Investigator: Mark VanGessel

Weed Code		ZEAMX	IPOSS				
Crop Code		Field	Morngly				
Weed or Crop Name		Corn	Species				
Weed or Crop Name		Injury %	Control %				
Rating Data Type							
Rating Unit							
Rating Date		06/04/12	08/06/12				
Trt Treatment No.	Form No. Name	Form Conc	Rate	Grow Stg	Appl Code		
1Untreated Check						0.0c	0.0d
2Roundup PowerMax..glyphosate	4.5AS	0.77lb ae/A	V-5	A		0.0c	50.0bc
3Callisto.....mesotrione	4SC	0.094lb ai/A	V-5	A		0.0c	56.7abc
Roundup PowerMax..glyphosate	4.5AS	0.77lb ae/A	V-5	A			
4Status Premix	56WG	0.105lb ai/A	V-5	A		0.0c	56.7abc
Roundup PowerMax..glyphosate	4.5AS	0.77lb ae/A	V-5	A			
5Resolve Q Multi-Pak	22.4DF	0.047% v/v	V-5	A		8.3b	65.0a
Roundup PowerMax..glyphosate	4.5AS	0.77lb ae/A	V-5	A			
6Halex GT Premix	4.38SC	1.97lb ai/A	V-5	A		2.3c	62.7a
7Steadfast Q Premix	75WG	0.035lb ai/A	V-5	A		9.7b	60.0ab
_isoxadifen-ethyl	50WG	0.0156lb ai/A	V-5	A			
Status Premix	56WG	0.105lb ai/A	V-5	A			
Crop Oil Concentrate	100L	1% v/v	V-5	A			
30% Urea Ammonium Nitrate	100L	1.25% v/v	V-5	A			
8Realm Q Premix	38.7WG	0.097lb ai/A	V-5	A		2.3c	55.0abc
Crop Oil Concentrate	100L	1% v/v	V-5	A			
30% Urea Ammonium Nitrate	100L	1.25% v/v	V-5	A			
9Capreno Premix	3.45SC	0.117% v/v	V-5	A		13.0ab	46.7c
Crop Oil Concentrate	100L	1% v/v	V-5	A			
30% Urea Ammonium Nitrate	100L	1.25% v/v	V-5	A			
10Impact.....topramezone	2.8SC	0.0293% v/v	V-5	A		17.3a	60.0ab
Atrazine 4L	4L	0.5lb ai/A	V-5	A			
Crop Oil Concentrate	100L	1% v/v	V-5	A			
30% Urea Ammonium Nitrate	100L	1.25% v/v	V-5	A			
LSD (P=.05)					5.63	12.65	
Standard Deviation					3.28	7.38	
CV					61.93	14.39	
Replicate F					0.900	9.403	
Replicate Prob(F)					0.4240	0.0016	
Treatment F					11.210	19.570	
Treatment Prob(F)					0.0001	0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

PRE Weed Control in No-Tillage Field Corn Without Atrazine

Trial ID: CRN15-12 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

Crop 1: Field Corn	ZEAMX	Variety: H4600RC2P
Planting Date:	04/19/12	Planting Method: Row- Unit Planter
Rate:	24000 Sd/A	Row Spacing: 30 in Seed Bed: Firm/Trashy
Soil Temperature:	67 F	Soil Moisture: Moist Emergence Date: 05/03/12

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 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 220 lb/A.

SOIL DESCRIPTION

% Sand: 83 % OM: 1.2 Texture: loamy sand
 % Silt: 10 pH: 6.1
 % Clay: 7 CEC: 5.1 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: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	04/13/12	05/24/12
Time of Day:	11:15 am	9:30 am
Application Method:	Spray	Spray
Application Timing:	7 DPP	4 WAP
Applc. Placement:	Brdcst	Brdcst
Air Temp., Unit:	58 F	73 F
% Relative Humidity:	30	72
Wind Velocity, Unit:	4 mph	1 mph
Wind Direction:	Northwest	Southeast
Dew Presence (Y/N):	Y	Y
Soil Temp., Unit:	55 F	71 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Moist	Moist
% Cloud Cover:	0	40

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	ZEAMX	ZEAMX
Growth Stage:		V5
Height, Unit:		11 in
Crop Health:		Good

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	25 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

6/5/12: IPOSS were seedlings. They were at the 1 leaf stage.

9/7/12: Treatment 10 was the only treatment to provide >95% control of crabgrass and pigweed. Treatment 7 had 80 - 85% control of crabgrass, pigweed, and common lambsquarters. None of the other treatments consistently provided over 70% control.

PRE Weed Control in No-Tillage Field Corn Without Atrazine

Trial ID: CRN15-12 Cooperator:

Location: Field #18 Investigator: Mark VanGessel

Weed Code		ERIC	OEOA	VIORA	ZEAMX	ERIC	OEOA
Crop Code		Horse-weed Control %	Cutleaf EPrimrse Control %	Field Pansy Control %	Field Corn Injury %	Horse-weed Control %	Cutleaf EPrimrse Control %
Weed or Crop Name		05/14/12	05/14/12	05/14/12	05/14/12	05/22/12	05/22/12
Weed or Crop Name							
Rating Data Type							
Rating Unit							
Rating Date							
Trt Treatment No.	Form Name	Form Conc	Rate Type	Grow Rate	Appl Unit	Stg	Code
1 Untreated Check							
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
2 SureStart Premix		4.25 SE	0.93 lb ai/A	7 DPP	A	85.0 a	68.3 bc
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
3 Verdict Premix		5.57 EC	0.566 lb ai/A	7 DPP	A	100.0 a	86.7 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
4 Camix Premix		3.67 SC	1.84 lb ai/A	7 DPP	A	30.0 c	46.7 e
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
5 Fierce Premix		76 WG	0.178 lb ai/A	7 DPP	A	36.7 c	60.0 cd
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
6 Capreno Premix		3.45 SC	0.129 % v/v	7 DPP	A	83.3 a	54.4 de
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
7 Prequel Premix		45 DF	0.045 lb ai/A	7 DPP	A	60.0 b	43.3 e
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
8 Corvus Premix		2.63 SC	0.068 lb ai/A	7 DPP	A	88.3 a	75.0 ab
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
9 Balance Flexx...isoxaflutole		2L	0.047 lb ai/A	7 DPP	A	43.3 bc	50.0 de
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
10 Instigate Premix		45.8 WG	0.172 lb ai/A	7 PPD	A	33.3 c	46.7 e
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
LSD (P=.05)			21.47	12.25	29.75	2.46	22.00
Standard Deviation			12.51	7.11	16.36	1.44	12.83
CV			20.63	12.24	37.77	102.59	19.15
Replicate F			0.261	15.702	2.364	1.018	1.383
Replicate Prob(F)			0.7733	0.0001	0.1444	0.3812	0.2763
Treatment F			13.154	12.098	8.698	16.259	8.349
Treatment Prob(F)			0.0001	0.0001	0.0011	0.0001	0.00012

Weed Code	Crop Code	VIORA	CHEAL	DIGSA	ERICA	OEOLA	IPOSS
Weed or Crop Name		Field Pansy Control % 05/22/12	Common Lambqtrs Control % 05/22/12	Large Crabgras Control % 05/22/12	Horse- weed Control % 06/05/12	Cutleaf EPrimrse Control % 06/05/12	Mornlgy Species 1=presnt 0=absent 06/05/12
Rating Data Type							
Rating Unit							
Rating Date							
Trt	Treatment	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
No.	Name						
1	Untreated Check						
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A	0.0 c	0.0 d
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
2	SureStart Premix	4.25 SE	0.93 lb ai/A	7 DPP	A	38.8 b	66.7 bc
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
3	Verdict Premix	5.57 EC	0.566 lb ai/A	7 DPP	A	80.0 a	70.0 bc
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
4	Camix Premix	3.67 SC	1.84 lb ai/A	7 DPP	A	43.3 b	66.7 bc
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
5	Fierce Premix	76 WG	0.178 lb ai/A	7 DPP	A	86.7 a	95.0 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
6	Capreno Premix	3.45 SC	0.129 % v/v	7 DPP	A	45.3 b	80.0 ab
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
7	Prequel Premix	45 DF	0.045 lb ai/A	7 DPP	A	100.0 a	83.3 ab
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
8	Corvus Premix	2.63 SC	0.068 lb ai/A	7 DPP	A	100.0 a	89.3 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
9	Balance Flexx..isoxaflutole	2 L	0.047 lb ai/A	7 DPP	A	29.8 b	56.7 c
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
10	Instigate Premix	45.8 WG	0.172 lb ai/A	7 PPD	A	23.7 bc	81.7 ab
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A		
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B		
LSD (P=.05)				29.81	17.24	17.18	26.90
Standard Deviation				16.59	10.05	10.01	15.68
CV				30.29	14.58	15.94	23.18
Replicate F				4.101	2.807	3.299	0.217
Replicate Prob(F)				0.0467	0.0869	0.0602	0.8071
Treatment F				13.094	21.448	23.898	5.423
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0012
							0.0003
							0.4742

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	AMASS	IPOSS	GGGAN	ZEAMX
Trt	Treatment No.	Form No.	Form Name	Rate Conc	Grow Type	Appl Rate	Pigweed Species Control %	Mornlry Species Control %	Annual Grasses Control %	Field Corn Yield Bu/A
							07/03/12	07/03/12	07/03/12	09/12/12
1	Untreated Check									121.9 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A					
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B					
2	SureStart Premix	4.25 SE	0.93 lb ai/A	7 DPP	A		86.7 a	68.3 a	71.7 bcd	122.4 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A					
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B					
3	Verdict Premix	5.57 EC	0.566 lb ai/A	7 DPP	A		95.0 a	76.7 a	63.3 d	103.8 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A					
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B					
4	Camix Premix	3.67 SC	1.84 lb ai/A	7 DPP	A		91.7 a	75.9 a	71.0 bcd	106.5 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A					
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B					
5	Fierce Premix	76 WG	0.178 lb ai/A	7 DPP	A		96.7 a	76.7 a	80.0 bc	125.9 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A					
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B					
6	Capreno Premix	3.45 SC	0.129 % v/v	7 DPP	A		91.7 a	46.7 a	71.0 bcd	102.9 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A					
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B					
7	Prequel Premix	45 DF	0.045 lb ai/A	7 DPP	A		91.7 a	56.7 a	83.3 abc	102.4 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A					
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B					
8	Corvus Premix	2.63 SC	0.068 lb ai/A	7 DPP	A		90.0 a	58.3 a	70.0 cd	88.3 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A					
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B					
9	Balance Flexx..isoxaflutole	2L	0.047 lb ai/A	7 DPP	A		91.7 a	60.0 a	85.0 ab	107.0 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A					
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B					
10	Instigate Premix	45.8 WG	0.172 lb ai/A	7 PPD	A		95.0 a	61.0 a	96.7 a	89.7 a
	Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	7 DPP	A					
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ai/A	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	4 WAP	B					
LSD (P=.05)							21.90	47.42	14.61	29.09
Standard Deviation							12.65	27.25	8.44	16.96
CV							13.72	42.27	10.97	15.84
Replicate F							1.059	1.584	1.753	4.412
Replicate Prob(F)							0.3700	0.2377	0.2050	0.0276
Treatment F							0.169	0.449	4.403	1.755
Treatment Prob(F)							0.9922	0.8726	0.0057	0.1480

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Control in Field Corn
 Maximizing Benefit of Residual Herbicide Timing
 Trial ID: CRN16-12 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horsenettle	SOLCA	Solanum carolinense L.
2.	Horseweed	ERICA	Erigeron canadensis L.
3.	Common Lambsquarters	CHEAL	Chenopodium album L.
4.	Morningglory Species	IPOSS	Ipomoea sp.

Crop 1: Field Corn	ZEAMX	Variety: H4600RC2P
Planting Date:	04/19/12	Planting Method: Row- Unit Planter
Rate:	24000 Sd/A	Row Spacing: 30 in Seed Bed: Firm/Trashy
Soil Temperature:	67 F	Soil Moisture: Moist Emergence Date: 05/03/12

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/ snap bean stubble

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 220 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	03/30/12	Roundup WeatherMax	4.5	AS	1	qt/A
2.	04/20/12	Gramoxone SL	2	SL	2	qt/A
3.	04/20/12	Dual II Magnum	7.64	E	1.5	pt/A
4.	04/20/12	Nonionic Surfactant			0.25	% v/v

SOIL DESCRIPTION

% Sand: 83 % OM: 1.2 Texture: loamy sand
 % Silt: 10 pH: 6.1
 % Clay: 7 CEC: 5.1 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: 0.3 **Unit:** mi

Trial Comments

5/14/12: Corn emergence and early growth was good.

7/3/12: Treatments 3, 7, 8, 12, and 16 had high crabgrass pressure in at least one rep.

9/7/12: Heavy Crabgrass density so all treatments with Atrazine were poor. Treatment 9 looks very good for crabgrass, pigweed, and lambsquarters, but poor - fair for morningglory. Treatments 14 & 15 (Resolve POST) looked good in 2 of the 3 reps.

APPLICATION DESCRIPTION				
	A	B	C	D
Application Date:	03/30/12	04/20/12	05/16/12	05/25/12
Time of Day:	9:00 am	9:20 am	2:30 pm	10:00 am
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	21DPP	PRE	V2-3	V5
Appli. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	45 F	56 F	81 F	75 F
% Relative Humidity:	60	78	50	83
Wind Velocity, Unit:	1 mph	0 mph	1 mph	0 mph
Wind Direction:	North	N/A	West	N/A
Dew Presence (Y/N):	N	N	N	N
Soil Temp., Unit:	42 F	55 F	79 F	75 F
Soil Surf. Moisture:	Dry	Dry	Dry	Moist
Root Zone Moisture:	Moist	Dry	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry	Dry
% Cloud Cover:	50	95	30	100

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:			V3	V5
Height, Unit:			7 in	10 in
Crop Health:			Good	Fair-good

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	SOLCA	SOLCA	SOLCA	SOLCA
Growth Stage:			vegetative	vegetative
Height, Unit:			7 in	7 in
Density, Unit:			0-12 m2	0-12 m2
Weed 2 Code:	ERICA	ERICA	ERICA	ERICA
Growth Stage:			bolting	bolting
Height, Unit:			6 in	8 in
Density, Unit:			0-4 m2	0-4 m2
Weed 3 Code:	CHEAL	CHEAL	CHEAL	CHEAL
Growth Stage:			2-4 leaf	vegetative
Height, Unit:			0.4 in	2 in
Density, Unit:			0-10 m2	0-10 m2
Weed 4 Code:	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:				3-5 leaf
Height, Unit:				2 in
Density, Unit:				0-4 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:	24 in	24 in	24 in	27 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

Weed Control in Field Corn

Maximizing Benefit of Residual Herbicide Timing

Trial ID: CRN16-12 Cooperator:

Location: Field #18 Investigator: Mark VanGessel

Weed Code	ERIC A	OEOLA	VIORA	ZEAMX	CHEAL
Crop Code	Horseweed Control %	Cutleaf EPrimrse Control %	Field Pansy Control %	Field Corn Stunting %	Common Lambqtrs Control %
Weed or Crop Name					
Weed or Crop Name					
Rating Data Type					
Rating Unit					
Rating Date					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg Appl Code
1	Atrazine 4L 21 Days Early Pre-Plant	4 L	1.5 lb ai/A	21DPP	A
2	Atrazine 4L PRE - EPP rate	4 L	1.5 lb ai/A	PRE	B
3	Atrazine 4L PRE - POST rate	4 L	0.75 lb ai/A	PRE	B
4	Atrazine 4L EPOST (V2-3 collar corn) Roundup WeatherMax..glyphosate	4 L	0.75 lb ai/A	V2-3	C
5	Atrazine 4L POST (V5 collar corn) Roundup WeatherMax..glyphosate	4 L	1.12 lb ai/A	V2-3	C
6	Callisto.....mesotrione 21 Days Early Pre-Plant	4 SC	0.169 lb ai/A	21DPP	A
7	Callisto.....mesotrione PRE - EPP rate	4 SC	0.169 lb ai/A	PRE	B
8	Callisto.....mesotrione PRE - POST rate	4 SC	0.094 lb ai/A	PRE	B
9	Callisto.....mesotrione EPOST (V2-3 collar corn) Roundup WeatherMax..glyphosate	4 SC	0.094 lb ai/A	V2-3	C
10	Callisto.....mesotrione POST (V5 collar corn) Roundup WeatherMax..glyphosate	4 SC	1.12 lb ai/A	V2-3	C
11	Resolve SG.....rimsulfuron 21 Days Early Pre-Plant	25 SG	0.0234 lb ai/A	21DPP	A
12	Resolve SG.....rimsulfuron PRE - EPP rate	25 SG	0.0234 lb ai/A	PRE	B
13	Resolve SG.....rimsulfuron PRE - POST rate	25 SG	0.0156 lb ai/A	PRE	B
14	Resolve SG.....rimsulfuron EPOST (V2-3 collar corn) Roundup WeatherMax..glyphosate	25 SG	0.0156 lb ai/A	V2-3	C
15	Resolve SG.....rimsulfuron POST (V5 collar corn) Roundup WeatherMax..glyphosate	25 SG	1.12 lb ai/A	V2-3	C
16	Untreated Check Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	21 DPP	A
LSD (P=.05)		23.69	18.43	12.47	4.07
Standard Deviation		14.06	10.82	7.35	2.43
CV		22.65	15.97	8.95	82.14
Replicate F		2.906	0.477	1.474	0.293
Replicate Prob(F)		0.0741	0.6276	0.2518	0.7485
Treatment F		9.453	20.177	49.316	7.660
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Control in Field Corn

Maximizing Benefit of Residual Herbicide Timing

Trial ID: CRN16-12 Cooperator:

Location: Field #18 Investigator: Mark VanGessel

Weed Code	AMASS	AMBEL	IPOSS	ZEAMX
Crop Code	Pigweed Species	Common Ragweed	Mornlry Species	Field Corn Yield
Weed or Crop Name	1=presnt	1=presnt	1=presnt	Bu/A
Weed or Crop Name	0=absent	0=absent	0=absent	
Rating Data Type	07/03/12	07/03/12	07/03/12	09/12/12
Rating Unit				
Rating Date				
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Stg Appl Code
1 Atrazine 4L 21 Days Early Pre-Plant	4 L	1.5 lb ai/A	21 DPP	A
2 Atrazine 4L PRE - EPP rate	4 L	1.5 lb ai/A	PRE	B
3 Atrazine 4L PRE - POST rate	4 L	0.75 lb ai/A	PRE	B
4 Atrazine 4L EPOST (V2-3 collar corn) Roundup WeatherMax..glyphosate	4 L 4.5 AS	0.75 lb ai/A 1.12 lb ai/A	V2-3	C
5 Atrazine 4L POST (V5 collar corn) Roundup WeatherMax..glyphosate	4 L 4.5 AS	0.75 lb ai/A 1.12 lb ai/A	V-5	D
6 Callisto.....mesotrione 21 Days Early Pre-Plant	4 SC	0.169 lb ai/A	21 DPP	A
7 Callisto.....mesotrione PRE - EPP rate	4 SC	0.169 lb ai/A	PRE	B
8 Callisto.....mesotrione PRE - POST rate	4 SC	0.094 lb ai/A	PRE	B
9 Callisto.....mesotrione EPOST (V2-3 collar corn) Roundup WeatherMax..glyphosate	4 SC 4.5 AS	0.094 lb ai/A 1.12 lb ai/A	V2-3	C
10 Callisto.....mesotrione POST (V5 collar corn) Roundup WeatherMax..glyphosate	4 SC 4.5 AS	0.094 lb ai/A 1.12 lb ai/A	V-5	D
11 Resolve SG.....rimsulfuron 21 Days Early Pre-Plant	25 SG	0.0234 lb ai/A	21 DPP	A
12 Resolve SG.....rimsulfuron PRE - EPP rate	25 SG	0.0234 lb ai/A	PRE	B
13 Resolve SG.....rimsulfuron PRE - POST rate	25 SG	0.0156 lb ai/A	PRE	B
14 Resolve SG.....rimsulfuron EPOST (V2-3 collar corn) Roundup WeatherMax..glyphosate	25 SG 4.5 AS	0.0156 lb ai/A 1.12 lb ai/A	V2-3	C
15 Resolve SG.....rimsulfuron POST (V5 collar corn) Roundup WeatherMax..glyphosate	25 SG 4.5 AS	0.0156 lb ai/A 1.12 lb ai/A	V-5	D
16 Untreated Check Roundup WeatherMax..glyphosate	4.5 AS	1.12 lb ai/A	21 DPP	A
LSD (P=.05)		0.691	0.56	0.551
Standard Deviation		0.415	0.33	0.331
CV		120.6	200.0	46.69
Replicate F		3.909	3.000	10.905
Replicate Prob(F)		0.0310	0.0649	0.0003
Treatment F		1.582	1.600	2.286
Treatment Prob(F)		0.1388	0.1331	0.0263
Means followed by same letter do not significantly differ (P=.05, LSD)				1.311
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.				0.2847
				1.846
				0.0747

Weed Control in Field Corn Maximizing Benefit of Residual Herbicide Timing										
Trial ID: CRN16-12 Cooperator: Location: Field #18 Investigator: Mark VanGessel										
Weed Code	ERICA	OEOLA	VIORA	ZEAMX	CHEAL	AMASS	AMBEL	IPOSS	ZEAMX	
Crop Code										
Weed or Crop Name	Horseweed	Cutleaf	Field	Common	Pigweed	Common	Morngrly	Species	Field	
Weed or Crop Name	EPrimse	Pansy	Corn	Lambqtrs	Species	Ragweed	Species	1=presnt	Corn	
Rating Data Type	Control %	Control %	Control %	Stunting %	Control %	1=presnt	1=presnt	0=absent	Yield	
Rating Unit	%	%	%	%	%	0=absent	0=absent	0=absent	Bu/A	
Rating Date	06/01/12	06/01/12	06/01/12	06/01/12	07/03/12	07/03/12	07/03/12	07/03/12	09/12/12	
Trt Treatment No. Name										
TABLE OF R MEANS										
Replicate 1	59.4	76.0	90.6	3.3	76.3	0.10	0.2	0.37	82.4	
Replicate 2	68.8	72.4	90.3	3.4	72.0	0.27	0.3	0.77	70.9	
Replicate 3	73.6	71.9	85.8	2.8	80.0	0.53	0.0	0.93	67.4	
TABLE OF A (Herbicide) MEANS										
1 Atrazine 4L	59.2	81.1	96.7	0.7	46.0	0.43	0.1	74.5	0.53	
2 Callisto.....mesotrione	79.3	74.3	99.6	1.3	93.0	0.13	0.3	70.6	0.73	
3 Resolve SG.....rimsulfuron	63.3	64.9	70.5	7.5	89.3	0.33	0.1	75.6	0.80	
TABLE OF B (Timing / Rate) MEANS										
121 Days Early Pre-Plant	78.9	80.6	86.3	2.0	67.8	0.33	0.1	68.1	0.78	
2 PRE - EPP rate	55.6	65.8	86.9	4.7	62.8	0.39	0.3	64.6	0.72	
3 PRE - POST rate	52.2	56.8	86.9	0.8	50.0	0.44	0.3	54.5	0.89	
4 EPOST (V2-3 collar corn)	82.3	90.6	95.6	6.0	100.0	0.22	0.0	93.8	0.78	
4 Roundup WeatherMax..glyphosate	.	.	.	2.3	100.0	0.11	0.0	87.0	0.28	
TABLE OF A (Herbicide) B (Timing / Rate) MEANS										
1 Atrazine 4L	66.7	100.0	100.0	0.0	20.0	0.67	0.3	82.4	0.67	
121 Days Early Pre-Plant	.	.	.	.	.	.	.	.	.
2 Callisto.....mesotrione	98.3	98.3	98.3	0.0	93.3	0.00	0.0	43.2	0.67	
121 Days Early Pre-Plant	.	.	.	.	.	.	.	.	.
3 Resolve SG.....rimsulfuron	71.7	43.3	60.6	6.1	90.0	0.33	0.0	78.6	1.00	
121 Days Early Pre-Plant	.	.	.	.	.	.	.	.	.
1 Atrazine 4L	46.7	80.0	100.0	0.0	10.0	0.50	0.0	62.7	0.33	
2 PRE - EPP rate	66.7	56.2	100.0	3.3	98.3	0.33	0.7	62.1	0.83	
2 PRE - EPP rate	.	.	.	.	.	.	.	.	.
3 Resolve SG.....rimsulfuron	53.3	61.2	60.8	10.7	80.0	0.33	0.3	69.1	1.00	
2 PRE - EPP rate	.	.	.	.	.	.	.	.	.
1 Atrazine 4L	50.0	54.3	100.0	0.0	0.0	0.33	0.3	55.3	0.67	
3 PRE - POST rate	63.3	54.5	100.0	0.0	73.3	0.33	0.7	49.1	1.00	

University of Delaware

Weed Code	ERICA	OEOLA	VIORA	ZEAMX	CHEAL	AMASS	AMBEL	IPOSS	ZEAMX
Crop Code	Horse-weed	Cutleaf	Field	Field	Common	Pigweed	Common	Mornlry	Field
Weed or Crop Name	Control	EPrimrse	Pansy	Corn	Lambqtrs	Species	Ragweed	Species	Corn
Rating Data Type	%	Control	%	Stunting	%	1=presnt	1=presnt	1=presnt	Yield
Rating Unit	06/01/12	06/01/12	06/01/12	06/01/12	07/03/12	0=absent	0=absent	0=absent	Bu/A
Rating Date						07/03/12	07/03/12	07/03/12	09/12/12
Trt Treatment No. Name									
3 Resolve SG.....rimsulfuron 3 PRE - POST rate	43.3	61.7	60.6	2.3	76.7	0.67	0.0	59.0	1.00
1 Atrazine 4L 4 EPOST (V2-3 collar corn) 4 Roundup WeatherMax..glyphosate	73.3	90.0	86.7	3.3	100.0	0.67	0.0	82.1	0.67
2 Callisto.....mesotrione 4 EPOST (V2-3 collar corn) 4 Roundup WeatherMax..glyphosate	88.7	88.3	100.0	3.3	100.0	0.00	0.0	115.9	1.00
3 Resolve SG.....rimsulfuron 4 EPOST (V2-3 collar corn) 4 Roundup WeatherMax..glyphosate	85.0	93.3	100.0	11.3	100.0	0.00	0.0	83.4	0.67
1 Atrazine 4L 5 POST (V5 collar corn) 5 Roundup WeatherMax..glyphosate	.	.	.	.	0.0	100.0	0.00	0.0	90.1
2 Callisto.....mesotrione 5 POST (V5 collar corn) 5 Roundup WeatherMax..glyphosate	.	.	.	.	0.0	100.0	0.00	0.0	82.8
3 Resolve SG.....rimsulfuron 5 POST (V5 collar corn) 5 Roundup WeatherMax..glyphosate	.	.	.	.	6.8	100.0	0.33	0.0	88.1

Weed Control in Field Corn

Maximizing Benefit of Residual Herbicide Timing

Trial ID: CRN16-12 Cooperator:

Location: Field #18 Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For ERICA Horse-weed Control % 06/01/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	48353.200000				
R	2	995.733333	497.866667	2.847	0.0749	9.9
A	2	2156.933333	1078.466667	6.167	0.0060	9.9
B	4	39092.533333	9773.133333	55.881	0.0001	12.8
AB	8	1211.066667	151.383333	0.866	0.5561	22.1
ERROR	28	4896.933333	174.890476			

FACTORIAL/POOLED ERROR AOV For OEOLA Cutleaf EPrimrse Control % 06/01/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	54711.337233				
R	2	96.868825	48.434412	0.575	0.5691	6.9
A	2	1270.563785	635.281892	7.544	0.0024	6.9
B	4	44927.593155	11231.898289	133.381	0.0001	8.9
AB	8	6058.447921	757.305990	8.993	0.0001	15.3
ERROR	28	2357.863547	84.209412			

FACTORIAL/POOLED ERROR AOV For VIORA Field Pansy Control % 06/01/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	68255.360303				
R	2	137.834532	68.917266	1.672	0.2061	4.8
A	2	4918.544745	2459.272372	59.662	0.0001	4.8
B	4	57462.115190	14365.528797	348.509	0.0001	6.2
AB	8	4582.707392	572.838424	13.897	0.0001	10.7
ERROR	28	1154.158445	41.219944			

FACTORIAL/POOLED ERROR AOV For ZEAMX Field Corn Stunting % 06/01/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	804.361997				
R	2	3.675182	1.837591	0.337	0.7168	1.7
A	2	420.482646	210.241323	38.550	0.0001	1.7
B	4	161.950236	40.487559	7.424	0.0003	2.3
AB	8	65.548837	8.193605	1.502	0.2011	3.9
ERROR	28	152.705096	5.453753			

FACTORIAL/POOLED ERROR AOV For CHEAL Common Lambqtrs Control % 07/03/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	61644.444444				
R	2	481.111111	240.555556	0.849	0.4387	12.6
A	2	20501.111111	10250.555556	36.168	0.0001	12.6
B	4	18633.333333	4658.333333	16.437	0.0001	16.3
AB	8	14093.333333	1761.666667	6.216	0.0001	28.2
ERROR	28	7935.555556	283.412698			

FACTORIAL/POOLED ERROR AOV For AMASS Pigweed Species 1=prsent 0=absent 07/03/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	9.200000				
R	2	1.433333	0.716667	3.961	0.0306	0.32
A	2	0.700000	0.350000	1.934	0.1634	0.32
B	4	0.644444	0.161111	0.890	0.4826	0.41
AB	8	1.355556	0.169444	0.936	0.5029	0.71
ERROR	28	5.066667	0.180952			

FACTORIAL/POOLED ERROR AOV For AMBEL Common Ragweed 1=presnt 0=absent 07/03/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	5.911111				
R	2	0.577778	0.288889	2.935	0.0696	0.2
A	2	0.311111	0.155556	1.581	0.2237	0.2
B	4	1.022222	0.255556	2.597	0.0578	0.3
AB	8	1.244444	0.155556	1.581	0.1755	0.5
ERROR	28	2.755556	0.098413			

FACTORIAL/POOLED ERROR AOV For IPOSS Morngly Species 1=presnt 0=absent 07/03/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	9.144444				
R	2	2.544444	1.272222	11.409	0.0002	0.25
A	2	0.577778	0.288889	2.591	0.0928	0.25
B	4	2.033333	0.508333	4.559	0.0058	0.32
AB	8	0.866667	0.108333	0.972	0.4777	0.56
ERROR	28	3.122222	0.111508			

FACTORIAL/POOLED ERROR AOV For ZEAMX Field Corn Yield Bu/A 09/12/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	44	38816.540038				
R	2	1843.363858	921.681929	1.171	0.3249	21.0
A	2	209.082082	104.541041	0.133	0.8762	21.0
B	4	9597.107864	2399.276966	3.047	0.0333	27.1
AB	8	5119.949227	639.993653	0.813	0.5974	46.9
ERROR	28	22047.037008	787.394179			

BASF Products in Field Corn

Trial ID: CRN17-12 Cooperator: BASF
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Yellow Nutsedge	CYPES	Cyperus esculentus L.
2.	Crabgrass Species	DIGSS	Digitaria sp.

Crop 1: Field Corn **ZEAMX** **Variety:** H4600RC2P
Planting Date: 04/25/12 **Planting Method:** Row- Unit Planter **Depth:** 2 in
Rate: 19000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Firm/Trashy
Soil Temperature: 68 F **Soil Moisture:** Dry **Emergence Date:** 05/05/12

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/Wheat Stubble

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

SOIL DESCRIPTION

% Sand: 83 **% OM:** 0.9 **Texture:** loamy sand
% Silt: 8 **pH:** 6.2
% Clay: 9 **CEC:** 5.2 **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:	04/19/12	05/31/12
Time of Day:	2:45 pm	2:15 pm
Application Method:	Spray	Spray
Application Timing:	7DPP	12"corn
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	66 F	82 F
% Relative Humidity:	47	50
Wind Velocity, Unit:	5 mph	3 mph
Wind Direction:	East	Northeast
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	65 F	80 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Dry	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	25	30

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	ZEAMX	ZEAMX
Growth Stage:		V6
Height, Unit:		18 in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	CYPES	CYPES
Growth Stage:		vegetative
Height, Unit:		10 in
Density, Unit:		10-100 m ²
Weed 2 Code:	DIGSS	DIGSS
Growth Stage:		4lf-4 tlr
Height, Unit:		3.5 in
Density, Unit:		5-10 m ²

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	34 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

5/11/12: Burndown did well on most winter annuals. Only cutleaf evening primrose is consistent in the plots. Some vetch, mustard, and horweed plants survived. Treatment 2 missed some horseweed plants. Ratings for treatment 7 reflect treatments 7 through 10

5/27/12: Ratings for treatment 7 reflect treatments 7 through 10.

8/9/12: Have good to excellent weed control.

BASF Products in Field Corn									
Trial ID: CRN17-12		Cooperator: BASF							
Location: Field #30		Investigator: Mark VanGessel							
Weed Code			OEOLA	OEOLA	VICSS	AMASS	CHEAL	CYPES	
Weed or Crop Name			Cutleaf	Cutleaf	Vetch	Pigweed	Common	Yellow	
Weed or Crop Name			EPrimrse	EPrimrse	Species	Species	Lambqtrs	Nutsedge	
Rating Data Type			Control	Control	Control	Control	Control	Control	
Rating Unit			%	%	%	%	%	%	
Rating Date			05/11/12	05/27/12	05/27/12	05/27/12	05/27/12	05/27/12	05/27/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
1	Untreated Check								
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A		33.3 d	65.0 bc	65.6 a
2	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A		76.7 b	60.0 c	53.3 a
	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	7DPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A				
	Methylated Seed Oil	100 L	1 % v/v	7DPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B				
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B				
3	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A		93.3 a	70.0 bc	80.7 a
	Sharpen.....saflufenacil	2.85 SC	0.067 lb ai/A	7DPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A				
	Methylated Seed Oil	100 L	1 % v/v	7DPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B				
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B				
4	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A		99.0 a	85.0 a	82.3 a
	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	7DPP	A				
	Atrazine 4L	4 L	1 lb ai/A	7DPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A				
	Methylated Seed Oil	100 L	1 % v/v	7DPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B				
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B				
5	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A		60.0 c	76.7 ab	60.0 a
	Atrazine 4L	4 L	1.25 lb ai/A	7DPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B				
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B				
6	Zemax Premix	3.67 SC	1.83 lb ai/A	7DPP	A		30.0 d	60.0 c	100.0 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B				
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B				
7	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A		33.3 d	60.0 c	53.3 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A				
	Status Premix	56 WG	0.105 lb ai/A	12"corn	B				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B				
	Nonionic Surfactant	100 L	0.25 % v/v	12"corn	B				
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B				

Weed Code			OEOLA Cutleaf EPrimrse Control % 05/11/12	OEOLA Cutleaf EPrimrse Control % 05/27/12	VICSS Vetch Species Control % 05/27/12	AMASS Pigweed Species Control % 05/27/12	CHEAL Common Lambqtrs Control % 05/27/12	CYPES Yellow Nutsedge Control % 05/27/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code		
8	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A		68.3 bc	55.7 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A			
	Armezon.....topramezone	2.8 SL	0.0164 lb ai/A	12"corn	B			
	Atrazine 4L	4 L	0.5 lb ai/A	12"corn	B			
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B			
	Methylated Seed Oil	100 L	1 % v/v	12"corn	B			
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B			
9	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A		68.3 bc	55.7 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A			
	Callisto.....mesotrione	4 SC	0.094 lb ai/A	12"corn	B			
	Atrazine 4L	4 L	0.5 lb ai/A	12"corn	B			
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B			
	Crop Oil Concentrate	100 L	1.25 % v/v	12"corn	B			
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B			
10	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A		68.3 bc	55.7 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A			
	Permit Plus Premix	75 WG	0.035 lb ai/A	12"corn	B			
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B			
	Nonionic Surfactant	100 L	0.25 % v/v	12"corn	B			
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B			
LSD (P=.05)				9.41	14.97	31.48	3.17	1.57
Standard Deviation				5.29	8.72	17.85	1.85	0.91
CV				8.7	12.8	26.95	2.06	1.02
Replicate F				0.553	2.277	3.743	1.651	1.000
Replicate Prob(F)				0.5891	0.1313	0.0520	0.2195	0.3874
Treatment F				93.428	2.493	2.418	872.010	3587.667
Treatment Prob(F)				0.0001	0.0473	0.0722	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code					OEOLA Cutleaf EPrimrse Control % 06/15/12	VICSS Vetch Species Control % 06/15/12	AMASS Pigweed Species Control % 06/15/12	CHEAL Common Lambqtrs Control % 06/15/12	IPOSS Morngly Species Control % 06/15/12	CYPES Yellow Nutsedge Control % 06/15/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code			
1	Untreated Check							0.0 b	0.0 c	0.0 b
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A					0.0 c
2	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A	73.3 d	75.0 a	100.0 a	100.0 a	100.0 a
	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	7DPP	A					81.7 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A					
	Methylated Seed Oil	100 L	1 % v/v	7DPP	A					
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B					
3	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A	90.0 bc	100.0 a	100.0 a	100.0 a	100.0 a
	Sharpen.....saflufenacil	2.85 SC	0.067 lb ai/A	7DPP	A					78.3 ab
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A					
	Methylated Seed Oil	100 L	1 % v/v	7DPP	A					
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B					
4	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A	100.0 a	100.0 a	100.0 a	100.0 a	100.0 a
	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	7DPP	A					74.3 ab
	Atrazine 4L	4 L	1 lb ai/A	7DPP	A					
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A					
	Methylated Seed Oil	100 L	1 % v/v	7DPP	A					
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B					
5	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A	96.7 ab	100.0 a	100.0 a	97.3 b	100.0 a
	Atrazine 4L	4 L	1.25 lb ai/A	7DPP	A					76.7 ab
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A					
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B					
6	Zemax Premix	3.67 SC	1.83 lb ai/A	7DPP	A	70.0 d	100.0 a	100.0 a	100.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A					86.7 a
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B					
7	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7DPP	A	86.0 c	100.0 a	100.0 a	100.0 a	100.0 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	7DPP	A					66.7 b
	Status Premix	56 WG	0.105 lb ai/A	12"corn	B					
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	12"corn	B					
	Nonionic Surfactant	100 L	0.25 % v/v	12"corn	B					
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	12"corn	B					

Weed Code			OEOLA	VICSS	AMASS	CHEAL	IPOSS	CYPES
Weed or Crop Name			Cutleaf	Vetch	Pigweed	Common	Mornlry	Yellow
Weed or Crop Name			EPrimrse	Species	Species	Lambqtrs	Species	Nutsedge
Rating Data Type			Control	Control	Control	Control	Control	Control
Rating Unit			%	%	%	%	%	%
Rating Date			06/15/12	06/15/12	06/15/12	06/15/12	06/15/12	06/15/12
Trt	Treatment	Form	Form	Rate	Grow	Appl		
No.	Name	Conc	Type	Rate	Unit	Stg	Code	
8	Zidua.....pyroxasulfone Roundup PowerMax..glyphosate Armezon.....topramezone Atrazine 4L Roundup PowerMax..glyphosate Methylated Seed Oil Liquid Ammonium Sulfate 34%	85 WG 4.5 AS 2.8 SL 4 L 4.5 AS 100 L 100 L		0.106 lb ai/A 0.98 lb ae/A 0.0164 lb ai/A 0.5 lb ai/A 0.77 lb ae/A 1 % v/v 2.5 % v/v	7DPP A A 12"corn B 12"corn B 12"corn B 12"corn B		100.0 a 100.0 a 100.0 a 100.0 a 100.0 a 65.0 b	
9	Zidua.....pyroxasulfone Roundup PowerMax..glyphosate Callisto.....mesotrione Atrazine 4L Roundup PowerMax..glyphosate Crop Oil Concentrate Liquid Ammonium Sulfate 34%	85 WG 4.5 AS 4 SC 4 L 4.5 AS 100 L 100 L		0.106 lb ai/A 0.98 lb ae/A 0.094 lb ai/A 0.5 lb ai/A 0.77 lb ae/A 1.25 % v/v 2.5 % v/v	7DPP A 12"corn B 12"corn B 12"corn B 12"corn B 12"corn B		96.7 ab 100.0 a 100.0 a 100.0 a 100.0 a 81.7 a	
10	Zidua.....pyroxasulfone Roundup PowerMax..glyphosate Permit Plus Premix Roundup PowerMax..glyphosate Nonionic Surfactant Liquid Ammonium Sulfate 34%	85 WG 4.5 AS 75 WG 4.5 AS 100 L 100 L		0.106 lb ai/A 0.98 lb ae/A 0.035 lb ai/A 0.77 lb ae/A 0.25 % v/v 2.5 % v/v	7DPP A 12"corn B 12"corn B 12"corn B 12"corn B		75.0 d 100.0 a 100.0 a 100.0 a 100.0 a 87.7 a	
LSD (P=.05)				9.36	18.02	0.00	1.37	0.00
Standard Deviation				5.41	10.41	0.00	0.80	0.00
CV				6.18	10.71	0.0	0.89	0.0
Replicate F				6.635	1.000	0.000	1.000	0.000
Replicate Prob(F)				0.0080	0.3897	1.0000	0.3874	1.0000
Treatment F				14.775	1.923	0.000	4712.141	0.000
Treatment Prob(F)				0.0001	0.1264	1.0000	0.0001	1.0000
								0.527
								0.5993
								27.388
								0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	DIGSA Large Crabgras Control % 06/15/12	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code	
1	Untreated Check					0.0 b	
	Roundup PowerMax..glyphosate	4.5 AS		0.98 lb ae/A	7DPP	A	
2	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	7DPP	A	100.0 a
	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	7DPP	A	
	Roundup PowerMax..glyphosate	4.5 AS		0.98 lb ae/A	7DPP	A	
	Methylated Seed Oil	100 L		1 % v/v	7DPP	A	
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	12"corn	B	
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	12"corn	B	
3	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	7DPP	A	100.0 a
	Sharpen.....saflufenacil	2.85 SC		0.067 lb ai/A	7DPP	A	
	Roundup PowerMax..glyphosate	4.5 AS		0.98 lb ae/A	7DPP	A	
	Methylated Seed Oil	100 L		1 % v/v	7DPP	A	
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	12"corn	B	
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	12"corn	B	
4	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	7DPP	A	100.0 a
	Sharpen.....saflufenacil	2.85 SC		0.0445 lb ai/A	7DPP	A	
	Atrazine 4L	4 L		1 lb ai/A	7DPP	A	
	Roundup PowerMax..glyphosate	4.5 AS		0.98 lb ae/A	7DPP	A	
	Methylated Seed Oil	100 L		1 % v/v	7DPP	A	
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	12"corn	B	
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	12"corn	B	
5	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	7DPP	A	100.0 a
	Atrazine 4L	4 L		1.25 lb ai/A	7DPP	A	
	Roundup PowerMax..glyphosate	4.5 AS		0.98 lb ae/A	7DPP	A	
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	12"corn	B	
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	12"corn	B	
6	Zemax Premix	3.67 SC		1.83 lb ai/A	7DPP	A	100.0 a
	Roundup PowerMax..glyphosate	4.5 AS		0.98 lb ae/A	7DPP	A	
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	12"corn	B	
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	12"corn	B	
7	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	7DPP	A	100.0 a
	Roundup PowerMax..glyphosate	4.5 AS		0.98 lb ae/A	7DPP	A	
	Status Premix	56 WG		0.105 lb ai/A	12"corn	B	
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	12"corn	B	
	Nonionic Surfactant	100 L		0.25 % v/v	12"corn	B	
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	12"corn	B	

Weed Code		DIGSA					
Weed or Crop Name		Large					
Weed or Crop Name		Crabgras					
Rating Data Type		Control					
Rating Unit		%					
Rating Date		06/15/12					
Trt	Treatment	Form	Form	Rate	Grow	Appl	
No.	Name	Conc	Type	Rate	Unit	Stg	Code
8	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	7DPP	A	100.0 a
	Roundup PowerMax..glyphosate	4.5 AS		0.98 lb ae/A	7DPP	A	
	Armezon.....topramezone	2.8 SL		0.0164 lb ai/A	12"corn	B	
	Atrazine 4L	4 L		0.5 lb ai/A	12"corn	B	
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	12"corn	B	
	Methylated Seed Oil	100 L		1 % v/v	12"corn	B	
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	12"corn	B	
9	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	7DPP	A	100.0 a
	Roundup PowerMax..glyphosate	4.5 AS		0.98 lb ae/A	7DPP	A	
	Callisto.....mesotrione	4 SC		0.094 lb ai/A	12"corn	B	
	Atrazine 4L	4 L		0.5 lb ai/A	12"corn	B	
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	12"corn	B	
	Crop Oil Concentrate	100 L		1.25 % v/v	12"corn	B	
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	12"corn	B	
10	Zidua.....pyroxasulfone	85 WG		0.106 lb ai/A	7DPP	A	100.0 a
	Roundup PowerMax..glyphosate	4.5 AS		0.98 lb ae/A	7DPP	A	
	Permit Plus Premix	75 WG		0.035 lb ai/A	12"corn	B	
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	12"corn	B	
	Nonionic Surfactant	100 L		0.25 % v/v	12"corn	B	
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	12"corn	B	
LSD (P=.05)							0.00
Standard Deviation							0.00
CV							0.0
Replicate F							0.000
Replicate Prob(F)							1.0000
Treatment F							0.000
Treatment Prob(F)							1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Control Programs in Field Corn

Trial ID: CRN18-12 Cooperator: DuPont, Bayer
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Yellow Nutsedge	CYPES	Cyperus esculentus L.
2.	Horsenettle	SOLCA	Solanum carolinense L.
3.	Annual Grasses	GGGAN	

Crop 1: Field Corn	ZEAMX	Variety: H4600RC2P
Planting Date:	04/19/12	Planting Method: Row- Unit Planter
Rate:	19000 Sd/A	Depth: 2 in
Soil Temperature:	67 F	Row Spacing: 30 in
		Seed Bed: Firm/Trashy
		Soil Moisture: Dry
		Emergence Date: 05/02/12

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/Wheat Stubble

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	04/11/12	Gramoxone Inteon	2	SL	2	qt/A
2.	04/11/12	Nonionic Surfactant			0.25	% v/v
3.	04/19/12	Roundup WeatherMax	4.5	AS	32	fl oz/A

SOIL DESCRIPTION

% Sand: 83 % OM: 0.9 Texture: loamy sand
 % Silt: 8 pH: 6.2
 % Clay: 9 CEC: 5.2 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

Trial Comments

5/11/12: All treatments with an EPP or PRE had excellent control of winter annuals. Treatments 1 and 15 had only fair to poor control of cutleaf evening primrose. No crop injury was observed.

5/16/12: Corn experiencing mild nitrogen deficiency.

5/24/12: Corn height variable (8-11")

6/1/12: Stunting comments: Appear to be fertility issues that result in quite variable stunting ratings. Treatment 16 had about 15% leaf burn from V4-5 Halex application (15%, 17%, and 12% for Reps 1,2, and 3, respectively).

6/4/12: Fore SOLCA 1 = <80% Control. For others 1 = Present.

APPLICATION DESCRIPTION				
	A	B	C	D
Application Date:	04/13/12	04/13/12	05/16/12	05/24/12
Time of Day:	8:30 am	10:40 am	2:30 pm	9:30 am
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	7 DPP	PRE	V2-3	V4-5
Applie. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	48 F	57 F	81 F	73 F
% Relative Humidity:	52	33	50	72
Wind Velocity, Unit:	2 mph	3 mph	1 mph	1 mph
Wind Direction:	North	North	West	Southeast
Dew Presence (Y/N):	Y	N	N	Y
Soil Temp., Unit:	46 F	55 F	79 F	71 F
Soil Surf. Moisture:	Dry	Dry	Dry	Moist
Root Zone Moisture:	Dry	Dry	Moist	Moist
Leaf Surf. Moisture:	Moist	Dry	Dry	Moist
% Cloud Cover:	0	10	30	40

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:			V3	V4-5
Height, Unit:			6 in	9.5 in
Crop Health:			Good	Good

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	CYPES	CYPES	CYPES	CYPES
Growth Stage:			3-5 leaf	3-5 leaf
Height, Unit:			3.5 in	5 in
Density, Unit:			0-100 m2	10-100 m2
Weed 2 Code:	SOLCA	SOLCA	SOLCA	SOLCA
Growth Stage:			vegetative	vegetative
Height, Unit:			6 in	4 in
Density, Unit:			0-4 m2	0-2 m2
Weed 3 Code:	GGGAN	GGGAN	GGGAN	GGGAN
Growth Stage:				2-3 leaf
Height, Unit:				1 in
Density, Unit:				0-10 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	28 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

Weed Control Programs in Field Corn

Trial ID: CRN18-12 Cooperator: DuPont, Bayer
 Location: Field #30 Investigator: Mark VanGessel

Weed Code	ZEAMX	ZEAMX	AMASS	CHEAL	DIGSA	CYPES
Crop Code	Field	Field	Pigweed	Common	Morngrly	Yellow
Weed or Crop Name	Corn	Corn	Species	Lambqtrs	Species	Nutsedge
Weed or Crop Name	Stunting	%	Control	%	Control	%
Rating Data Type	05/24/12	05/24/12	05/24/12	05/24/12	05/24/12	05/24/12
Rating Unit						
Rating Date						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1 Untreated Check						
2 Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	0.0c	0.0b
Atrazine 4L	4 L	1 lb ai/A	PRE	B		
Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D		
Liquid Ammonium Sulfate 34%	100 L	3% v/v	V4-5	D		
3 Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	6.7 abc	0.0b
Atrazine 4L	4 L	1 lb ai/A	PRE	B		
Realm Q Premix	38.7 WG	0.097 lb ai/A	V4-5	D		
Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D		
Liquid Ammonium Sulfate 34%	100 L	3% v/v	V4-5	D		
4 Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	5.7 abc	0.0b
Cinch ATZ Premix	5.5 L	1.38 lb ai/A	PRE	B		
Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D		
Liquid Ammonium Sulfate 34%	100 L	3% v/v	V4-5	D		
5 Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	3.3 bc	0.0b
Cinch ATZ Premix	5.5 L	2.06 lb ai/A	PRE	B		
6 Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	10.7 ab	0.0b
Cinch ATZ Premix	5.5 L	2.75 lb ai/A	PRE	B		
7 Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	10.7 ab	0.0b
Cinch ATZ Premix	5.5 L	1.38 lb ai/A	PRE	B		
Realm Q Premix	38.7 WG	0.097 lb ai/A	V4-5	D		
Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D		
Liquid Ammonium Sulfate 34%	100 L	3% v/v	V4-5	D		
8 Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	6.3 abc	0.0b
Atrazine 4L	4 L	1 lb ai/A	PRE	B		
Princep.....simazine	4 L	1 lb ai/A	PRE	B		
9 Prequel Premix	45 DF	0.045 lb ai/A	PRE	B	4.0 bc	0.0b
Cinch ATZ Premix	5.5 L	2.75 lb ai/A	PRE	B		
10 Prequel Premix	45 DF	0.045 lb ai/A	PRE	B	9.7 ab	0.0b
Atrazine 4L	4 L	1 lb ai/A	PRE	B		
Realm Q Premix	38.7 WG	0.097 lb ai/A	V4-5	D		
Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D		
Liquid Ammonium Sulfate 34%	100 L	3% v/v	V4-5	D		
11 Lumax EZ Premix	3.67 SC	2.75 lb ai/A	PRE	B	0.0c	0.0b
Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D		
Liquid Ammonium Sulfate 34%	100 L	3% v/v	V4-5	D		

Weed Code					ZEAMX	ZEAMX	AMASS	CHEAL	DIGSA	CYPES
Crop Code					Field	Corn	Pigweed	Common	Morngrly	Yellow
Weed or Crop Name					Corn	Leafburn	Species	Lambqtrs	Species	Nutsedge
Rating Data Type					%	%	%	%	%	%
Rating Unit					05/24/12	05/24/12	05/24/12	05/24/12	05/24/12	05/24/12
Rating Date										
Trt	Treatment	Form	Form	Rate	Grow	Appl				
No.	Name	Conc	Type	Rate	Unit	Stg	Code			
12	Corvus Premix	2.63	SC	0.068	lb ai/A	PRE	B	4.7bc	0.0b	100.0a
	Atrazine 4L	4 L		1lb	ai/A	PRE	B			
13	Balance Flexx...isoxaflutole	2 L		0.047	lb ai/A	PRE	B	0.0c	0.0b	96.7a
	Atrazine 4L	4 L		1lb	ai/A	PRE	B			
14	Corvus Premix	2.63	SC	0.068	lb ai/A	PRE	B	0.0c	0.0b	100.0a
	Atrazine 4L	4 L		1lb	ai/A	PRE	B			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	V4-5	D			
	Liquid Ammonium Sulfate 34%	100	L	2.5%	v/v	V4-5	D			
15	Capreno Premix	3.45	SC	0.089	lb ai/A	V2-3	C	13.0a	12.3a	100.0a
	Atrazine 4L	4 L		0.5	lb ai/A	V2-3	C			
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	V2-3	C			
	Liquid Ammonium Sulfate 34%	100	L	2.5%	v/v	V2-3	C			
16	Princep.....simazine	4 L		1	lb ai/A	7DPP	A	0.0c	0.0b	68.3b
	Halex GT Premix	4.38	SC	1.97	lb ai/A	V4-5	D			
	Atrazine 4L	4 L		1.5	lb ai/A	V4-5	D			
	Nonionic Surfactant	100	L	0.25	% v/v	V4-5	D			
LSD (P=.05)					8.19	1.07	11.00	21.66	9.77	19.49
Standard Deviation					4.91	0.64	6.60	12.99	5.86	11.69
CV					105.17	83.02	7.2	14.14	6.43	19.08
Replicate F					2.549	0.967	0.898	1.000	4.656	0.488
Replicate Prob(F)					0.0956	0.3923	0.4181	0.3798	0.0173	0.6188
Treatment F					2.550	69.651	45.394	11.667	52.343	14.889
Treatment Prob(F)					0.0149	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code					ZEAMX	ERICA	OEOLA	SOLCA	AMASS	CYPES
Crop Code					Field	Horse-weed	Cutleaf	Horse-nettle	Pigweed	Yellow Nutsedge
Weed or Crop Name					Corn	EPrimrse	EPrimrse	EPrimrse	Species	Control
Weed or Crop Name					Stunting %	1=presnt	1=presnt	1=presnt	Species	Control %
Rating Data Type					06/01/12	0=absent	0=absent	0=absent	06/04/12	06/04/12
Rating Unit						06/04/12				
Rating Date										
Trt	Treatment No.	Form Name	Form Conc	Rate Type	Rate	Grow Unit	Appl Stg	Appl Code		
1	Untreated Check				0.0 a		1.0 a	1.0 a	0.9 ab	0.0 c
2	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	1.7 a	0.0 b	0.0 b	0.0 c	100.0 a
	Atrazine 4L	4 L	1 lb ai/A	PRE	B					83.7 abc
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D					
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D					
3	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	9.7 a	0.0 b	0.0 b	0.3 bc	100.0 a
	Atrazine 4L	4 L	1 lb ai/A	PRE	B					85.0 abc
	Realm Q Premix	38.7 WG	0.097 lb ai/A	V4-5	D					
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D					
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D					
4	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	10.0 a	0.0 b	0.0 b	0.0 c	100.0 a
	Cinch ATZ Premix	5.5 L	1.38 lb ai/A	PRE	B					81.0 a-d
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D					
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D					
5	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	4.7 a	0.0 b	0.0 b	0.3 bc	95.7 a
	Cinch ATZ Premix	5.5 L	2.06 lb ai/A	PRE	B					77.3 bcd
6	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	2.3 a	0.0 b	0.0 b	0.7 ab	95.0 a
	Cinch ATZ Premix	5.5 L	2.75 lb ai/A	PRE	B					66.7 de
7	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	5.7 a	0.0 b	0.0 b	0.0 c	100.0 a
	Cinch ATZ Premix	5.5 L	1.38 lb ai/A	PRE	B					92.3 ab
	Realm Q Premix	38.7 WG	0.097 lb ai/A	V4-5	D					
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D					
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D					
8	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	5.0 a	0.0 b	0.0 b	1.0 a	98.3 a
	Atrazine 4L	4 L	1 lb ai/A	PRE	B					81.7 a-d
	Princep.....simazine	4 L	1 lb ai/A	PRE	B					
9	Prequel Premix	45 DF	0.045 lb ai/A	PRE	B	4.7 a	0.0 b	0.0 b	0.3 bc	99.0 a
	Cinch ATZ Premix	5.5 L	2.75 lb ai/A	PRE	B					58.3 ef
10	Prequel Premix	45 DF	0.045 lb ai/A	PRE	B	4.7 a	0.0 b	0.0 b	0.0 c	100.0 a
	Atrazine 4L	4 L	1 lb ai/A	PRE	B					80.0 a-d
	Realm Q Premix	38.7 WG	0.097 lb ai/A	V4-5	D					
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D					
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D					
11	Lumax EZ Premix	3.67 SC	2.75 lb ai/A	PRE	B	1.7 a	0.0 b	0.0 b	0.0 c	100.0 a
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D					82.7 abc
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D					

Weed Code					ZEAMX	ERICA	OEOLA	SOLCA	AMASS	CYPES
Crop Code					Field	Horse-weed	Cutleaf	Horse-nettle	Pigweed	Yellow Nutsedge
Weed or Crop Name					Corn	EPrimrse	1=presnt	1=presnt	Species	Control
Weed or Crop Name					Stunting %	1=presnt	0=absent	0=absent	Control %	%
Rating Data Type					06/01/12	06/04/12	06/04/12	06/04/12	06/04/12	06/04/12
Rating Unit										
Rating Date										
Trt	Treatment No.	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg				
12	Corvus Premix Atrazine 4L	2.63 SC 4 L	SC 1lb ai/A	0.068 lb ai/A	PRE	B B	4.0 a	0.0 b	0.0 b	0.7 ab
13	Balance Flexx...isoxaflutole Atrazine 4L	2 L 4 L	L 1lb ai/A	0.047 lb ai/A	PRE	B B	0.0 a	0.0 b	0.0 b	0.3 bc
14	Corvus Premix Atrazine 4L Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	2.63 SC 4 L 4.5 AS 100 L	SC 1lb ai/A	0.068 lb ai/A	PRE	B B	2.3 a	0.0 b	0.0 b	0.0 c
15	Capreno Premix Atrazine 4L Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	3.45 SC 4 L 4.5 AS 100 L	SC 0.5 lb ai/A	0.089 lb ai/A	V2-3	C C	14.0 a	0.0 b	0.0 b	0.3 bc
16	Princep.....simazine Halex GT Premix Atrazine 4L Nonionic Surfactant	4 L 4.38 SC 4 L 100 L	L 1lb ai/A	1.97 lb ai/A	7DPP V4-5	A D	7.3 a	0.0 b	0.0 b	0.0 c
LSD (P=.05)					8.17	0.00	0.00	0.63	5.38	15.73
Standard Deviation					4.90	0.00	0.00	0.38	3.23	9.43
CV					100.96	0.0	0.0	122.57	3.51	13.42
Replicate F					0.753	0.000	0.000	1.931	0.458	2.350
Replicate Prob(F)					0.4797	1.0000	1.0000	0.1631	0.6369	0.1127
Treatment F					1.841	0.000	0.000	2.513	177.086	18.058
Treatment Prob(F)					0.0755	1.0000	1.0000	0.0162	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code			AMASS	OXAST				
Crop Code			Pigweed	Yellow				
Weed or Crop Name			Species	Woodsorl				
Weed or Crop Name			Control	Control				
Rating Data Type			%	%				
Rating Unit			08/09/12	08/09/12				
Rating Date								
Trt	Treatment	Form Conc	Form Type	Rate	Grow Stg	Appl Code		
No.	Name			Rate	Unit			
1	Untreated Check							
2	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	81.7 abc	73.3 abc	
	Atrazine 4L	4 L	1 lb ai/A	PRE	B			
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D			
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D			
3	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	86.7 abc	55.0 cde	
	Atrazine 4L	4 L	1 lb ai/A	PRE	B			
	Realm Q Premix	38.7 WG	0.097 lb ai/A	V4-5	D			
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D			
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D			
4	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	81.7 abc	63.3 bcd	
	Cinch ATZ Premix	5.5 L	1.38 lb ai/A	PRE	B			
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D			
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D			
5	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	76.7 bcd	61.7 bcd	
	Cinch ATZ Premix	5.5 L	2.06 lb ai/A	PRE	B			
6	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	70.0 cd	53.3 de	
	Cinch ATZ Premix	5.5 L	2.75 lb ai/A	PRE	B			
7	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	100.0 a	87.7 a	
	Cinch ATZ Premix	5.5 L	1.38 lb ai/A	PRE	B			
	Realm Q Premix	38.7 WG	0.097 lb ai/A	V4-5	D			
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D			
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D			
8	Instigate Premix	45.8 WG	0.172 lb ai/A	PRE	B	60.8 d	58.3 cde	
	Atrazine 4L	4 L	1 lb ai/A	PRE	B			
	Princep.....simazine	4 L	1 lb ai/A	PRE	B			
9	Prequel Premix	45 DF	0.045 lb ai/A	PRE	B	93.3 ab	40.0 ef	
	Cinch ATZ Premix	5.5 L	2.75 lb ai/A	PRE	B			
10	Prequel Premix	45 DF	0.045 lb ai/A	PRE	B	100.0 a	80.0 ab	
	Atrazine 4L	4 L	1 lb ai/A	PRE	B			
	Realm Q Premix	38.7 WG	0.097 lb ai/A	V4-5	D			
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D			
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D			
11	Lumax EZ Premix	3.67 SC	2.75 lb ai/A	PRE	B	91.7 ab	65.0 bcd	
	Abundit.....glyphosate	3 SC	0.75 lb ae/A	V4-5	D			
	Liquid Ammonium Sulfate 34%	100 L	3 % v/v	V4-5	D			

Weed Code		AMASS	OXAST						
Crop Code									
Weed or Crop Name		Pigweed	Yellow						
Weed or Crop Name		Species	Woodsorl						
Rating Data Type		Control	Control						
Rating Unit		%	%						
Rating Date		08/09/12	08/09/12						
Trt	Treatment	Form	Form	Rate	Grow	Appl			
No.	Name	Conc	Type	Rate	Unit	Stg	Code		
12	Corvus Premix	2.63	SC	0.068	lb ai/A	PRE	B	70.8 cd	26.7 f
	Atrazine 4L	4 L		1 lb	ai/A	PRE	B		
13	Balance Flexx...isoxaflutole	2 L		0.047	lb ai/A	PRE	B	70.8 cd	41.7 ef
	Atrazine 4L	4 L		1 lb	ai/A	PRE	B		
14	Corvus Premix	2.63	SC	0.068	lb ai/A	PRE	B	81.7 abc	61.7 bcd
	Atrazine 4L	4 L		1 lb	ai/A	PRE	B		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	V4-5	D		
	Liquid Ammonium Sulfate 34%	100	L	2.5%	v/v	V4-5	D		
15	Capreno Premix	3.45	SC	0.089	lb ai/A	V2-3	C	96.7 ab	78.3 ab
	Atrazine 4L	4 L		0.5	lb ai/A	V2-3	C		
	Roundup PowerMax..glyphosate	4.5	AS	0.77	lb ae/A	V2-3	C		
	Liquid Ammonium Sulfate 34%	100	L	2.5%	v/v	V2-3	C		
16	Princep.....simazine	4	L	1	lb ai/A	7DPP	A	96.7 ab	80.0 ab
	Halex GT Premix	4.38	SC	1.97	lb ai/A	V4-5	D		
	Atrazine 4L	4 L		1.5	lb ai/A	V4-5	D		
	Nonionic Surfactant	100	L	0.25	% v/v	V4-5	D		
LSD (P=.05)				20.44		18.95			
Standard Deviation				12.15		11.29			
CV				14.48		18.28			
Replicate F				0.407		2.958			
Replicate Prob(F)				0.6703		0.0696			
Treatment F				3.110		6.715			
Treatment Prob(F)				0.0065		0.0001			

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Various Programs for No-Till Corn

Trial ID: CRN19-12 Cooperator: Syngenta, Dow
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Yellow Nutsedge	CYPES	Cyperus esculentus L.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

Crop 1: Field Corn	ZEAMX	Variety: H4600RC2P	
Planting Date:	04/25/12	Planting Method: Row- Unit Planter	Depth: 2 in
Rate: 19000	Sd/A	Row Spacing: 30 in	Seed Bed: Firm/Trashy
Soil Temperature: 68	F	Soil Moisture: Dry	Emergence Date: 05/05/12

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/Wheat Stubble

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

SOIL DESCRIPTION

% Sand: 83 % OM: 0.9 Texture: loamy sand
 % Silt: 8 pH: 6.2
 % Clay: 9 CEC: 5.2 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	C	D
Application Date:	04/19/12	04/30/12	05/25/12	05/31/12
Time of Day:	1:20 pm	9:30 am	11:00 am	3:00 pm
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	7DPP	PRE	V4	V6
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	64 F	59 F	78 F	84 F
% Relative Humidity:	49	42	74	47
Wind Velocity, Unit:	4 mph	3 mph	1 mph	3 mph
Wind Direction:	Northeast	East	Northeast	Northeast
Dew Presence (Y/N):	N	N	N	N
Soil Temp., Unit:	64 F	57 F	76 F	82 F
Soil Surf. Moisture:	Dry	Moist	Moist	Moist
Root Zone Moisture:	Dry	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry	Dry
% Cloud Cover:	40	90	35	30

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Growth Stage:			V5	V6-7
Height, Unit:			12 in	18 in
Crop Health:			Good	Good

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	CYPES	CYPES	CYPES	CYPES
Growth Stage:			3-6 leaf	vegetative
Height, Unit:			5 in	6 in
Density, Unit:			10-100 m ²	5-30 m ²
Weed 2 Code:	AMAPA	AMAPA	AMAPA	AMAPA
Growth Stage:			vegetative	vegetative
Height, Unit:			3.5 in	6 in
Density, Unit:			0-50 m ²	0-5 m ²

APPLICATION EQUIPMENT				
	A	B	C	D
Appl. Equipment:	Tractor	Tractor	Tractor	Backpack
Operating Pressure:	40 psi	40 psi	40 psi	31 psi
Nozzle Type:	AIRMIX	AIRMIX	AIRMIX	AIRMIX
Nozzle Size:	11002	11002	11002	11002
Nozzle Spacing, Unit:	20 in	20 in	20 in	18 in
Boom Length, Unit:	6 nozl	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	20 in	20 in	28 in	34 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	CO ₂

Trial Comments

5/11/12: Excellent burndown in all treatments except 1, 11, and 12. Cutleaf evening primrose control was fair in these treatments. No corn injury was observed.

5/25/12: Excellent burndown control.

6/1/12: Height of the corn was quite variable due to early-season weed competition and nutrient deficiencies. No stunting was rated, since no obvious treatment effects were observed.

6/19/12: Corn is approx. 4 feet tall and is at the V11 stage.

Various Programs for No-Till Corn

Trial ID: CRN19-12 Cooperator: Syngenta, Dow
 Location: Field #30 Investigator: Mark VanGessel

Weed Code	AMASS	CYPES	OEOLA	ZEAMX	ZEAMX	AMASS
Crop Code	Pigweed Species Control %	Yellow Nutsedge Control %	Cutleaf EPrimse 1=presnt 0=absent	Field Corn Stunting %	Field Corn Injury %	Pigweed Species Control %
Weed or Crop Name	05/25/12	05/25/12	05/25/12	05/25/12	06/01/12	06/19/12
Weed or Crop Name						
Rating Data Type						
Rating Unit						
Rating Date						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1 Untreated Check						
Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A	0.0c	0.0d
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
Gramoxone SL....paraquat	2 SL	1 lb ai/A	PRE	B		
Nonionic Surfactant	100 L	0.25 % v/v	PRE	B		
2 Lexar EZ Premix	3.7 SC	2.78 lb ai/A	7DPP	A	100.0a	85.0 a
Princep.....simazine	4 L	1 lb ai/A	7DPP	A		
Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A		
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
3 Lexar EZ Premix	3.7 SC	1.39 lb ai/A	7DPP	A	88.3 a	80.0 ab
Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A		
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
Halex GT Premix	4.38 SC	1.97 lb ai/A	V4	C		
Atrazine 4L	4 L	1 lb ai/A	V4	C		
Nonionic Surfactant	100 L	0.25 % v/v	V4	C		
4 Lumax EZ Premix	3.67 SC	1.83 lb ai/A	7DPP	A	83.3 a	86.7 a
Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A		
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
Touchdown Total...k glyphosate	4.17 SL	0.98 lb ae/A	V6	D		
5 Lumax EZ Premix	3.67 SC	2.98 lb ai/A	7DPP	A	95.0 a	86.0 a
Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A		
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
6 Lexar EZ Premix	3.7 SC	2.78 lb ai/A	7DPP	A	100.0 a	82.0 ab
Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A		
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
7 Lumax EZ Premix	3.67 SC	2.52 lb ai/A	7DPP	A	100.0 a	87.7 a
Princep.....simazine	4 L	1 lb ai/A	7DPP	A		
Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A		
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
8 Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A	10.0 c	0.0 d
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
Gramoxone SL....paraquat	2 SL	1 lb ai/A	PRE	B		
Nonionic Surfactant	100 L	0.25 % v/v	PRE	B		
Halex GT Premix	4.38 SC	1.97 lb ai/A	V4	C		
Atrazine 4L	4 L	1 lb ai/A	V4	C		
Nonionic Surfactant	100 L	0.25 % v/v	V4	C		

Weed Code	Crop Code	Pigweed Species	Yellow Nutsedge Control %	OEOLA EPrimrse 1=presnt 0=absent	ZEAMX Field Corn Stunting %	ZEAMX Field Corn Injury %	AMASS Pigweed Species Control %	
		05/25/12	05/25/12	05/25/12	05/25/12	06/01/12	06/19/12	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code		
9	Lexar EZ Premix	3.7 SC	1.39 lb ai/A	7DPP	A			
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A			
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A			
	Lexar EZ Premix	3.7 SC	1.39 lb ai/A	V4	C			
	Touchdown Total...k glyphosate	4.17 SL	0.98 lb ae/A	V4	C			
10	Keystone Premix	5.25 SE	2.9 lb ai/A	7DPP	A			
	Prowl H2O.....pendimethalin	3.8 CS	1.42 lb ai/A	7DPP	A			
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A			
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A			
	Durango DMA....glyphosate	4 SL	0.75 lb ai/A	V4	C			
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	V4	C			
11	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A			
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A			
	Keystone Premix	5.25 SE	1.64 lb ai/A	V4	C			
	Durango DMA....glyphosate	4 SL	0.75 lb ai/A	V4	C			
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	V4	C			
12	Princep.....simazine	4 L	1 lb ai/A	7DPP	A			
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A			
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A			
	Keystone Premix	5.25 SE	1.64 lb ai/A	V4	C			
	Atrazine 4L	4 L	1.5 lb ai/L	V4	C			
	Durango DMA....glyphosate	4 SL	0.75 lb ai/A	V4	C			
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	V4	C			
LSD (P=.05)			24.94	11.24	0.59	6.46	2.26	6.98
Standard Deviation			14.73	6.64	0.35	3.82	1.33	4.12
CV			22.28	12.34	104.45	121.62	22.24	4.63
Replicate F			0.522	3.499	0.000	0.093	2.294	4.870
Replicate Prob(F)			0.6007	0.0479	1.0000	0.9112	0.1245	0.0177
Treatment F			22.690	110.171	4.000	3.624	100.528	141.397
Treatment Prob(F)			0.0001	0.0001	0.0027	0.0049	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	AMBEL	IPOSS	CYPES	AMAPA	IPOSS	DIGSA
Weed or Crop Name		Common Ragweed Control %	Morngrly Species Control %	Yellow Nutsedge Control %	Palmer Amaranth Control %	Morngrly Species Control %	Large Crabgras Control %
Rating Data Type		06/19/12	06/19/12	06/19/12	08/15/12	08/15/12	08/15/12
Rating Unit							
Rating Date							
Trt	Treatment	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code	
No.	Name						
1	Untreated Check						
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP A	33.3 b	33.3 b	0.0 e
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP A			
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	PRE B			
	Nonionic Surfactant	100 L	0.25 % v/v	PRE B			
2	Lexar EZ Premix	3.7 SC	2.78 lb ai/A	7DPP A	100.0 a	100.0 a	66.7 cd
	Princep.....simazine	4 L	1 lb ai/A	7DPP A			
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP A			
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP A			
3	Lexar EZ Premix	3.7 SC	1.39 lb ai/A	7DPP A	100.0 a	100.0 a	96.3 a
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP A			
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP A			
	Halex GT Premix	4.38 SC	1.97 lb ai/A	V4 C			
	Atrazine 4L	4 L	1 lb ai/A	V4 C			
	Nonionic Surfactant	100 L	0.25 % v/v	V4 C			
4	Lumax EZ Premix	3.67 SC	1.83 lb ai/A	7DPP A	100.0 a	99.0 a	95.0 a
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP A			
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP A			
	Touchdown Total...k glyphosate	4.17 SL	0.98 lb ae/A	V6 D			
5	Lumax EZ Premix	3.67 SC	2.98 lb ai/A	7DPP A	93.3 a	86.7 a	68.3 cd
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP A			
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP A			
6	Lexar EZ Premix	3.7 SC	2.78 lb ai/A	7DPP A	100.0 a	100.0 a	56.7 d
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP A			
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP A			
7	Lumax EZ Premix	3.67 SC	2.52 lb ai/A	7DPP A	100.0 a	100.0 a	70.0 b
	Princep.....simazine	4 L	1 lb ai/A	7DPP A			
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP A			
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP A			
8	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP A	100.0 a	95.0 a	89.0 ab
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP A			
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	PRE B			
	Nonionic Surfactant	100 L	0.25 % v/v	PRE B			
	Halex GT Premix	4.38 SC	1.97 lb ai/A	V4 C			
	Atrazine 4L	4 L	1 lb ai/A	V4 C			
	Nonionic Surfactant	100 L	0.25 % v/v	V4 C			

Weed Code	Crop Code	AMBEL	IPOSS	CYPES	AMAPA	IPOSS	DIGSA
Weed or Crop Name		Common Ragweed Control %	Morngrly Species Control %	Yellow Nutsedge Control %	Palmer Amaranth Control %	Morngrly Species Control %	Large Crabgras Control %
Rating Data Type		06/19/12	06/19/12	06/19/12	08/15/12	08/15/12	08/15/12
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code	
9	Lexar EZ Premix	3.7 SC	1.39 lb ai/A	7DPP	A		
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A		
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
	Lexar EZ Premix	3.7 SC	1.39 lb ai/A	V4	C		
	Touchdown Total..k glyphosate	4.17 SL	0.98 lb ae/A	V4	C		
10	Keystone Premix	5.25 SE	2.9 lb ai/A	7DPP	A		
	Prowl H2O.....pendimethalin	3.8 CS	1.42 lb ai/A	7DPP	A		
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A		
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
	Durango DMA....glyphosate	4 SL	0.75 lb ai/A	V4	C		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	V4	C		
11	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A		
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
	Keystone Premix	5.25 SE	1.64 lb ai/A	V4	C		
	Durango DMA....glyphosate	4 SL	0.75 lb ai/A	V4	C		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	V4	C		
12	Princep.....simazine	4 L	1 lb ai/A	7DPP	A		
	Gramoxone SL....paraquat	2 SL	1 lb ai/A	7DPP	A		
	Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
	Keystone Premix	5.25 SE	1.64 lb ai/A	V4	C		
	Atrazine 4L	4 L	1.5 lb ai/A	V4	C		
	Durango DMA....glyphosate	4 SL	0.75 lb ai/A	V4	C		
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	V4	C		
LSD (P=.05)		28.53	28.25	12.91	14.09	13.93	11.88
Standard Deviation		16.85	16.68	7.63	8.32	8.20	7.02
CV		17.94	18.0	10.61	10.17	12.24	8.26
Replicate F		1.214	1.765	1.023	0.912	3.146	0.169
Replicate Prob(F)		0.3163	0.1945	0.3758	0.4162	0.0638	0.8454
Treatment F		3.883	3.930	35.390	33.746	21.425	48.923
Treatment Prob(F)		0.0033	0.0031	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code		CYPES					
Crop Code		Yellow					
Weed or Crop Name		Nutsedge					
Weed or Crop Name		Control					
Rating Data Type		%					
Rating Unit		08/15/12					
Rating Date							
Trt	Treatment	Form	Form	Rate	Grow	Appl	
No.	Name	Conc	Type	Rate	Unit	Stg	Code
1	Untreated Check						0.0h
	Gramoxone SL....paraquat	2 SL		1 lb ai/A	7DPP	A	
	Nonionic Surfactant	100 L		0.25 % v/v	7DPP	A	
	Gramoxone SL....paraquat	2 SL		1 lb ai/A	PRE	B	
	Nonionic Surfactant	100 L		0.25 % v/v	PRE	B	
2	Lexar EZ Premix	3.7 SC		2.78 lb ai/A	7DPP	A	56.7 fg
	Princep.....simazine	4 L		1 lb ai/A	7DPP	A	
	Gramoxone SL....paraquat	2 SL		1 lb ai/A	7DPP	A	
	Nonionic Surfactant	100 L		0.25 % v/v	7DPP	A	
3	Lexar EZ Premix	3.7 SC		1.39 lb ai/A	7DPP	A	94.0 ab
	Gramoxone SL....paraquat	2 SL		1 lb ai/A	7DPP	A	
	Nonionic Surfactant	100 L		0.25 % v/v	7DPP	A	
	Halex GT Premix	4.38 SC		1.97 lb ai/A	V4	C	
	Atrazine 4L	4 L		1 lb ai/A	V4	C	
	Nonionic Surfactant	100 L		0.25 % v/v	V4	C	
4	Lumax EZ Premix	3.67 SC		1.83 lb ai/A	7DPP	A	86.7 bc
	Gramoxone SL....paraquat	2 SL		1 lb ai/A	7DPP	A	
	Nonionic Surfactant	100 L		0.25 % v/v	7DPP	A	
	Touchdown Total...k glyphosate	4.17 SL		0.98 lb ae/A	V6	D	
5	Lumax EZ Premix	3.67 SC		2.98 lb ai/A	7DPP	A	60.0 efg
	Gramoxone SL....paraquat	2 SL		1 lb ai/A	7DPP	A	
	Nonionic Surfactant	100 L		0.25 % v/v	7DPP	A	
6	Lexar EZ Premix	3.7 SC		2.78 lb ai/A	7DPP	A	53.3 g
	Gramoxone SL....paraquat	2 SL		1 lb ai/A	7DPP	A	
	Nonionic Surfactant	100 L		0.25 % v/v	7DPP	A	
7	Lumax EZ Premix	3.67 SC		2.52 lb ai/A	7DPP	A	66.7 de
	Princep.....simazine	4 L		1 lb ai/A	7DPP	A	
	Gramoxone SL....paraquat	2 SL		1 lb ai/A	7DPP	A	
	Nonionic Surfactant	100 L		0.25 % v/v	7DPP	A	
8	Gramoxone SL....paraquat	2 SL		1 lb ai/A	7DPP	A	92.7 ab
	Nonionic Surfactant	100 L		0.25 % v/v	7DPP	A	
	Gramoxone SL....paraquat	2 SL		1 lb ai/A	PRE	B	
	Nonionic Surfactant	100 L		0.25 % v/v	PRE	B	
	Halex GT Premix	4.38 SC		1.97 lb ai/A	V4	C	
	Atrazine 4L	4 L		1 lb ai/A	V4	C	
	Nonionic Surfactant	100 L		0.25 % v/v	V4	C	

Weed Code		CYPES						
Crop Code		Yellow						
Weed or Crop Name		Nutsedge						
Weed or Crop Name		Control						
Rating Data Type		%						
Rating Unit								
Rating Date		08/15/12						
Trt	Treatment	Form	Form	Rate	Grow	Appl		
No.	Name	Conc	Type	Rate	Unit	Stg	Code	
9	Lexar EZ Premix	3.7	SC	1.39	lb ai/A	7DPP	A	96.7 a
	Gramoxone SL....paraquat	2	SL	1	lb ai/A	7DPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	7DPP	A	
	Lexar EZ Premix	3.7	SC	1.39	lb ai/A	V4	C	
	Touchdown Total...k glyphosate	4.17	SL	0.98	lb ae/A	V4	C	
10	Keystone Premix	5.25	SE	2.9	lb ai/A	7DPP	A	63.3 def
	Prowl H2O.....pendimethalin	3.8	CS	1.42	lb ai/A	7DPP	A	
	Gramoxone SL....paraquat	2	SL	1	lb ai/A	7DPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	7DPP	A	
	Durango DMA....glyphosate	4	SL	0.75	lb ai/A	V4	C	
11	Liquid Ammonium Sulfate 34%	100	L	2.5	% v/v	V4	C	70.0 d
	Gramoxone SL....paraquat	2	SL	1	lb ai/A	7DPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	7DPP	A	
	Keystone Premix	5.25	SE	1.64	lb ai/A	V4	C	
	Durango DMA....glyphosate	4	SL	0.75	lb ai/A	V4	C	
12	Liquid Ammonium Sulfate 34%	100	L	2.5	% v/v	V4	C	84.3 c
	Princep.....simazine	4	L	1	lb ai/A	7DPP	A	
	Gramoxone SL....paraquat	2	SL	1	lb ai/A	7DPP	A	
	Nonionic Surfactant	100	L	0.25	% v/v	7DPP	A	
	Keystone Premix	5.25	SE	1.64	lb ai/A	V4	C	
	Atrazine 4L	4	L	1.5	lb ai/A	V4	C	7.68
	Durango DMA....glyphosate	4	SL	0.75	lb ai/A	V4	C	
	Liquid Ammonium Sulfate 34%	100	L	2.5	% v/v	V4	C	
LSD (P=.05)							7.68	
Standard Deviation							4.53	
CV							6.6	
Replicate F							2.906	
Replicate Prob(F)							0.0759	
Treatment F							103.218	
Treatment Prob(F)							0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Impact for Sequential Postemergence Weed Control

Trial ID: CRN20-12 Cooperator: AMVAC
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.
2.	Horsenettle	SOLCA	Solanum carolinense L.
3.	Crabgrass Species	DIGSS	Digitaria sp.

Crop 1: Field Corn	ZEAMX	Variety: H4600RC2P
Planting Date:	05/03/12	Planting Method: Row- Unit Planter
Rate:	24000 Sd/A	Row Spacing: 30 in Seed Bed: Smooth
Soil Temperature:	72 F	Soil Moisture: Moist Emergence Date: 05/12/12

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 Twice

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 220 lb/A.

SOIL DESCRIPTION

% Sand: 74 % OM: 1.1 Texture: sandy loam
 % Silt: 19 pH: 6.1
 % Clay: 7 CEC: 3.8 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: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/04/12	05/31/12
Time of Day:	2:30 pm	1:00 pm
Application Method:	Spray	Spray
Application Timing:	PRE	4WAP
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	80 F	83 F
% Relative Humidity:	63	51
Wind Velocity, Unit:	4 mph	2 mph
Wind Direction:	Northeast	East
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	79 F	81 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	N/A	Dry
% Cloud Cover:	80	50

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	ZEAMX	ZEAMX
Growth Stage:		V6
Height, Unit:	15	in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	IPOSS	IPOSS
Growth Stage:		2-4 leaf
Height, Unit:	3.5	in
Density,Unit:	2-6	m2
Weed 2 Code:	SOLCA	SOLCA
Growth Stage:		vegetative
Height, Unit:	4.5	in
Density,Unit:	1-5	m2
Weed 3 Code:	DIGSS	DIGSS
Growth Stage:		4lf-2tillr
Height, Unit:	4	in
Density,Unit:	0-5	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	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

6-25-12: All other species were over 95% control in all plots.

Plot 101 was mistakenly cultivated when the borders were cultivated.

Impact for Sequential Postemergence Weed Control										
Trial ID: CRN20-12		Cooperator: AMVAC								
Location: Field #14		Investigator: Mark VanGessel								
Weed Code				AMASS	IPOSS	DIGSA	IPOSS	IPOSS	IPOSS	ZEAMX
Crop Code				Pigweed	Morngrly	Large	Morngrly	Morngrly	Morngrly	Field
Weed or Crop Name				Species	Species	Crabgras	Species	Species	Species	Corn
Weed or Crop Name				Control	Control	Control	Control	Control	Control	Yield
Rating Data Type				%	%	%	%	%	%	Bu/A
Rating Unit				06/06/12	06/06/12	06/06/12	06/25/12	08/09/12	09/18/12	
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code			
1	Bicep II Magnum Premix Untreated Check	5.5 L	1.38 lb ai/A	PRE	A					
2	Bicep II Magnum Premix Impact.....topramezone	5.5 L 2.8 SC	1.38 lb ai/A 0.0164 lb ai/A	PRE 4 WAP	B	100.0 a	93.3 a	89.7 bc	88.3 a	56.7 bc
	Atrazine 4L	4 L	0.5 lb ai/A	4 WAP	B					
	Methylated Seed Oil	100 L	1% v/v	4 WAP	B					
	30% Urea Ammonium Nitrate	100 L	1.25% v/v	4 WAP	B					
3	Bicep II Magnum Premix Impact.....topramezone	5.5 L 2.8 SC	1.38 lb ai/A 0.0218 lb ai/A	PRE 4 WAP	B	100.0 a	97.0 a	95.0 ab	86.0 a	50.0 c
	Atrazine 4L	4 L	0.5 lb ai/A	4 WAP	B					
	Methylated Seed Oil	100 L	1% v/v	4 WAP	B					
	30% Urea Ammonium Nitrate	100 L	1.25% v/v	4 WAP	B					
4	Bicep II Magnum Premix Capreno Premix	5.5 L 3.45 SC	1.38 lb ai/A 0.081 lb ai/A	PRE 4 WAP	B	100.0 a	94.3 a	89.3 bc	87.7 a	66.7 a
	Atrazine 4L	4 L	0.5 lb ai/A	4 WAP	B					
	Crop Oil Concentrate	100 L	1% v/v	4 WAP	B					
	30% Urea Ammonium Nitrate	100 L	1.25% v/v	4 WAP	B					
5	Bicep II Magnum Premix Roundup PowerMax..glyphosate	5.5 L 4.5 AS	1.38 lb ai/A 0.77 lb ae/A	PRE 4 WAP	B	100.0 a	90.0 a	100.0 a	79.3 a	61.7 ab
	Liquid Ammonium Sulfate 34%	100 L	0.625% v/v	4 WAP	B					
6	Bicep II Magnum Premix Impact.....topramezone	5.5 L 2.8 SC	1.38 lb ai/A 0.0164 lb ai/A	PRE 4 WAP	B	100.0 a	98.0 a	91.0 b	78.0 a	60.0 ab
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	4 WAP	B					
	Atrazine 4L	4 L	0.5 lb ai/A	4 WAP	B					
	Methylated Seed Oil	100 L	0.5% v/v	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	0.625% v/v	4 WAP	B					
7	Bicep II Magnum Premix Impact.....topramezone	5.5 L 2.8 SC	1.38 lb ai/A 0.0164 lb ai/A	PRE 4 WAP	B	100.0 a	96.0 a	97.3 ab	82.7 a	61.7 ab
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	0.625% v/v	4 WAP	B					
8	Bicep II Magnum Premix Halex GT Premix	5.5 L 4.38 SC	1.38 lb ai/A 1.97 lb ai/A	PRE 4 WAP	B	100.0 a	97.3 a	96.0 ab	91.0 a	65.0 a
	Atrazine 4L	4 L	0.5 lb ai/A	4 WAP	B					
	Nonionic Surfactant	100 L	0.25% v/v	4 WAP	B					
	Liquid Ammonium Sulfate 34%	100 L	0.625% v/v	4 WAP	B					
9	Bicep II Magnum Premix Realm Q Premix	5.5 L 38.7 WG	1.38 lb ai/A 0.097 lb ai/A	PRE 4 WAP	B	100.0 a	96.3 a	82.7 c	88.3 a	61.7 ab
	Atrazine 4L	4 L	0.5 lb ai/A	4 WAP	B					
	Crop Oil Concentrate	100 L	1% v/v	4 WAP	B					
	30% Urea Ammonium Nitrate	100 L	1.25% v/v	4 WAP	B					

Weed Code		AMASS	IPOSS	DIGSA	IPOSS	IPOSS	ZEAMX
Crop Code		Pigweed Species Control	Mornlry Species Control	Large Crabgras Control	Mornlry Species Control	Mornlry Species Control	Field Corn Yield Bu/A
Weed or Crop Name		%	%	%	%	%	09/18/12
Weed or Crop Name		06/06/12	06/06/12	06/06/12	06/25/12	08/09/12	
Rating Data Type							
Rating Unit							
Rating Date							
Trt Treatment No.	Form No. Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	
10 Bicep II Magnum Premix	5.5 L	1.38 lb ai/A	PRE	A	100.0 a	95.7 a	100.0 a
Status Premix	56 WG	0.105 lb ai/A	4 WAP	B			
Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	4 WAP	B			
LSD (P=.05)					0.00	6.37	8.02
Standard Deviation					0.00	3.68	4.64
CV					0.0	3.86	4.96
Replicate F					0.000	1.290	2.627
Replicate Prob(F)					1.0000	0.3025	0.1031
Treatment F					0.000	1.355	4.596
Treatment Prob(F)					1.0000	0.2871	0.0046
							0.1029
							0.0212
							0.0262

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Zemax Weed Control Programs in Corn

Trial ID: CRN30-12 Cooperator: Syngenta
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
3.	Crabgrass Species	DIGSS	Digitaria sp.
4.	Horsenettle	SOLCA	Solanum carolinense L.

Crop 1: Field Corn	ZEAMX	Variety: H4600RC2P
Planting Date:	05/03/12	Planting Method: Row- Unit Planter
Rate:	24000 Sd/A	Row Spacing: 30 in Seed Bed: Smooth
Soil Temperature:	72 F	Soil Moisture: Moist Emergence Date: 05/12/12

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 and field cultivated

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 220 lb/A.

SOIL DESCRIPTION

% Sand: 74 % OM: 1.1 Texture: sandy loam
 % Silt: 19 pH: 6.1
 % Clay: 7 CEC: 3.8 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: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	05/04/12	05/23/12	06/05/12
Time of Day:	3:00 pm	9:30 am	10:00 am
Application Method:	Spray	Spray	Spray
Application Timing:	PRE	V3	V7
Applic. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	80 F	69 F	63 F
% Relative Humidity:	63	85	60
Wind Velocity, Unit:	4 mph	1 mph	7 mph
Wind Direction:	Northeast	East	Northeast
Dew Presence (Y/N):	N	Y	N
Soil Temp., Unit:	79 F	67 F	60 F
Soil Surf. Moisture:	Dry	Moist	Moist
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist	Dry
% Cloud Cover:	80	95	50

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	ZEAMX	ZEAMX	ZEAMX
Growth Stage:	V3-4	V7	
Height, Unit:	7 in	20 in	
Crop Health:	Good	Good	

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:		cot-2 leaf	cot-veg
Height, Unit:		1.5 in	4 in
Density, Unit:		4-12 m ²	15-25 m ²
Weed 2 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:		vegetative	vegetative
Height, Unit:		2 in	10 in
Density, Unit:		0-40 m ²	0-4 m ²
Weed 3 Code:	DIGSS	DIGSS	DIGSS
Growth Stage:		1-3 If	
Height, Unit:		0.7 in	
Density, Unit:		10-20 m ²	
Weed 4 Code:	SOLCA	SOLCA	SOLCA
Growth Stage:			vegetative
Height, Unit:			7 in
Density, Unit:			1-5 m ²

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	24 in	36 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

Trt No	Treatment Application Comment
7	Plot 303 was sprayed with trt. 5 at PRE timing.

Zemax Weed Control Programs in Corn

Trial ID: CRN30-12 Cooperator: Syngenta
 Location: Field #14 Investigator: Mark VanGessel

Weed Code	ZEAMX	AMASS	IPOSS	DIGSA	AMASS	IPOSS	GGGAN	ZEAMX
Crop Code	Field	Pigweed	Mornglry	Large	Pigweed	Mornglry	Annual	Field
Weed or Crop Name	Corn	Species	Species	Crabgras	Species	Species	Grasses	Corn
Weed or Crop Name	Stunting	Control %	Control %	Control %	Control %	Control %	Control %	Yield Bu/A
Rating Data Type	%	05/25/12	05/25/12	05/25/12	06/12/12	06/12/12	06/12/12	09/18/12
Rating Unit								
Rating Date								
Trt Treatment No.	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code			
1 Untreated Check								
2 Zemax	3.67 SC	1.83 lb ai/A	PRE	A	0.0c	0.0b	0.0c	0.0d
3 Zemax	3.67 SC	0.92 lb ai/A	PRE	A	0.0c	100.0a	87.7a	91.7ab
Halex GT	4.38 SC	1.97 lb ai/A	V3	B				
Nonionic Surf.	100 L	0.25 % v/v	V3	B				
Liquid AMS 34%	100 L	2.5 % v/v	V3	B				
4 Zemax	3.67 SC	1.47 lb ai/A	V3	B	0.0c	0.0b	1.0c	0.0c
Touchdown Total	4.17 SL	0.98 lb ae/A	V3	B				
Liquid AMS 34%	100 L	2.5 % v/v	V3	B				
5 Zemax	3.67 SC	1.47 lb ai/A	PRE	A	0.3c	90.8a	73.7b	86.7b
Touchdown Total	4.17 SL	0.98 lb ae/A	V7	C				
Liquid AMS 34%	100 L	2.5 % v/v	V7	C				
6 SureStart	4.25 SE	0.8 lb ai/A	PRE	A	6.3b	94.0a	65.0b	88.3ab
Touchdown Total	4.17 SL	0.98 lb ae/A	V7	C				
Liquid AMS 34%	100 L	2.5 % v/v	V7	C				
7 Verdict	5.57 EC	0.52 lb ai/A	PRE	A	6.8ab	94.9a	76.0ab	89.4ab
Touchdown Total	4.17 SL	0.98 lb ae/A	V7	C				
Liquid AMS 34%	100 L	2.5 % v/v	V7	C				
8 Corvus	2.63 SC	0.068 lb ai/A	PRE	A	8.7a	96.7a	66.7b	95.0ab
Touchdown Total	4.17 SL	0.98 lb ae/A	V7	C				
Liquid AMS 34%	100 L	2.5 % v/v	V7	C				
LSD (P=.05)		2.01	9.52	12.11	10.50	0.00	14.39	5.27
Standard Deviation		1.13	5.30	6.74	5.84	0.00	8.09	2.96
CV		41.02	7.35	12.09	8.52	0.0	11.62	3.55
Replicate F		1.895	0.677	0.551	2.047	0.000	1.576	1.214
Replicate Prob(F)		0.1927	0.5280	0.5914	0.1755	1.0000	0.2468	0.3311
Treatment F		33.540	212.268	79.911	158.332	0.000	44.109	424.092
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	1.0000	0.0001	0.0001
								0.0537

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Sweet Corn Weed Control to Allow Rotational Flexibility

Trial ID: SCRN1-12 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
3.	Annual Grasses	GGGAN	
4.	Common Lambsquarters	CHEAL	Chenopodium album L.
5.	Common Ragweed	AMBEL	Ambrosia artemisifolia L.

Crop 1: Sweet Corn ZEAMS Variety: BC0805

Planting Date: 04/27/12 Planting Method: Row- Unit Planter Depth: 0.75 in

Rate: 24000 Sd/A Row Spacing: 30 in Seed Bed: Smooth

Soil Temperature: 64 F Soil Moisture: Moist Emergence Date: 05/08/12

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 and field cultivated

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

SOIL DESCRIPTION

% Sand: 79 % OM: 1.5 Texture: loamy sand

% Silt: 14 pH: 6.2

% Clay: 7 CEC: 4.9 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: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	04/28/12	05/11/12	05/14/12	05/31/12
Time of Day:	11:00 am	8:30 am	11:00 am	10:10 am
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	DPRE	EPOST	POST
Appli. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	52 F	55 F	72 F	76 F
% Relative Humidity:	37	55	69	71
Wind Velocity, Unit:	2 mph	3 mph	2 mph	2 mph
Wind Direction:	North	Northwest	South	Northeast
Dew Presence (Y/N):	N	Y	N	Y
Soil Temp., Unit:	52 F	52 F	71 F	74 F
Soil Surf. Moisture:	Moist	Moist	Moist	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	N/A	Moist	Dry	Moist
% Cloud Cover:	85	0	85	30

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Growth Stage:		V1	V1-2	V6
Height, Unit:		1.5 in	3 in	11 in
Crop Health:		Good	Fair	Good

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:		cotyledon	cot-1 leaf	veg-vine
Height, Unit:		1 in	1.2 in	6 in
Density,Unit:		0-3 m ²	3-8 m ²	4-12 m ²
Weed 2 Code:	AMAPA	AMAPA	AMAPA	AMAPA
Growth Stage:			cot-3 leaf	vegetative
Height, Unit:			0.3 in	8 in
Density,Unit:			50-100 m ²	0-12 m ²
Weed 3 Code:	GGGAN	GGGAN	GGGAN	GGGAN
Growth Stage:			1-2 leaf	
Height, Unit:			0.2 in	
Density,Unit:			10 m ²	
Weed 4 Code:	CHEAL	CHEAL	CHEAL	CHEAL
Growth Stage:			cot-2 leaf	vegetative
Height, Unit:			0.2 in	3 in
Density,Unit:			1-2 m ²	0-4 m ²
Weed 5 Code:	AMBEL	AMBEL	AMBEL	AMBEL
Growth Stage:			cot-2 leaf	vegetative
Height, Unit:			0.2 in	3 in
Density,Unit:			0-2 m ²	0-4 m ²

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:	18 in	18 in	20 in	27 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 5-14-12: Sweet corn emergence is uneven.
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Sweet Corn Weed Control to Allow Rotational Flexibility									
Trial ID: SCRN1-12		Cooperator: Location: Field #14 Investigator: Mark VanGessel							
Weed Code	Crop Code	ZEAMS	AMASS	AMBEL	CHEAL	IPOSS	GGGAN		
Weed or Crop Name			Pigweed	Common	Common	Mornlry	Annual		
Weed or Crop Name			Species	Ragweed	Lambqtrs	Species	Grasses		
Rating Data Type			Control	Control	Control	Control	Control		
Rating Unit			%	%	%	%	%		
Rating Date			05/29/12	06/25/12	06/25/12	06/25/12	06/25/12		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
1	Untreated Check								
2	Dual II Magnum..s-metolachlor	7.64 E	0.64 lb ai/A	PRE	A	5.0 b	70.0 d	80.0 bc	98.3 ab
	Cadet.....fluthiacet	0.91 EC	0.0064 lb ai/A	EPOST	C				40.0 b
	Basagran.....bentazon	4 L	0.75 lb ai/A	EPOST	C				79.0 c
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	C				
3	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	PRE	A	5.3 b	90.0 bc	90.0 ab	100.0 a
	Cadet.....fluthiacet	0.91 EC	0.0064 lb ai/A	EPOST	C				46.7 b
	Basagran.....bentazon	4 L	0.75 lb ai/A	EPOST	C				80.0 c
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	C				
4	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	PRE	A	5.3 b	96.7 ab	100.0 a	100.0 a
	Prowl H2O.....pendimethalin	3.8 CS	1.42 lb ai/A	DPRE	B				71.7 a
	Cadet.....fluthiacet	0.91 EC	0.0064 lb ai/A	EPOST	C				93.3 ab
	Basagran.....bentazon	4 L	0.75 lb ai/A	EPOST	C				
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	C				
5	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	PRE	A	8.7 a	86.7 c	100.0 a	90.0 abc
	Cadet.....fluthiacet	0.91 EC	0.0064 lb ai/A	EPOST	C				50.0 b
	Starane Ultra...fluoxypyr	2.8 EC	0.14 lb ai/A	EPOST	C				83.3 bc
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	C				
6	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	PRE	A	5.0 b	86.7 c	70.0 c	83.3 bc
	Cadet.....fluthiacet	0.91 EC	0.0064 lb ai/A	EPOST	C				53.3 b
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	C				84.0 bc
7	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	PRE	A			100.0 a	100.0 a
	Impact.....topramezone	2.8 SC	0.0164 lb ai/A	POST	D				80.0 c
	Crop Oil Concentrate	100 L	1.25 % v/v	POST	D				46.7 b
	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST	D				96.7 a
8	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	PRE	A			100.0 a	100.0 a
	Impact.....topramezone	2.8 SC	0.0164 lb ai/A	POST	D				73.3 a
	Atrazine 4L	4 L	0.5 lb ai/A	POST	D				100.0 a
	Crop Oil Concentrate	100 L	1.25 % v/v	POST	D				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST	D				
9	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	PRE	A			100.0 a	100.0 a
	Liberty 280....glufosinate	2.34 SL	0.53 lb ai/A	POST	D				76.7 a
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	POST	D				100.0 a
10	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	PRE	A			100.0 a	100.0 a
	Liberty 280....glufosinate	2.34 SL	0.53 lb ai/A	POST	D				76.0 a
	Liquid Ammonium Sulfate 34%	100 L	2.5 % v/v	POST	D				100.0 a

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	ZEAMS	AMASS	AMBEL	CHEAL	IPOSS	GGGAN
Weed or Crop Name		Sweet Corn	Pigweed Species Control	Common Ragweed Control	Common Lambqtrs Control	Mornlry Species Control	Annual Grasses Control
Weed or Crop Name		Chlorross %	%	%	%	%	%
Rating Data Type		05/29/12	06/25/12	06/25/12	06/25/12	06/25/12	06/25/12
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
11	Dual II Magnum..s-metolachlor Sharpen.....saflufenacil Liberty 280....glufosinate Liquid Ammonium Sulfate 34%	7.64 E 2.85 SC 2.34 SL 100 L	1.43 lb ai/A 0.0445 lb ai/A 0.53 lb ai/A 2.5% v/v	PRE PRE POST POST	A A D D		
					100.0 a	100.0 a	100.0 a
12	Sharpen.....saflufenacil Liberty 280....glufosinate Liquid Ammonium Sulfate 34%	2.85 SC 2.34 SL 100 L	0.0445 lb ai/A 0.53 lb ai/A 2.5% v/v	PRE POST POST	A D D	94.0 abc	100.0 a
						100.0 a	75.0 a
LSD (P=.05)				0.72	9.51	12.76	16.51
Standard Deviation				0.39	5.62	7.54	9.75
CV				8.07	6.58	8.7	11.12
Replicate F			1.429	3.364	3.080	1.805	2.742
Replicate Prob(F)			0.2846	0.0531	0.0662	0.1879	0.0864
Treatment F			148.857	76.283	44.480	25.682	18.896
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0001

(SCRN2-12)

University of Delaware

Non-Atrazine Herbicide Programs for Weed Control in No-Till Sweet Corn

Trial ID: SCRN2-12 Cooperator: PA Vegetable Growers
 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

CROP AND WEED DESCRIPTION

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

Crop 1: Sweet Corn **ZEAMS** **Variety:** Overland and BC0805
Planting Date: 05/18/12 **Planting Method:** Row- Unit Planter **Depth:** 0.75 in
Rate: 24000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Firm/Trashy
Soil Temperature: 72 F **Soil Moisture:** Moist **Emergence Date:** 05/24/12

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: An EPP application of glyphosate was made prior to establishment. Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

SOIL DESCRIPTION

% Sand: 79 % OM: 1.5 **Texture:** loamy sand
% Silt: 14 pH: 6.2
% Clay: 7 CEC: 4.9 **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: 0.5 **Unit:** mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/18/12	06/08/12
Time of Day:	11: am	10:00 am
Application Method:	Spray	Spray
Application Timing:	PRE	MPost
Appli. Placement:	Brdcst	Brdcst
Air Temp., Unit:	69 F	74 F
% Relative Humidity:	45	50
Wind Velocity, Unit:	7 mph	3 mph
Wind Direction:	Northeast	Northwest
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	67 F	71 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	15	0

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	ZEAMS	ZEAMS
Growth Stage:	V4	
Height, Unit:	9 in	
Crop Health:	Good	

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	IPOSS	IPOSS
Growth Stage:	cot-4 leaf	
Height, Unit:	2.5 in	
Density, Unit:	15-30 m ²	

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	24 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
6/1/12: Corn is at the V2-3 stage and is 5" tall.
6/14/12: Treatment 14 is very stunted. Other treatments have some leaf speckling from POST applications.
6/29/12 - Ragweed in untreated check but not in any treatment except treatment 4.
7/31/12: Harvested 23 feet of one row – only marketable ears. The 4th plot and the 11th plot of every rep did not get starter fertilizer and was used for sprayer drive row; thus not yielded.

Non-Atrazine Herbicide Programs for Weed Control in No-Till Sweet Corn

Trial ID: SCRN2-12 Cooperator: PA Vegetable Growers

Location: Field #14 Investigator: Mark VanGessel

Weed Code					ZEAMS	ZEAMS	ZEAMS	ZEAMS	AMASS	IPOSS
Crop Code					SwtCrn	SwtCrn	SwtCrn	SwtCrn	Pigweed	Mornlgy
Weed or Crop Name					Overland	Overland	Overland	Overland	Species	Species
Weed or Crop Name					Stunting	Inury	SntngPRE	Stunting	Control	Control
Rating Data Type					%	%	%	%	%	%
Rating Unit					06/01/12	06/14/12	06/14/12	06/18/12	06/18/12	06/18/12
Rating Date										
Trt	Treatment	Form	Form	Rate	Grow	Appl				
No.	Name	Conc	Type	Rate	Unit	Stg	Code			
1	Untreated Check						0.0 a	0.0 c	0.0 e	0.0 c
2	Lumax Premix	3.95 SC	2.47 lb ai/A	PRE	A		5.7 a	0.0 c	0.0 e	0.0 c
3	Bicep II Magnum Premix	5.5 L	2.2 lb ai/A	PRE	A		2.3 a	0.0 c	0.0 e	0.0 c
	Prowl H2O.....pendimethalin	3.8 CS	0.95 lb ai/A	PRE	A					91.7 b
4	Camix Premix	3.67 SC	1.83 lb ai/A	PRE	A		0.0 a	0.0 c	0.0 e	0.0 c
5	Verdict Premix	5.57 EC	0.566 lb ai/A	PRE	A		4.7 a	0.0 c	4.0 bcd	0.0 c
6	Bicep II Magnum Premix	5.5 L	1.79 lb ai/A	PRE	A		0.0 a	4.0 b	0.0 e	2.3 bc
	Impact.....topramezone	2.8 SC	0.0164 lb ai/A	MPost	B					100.0 a
	Atrazine 4L	4 L	0.5 lb ai/A	MPost	B					
	Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B					
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B					
7	Camix Premix	3.67 SC	1.83 lb ai/A	PRE	A		0.0 a	2.3 bc	0.7 de	0.0 c
	Impact.....topramezone	2.8 SC	0.0164 lb ai/A	MPost	B					100.0 a
	Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B					
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B					
8	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	PRE	A		1.7 a	2.3 bc	6.3 ab	2.3 bc
	Impact.....topramezone	2.8 SC	0.0164 lb ai/A	MPost	B					100.0 a
	Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B					
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B					
9	Dual II Magnum..s-metolachlor	7.64 E	1.6 lb ai/A	PRE	A		0.0 a	0.0 c	0.0 e	2.3 bc
	Impact.....topramezone	2.8 SC	0.0164 lb ai/A	MPost	B					100.0 a
	Atrazine 4L	4 L	0.5 lb ai/A	MPost	B					
	Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B					
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B					
10	Camix Premix	3.67 SC	1.83 lb ai/A	PRE	A		2.3 a	0.0 c	2.3 cde	5.7 b
	Ignite 280.....glufosinate	2.34 SL	0.402 lb ai/A	MPost	B					100.0 a
	Dry Ammonium Sulfate	100 D	1.02 % w/v	MPost	B					
11	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	PRE	A		6.7 a	0.0 c	9.6 a	5.0 bc
	Ignite 280.....glufosinate	2.34 SL	0.402 lb ai/A	MPost	B					100.0 a
	Dry Ammonium Sulfate	100 D	1.02 % w/v	MPost	B					
12	Dual II Magnum..s-metolachlor	7.64 E	1.6 lb ai/A	PRE	A		0.0 a	0.0 c	0.0 e	5.7 b
	Ignite 280.....glufosinate	2.34 SL	0.402 lb ai/A	MPost	B					100.0 a
	Atrazine 4L	4 L	0.5 lb ai/A	MPost	B					
	Dry Ammonium Sulfate	100 D	1.02 % w/v	MPost	B					
13	Verdict Premix	5.57 EC	0.566 lb ai/A	PRE	A		3.9 a	0.0 c	5.7 bc	2.3 bc
	Ignite 280.....glufosinate	2.34 SL	0.402 lb ai/A	MPost	B					95.0 ab
	Dry Ammonium Sulfate	100 D	1.02 % w/v	MPost	B					
14	Dual II Magnum..s-metolachlor	7.64 E	1.6 lb ai/A	PRE	A		0.0 a	23.3 a		17.3 a
	Option.....foramsulfuron	35 WG	0.0328 lb ai/A	MPost	B					100.0 a
	2,4-D amine	3.8 L	0.237 lb ae/A	MPost	B					
	Methylated Seed Oil	100 L	1.25 % v/v	MPost	B					
	30% Urea Ammonium Nitrate	100 L	2.5 % v/v	MPost	B					
LSD (P=.05)					5.24	3.31	3.90	5.64	6.46	18.08
Standard Deviation					3.11	1.97	2.31	3.36	3.84	10.75
CV					160.04	86.23	104.81	109.37	4.34	14.7
Replicate F					0.878	0.901	0.634	0.234	0.484	0.777
Replicate Prob(F)					0.4281	0.4185	0.5393	0.7928	0.6220	0.4706
Treatment F					1.767	29.595	5.807	5.714	146.328	20.171
Treatment Prob(F)					0.1074	0.0001	0.0002	0.0001	0.0001	0.0001

Weed Code					GGGAN	AMASS	AMBEL	IPOSS	GGGAN	ZEAMS
Crop Code					Annual Grasses Control %	Pigweed Species Control %	Common Ragweed Control %	Mornlry Species Control %	Annual Grasses Control %	SwtCrn Overland Ears #/23 ft
Weed or Crop Name					06/18/12	06/29/12	06/29/12	06/29/12	06/29/12	07/31/12
Weed or Crop Name										
Rating Data Type										
Rating Unit										
Rating Date										
Trt Treatment No.	Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code			
1 Untreated Check					0.0 c	0.0 g	0.0 b	0.0 d	0.0 d	15.9 e
2 Lumax Premix	3.95 SC	2.47 lb ai/A	PRE	A	100.0 a	100.0 a	100.0 a	53.3 b	100.0 a	21.2 b-e
3 Bicep II Magnum Premix Prowl H2O.....pendimethalin	5.5 L 3.8 CS	2.2 lb ai/A 0.95 lb ai/A	PRE	A	100.0 a	85.0 de	100.0 a	0.0 d	100.0 a	19.0 cde
4 Camix Premix	3.67 SC	1.83 lb ai/A	PRE	A	91.7 b	63.3 f	0.0 b	10.0 d	90.0 b	19.4 b-e
5 Verdict Premix	5.57 EC	0.566 lb ai/A	PRE	A	86.7 b	60.0 f	100.0 a	30.0 c	88.3 c	18.0 de
6 Bicep II Magnum Premix Impact.....topramezone	5.5 L 2.8 SC	1.79 lb ai/A 0.0164 lb ai/A	PRE	A	100.0 a	99.0 ab	100.0 a	81.7 a	100.0 a	24.3 abc
Atrazine 4L	4 L	0.5 lb ai/A	MPost	B						
Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B						
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B						
7 Camix Premix Impact.....topramezone	3.67 SC 2.8 SC	1.83 lb ai/A 0.0164 lb ai/A	PRE	A	100.0 a	94.0 abc	100.0 a	58.7 b	100.0 a	21.3 b-e
Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B						
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B						
8 Zidua.....pyroxasulfone Impact.....topramezone	85 WG 2.8 SC	0.106 lb ai/A 0.0164 lb ai/A	PRE	A	100.0 a	91.7 bcd	100.0 a	53.3 b	100.0 a	20.0 b-e
Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B						
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B						
9 Dual II Magnum..s-metolachlor Impact.....topramezone	7.64 E 2.8 SC	1.6 lb ai/A 0.0164 lb ai/A	PRE	A	100.0 a	100.0 a	100.0 a	78.7 a	100.0 a	28.7 a
Atrazine 4L	4 L	0.5 lb ai/A	MPost	B						
Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B						
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B						
10 Camix Premix Ignite 280.....glufosinate Dry Ammonium Sulfate	3.67 SC 2.34 SL 100 D	1.83 lb ai/A 0.402 lb ai/A 1.02 % w/v	PRE	A	100.0 a	87.7 cde	100.0 a	81.0 a	100.0 a	22.9 a-d
11 Zidua.....pyroxasulfone Ignite 280.....glufosinate Dry Ammonium Sulfate	85 WG 2.34 SL 100 D	0.106 lb ai/A 0.402 lb ai/A 1.02 % w/v	PRE	A	100.0 a	91.0 bcd	100.0 a	81.0 a	100.0 a	21.4 b-e
12 Dual II Magnum..s-metolachlor Ignite 280.....glufosinate Atrazine 4L Dry Ammonium Sulfate	7.64 E 2.34 SL 4 L 100 D	1.6 lb ai/A 0.402 lb ai/A 0.5 lb ai/A 1.02 % w/v	PRE	A	100.0 a	100.0 a	100.0 a	81.0 a	100.0 a	22.3 bcd
13 Verdict Premix Ignite 280.....glufosinate Dry Ammonium Sulfate	5.57 EC 2.34 SL 100 D	0.566 lb ai/A 0.402 lb ai/A 1.02 % w/v	PRE	A	100.0 a	81.7 e	100.0 a	83.3 a	100.0 a	24.3 abc
14 Dual II Magnum..s-metolachlor Option.....foramsulfuron 2,4-D amine Methylated Seed Oil 30% Urea Ammonium Nitrate	7.64 E 35 WG 3.8 L 100 L 100 L	1.6 lb ai/A 0.0328 lb ai/A 0.237 lb ae/A 1.25 % v/v 2.5 % v/v	PRE	A	100.0 a	85.0 de	100.0 a	80.0 a	100.0 a	25.2 ab
LSD (P=.05)					6.70	8.03	0.00	17.40	1.32	6.20
Standard Deviation					3.98	4.78	0.00	10.35	0.79	3.64
CV					4.36	5.87	0.0	18.76	0.86	16.76
Replicate F					1.164	2.199	0.000	3.469	0.962	1.992
Replicate Prob(F)					0.3287	0.1319	1.0000	0.0468	0.3960	0.1626
Treatment F					133.740	92.855	0.000	28.992	3421.672	2.440
Treatment Prob(F)					0.0001	0.0001	1.0000	0.0001	0.0001	0.0354

Weed Code					
Crop Code					
Weed or Crop Name					
Weed or Crop Name					
Rating Data Type					
Rating Unit					
Rating Date					
Trt	Treatment	Form Conc	Form Type	Rate Rate	Grow Stg Appl Code
No.	Name			Unit	
1	Untreated Check				9.25 A
2	Lumax Premix	3.95 SC	2.47 lb ai/A	PRE	A 12.72 A
3	Bicep II Magnum Premix Prowl H2O.....pendimethalin	5.5 L 3.8 CS	2.2 lb ai/A 0.95 lb ai/A	PRE	A 10.98 A
4	Camix Premix	3.67 SC	1.83 lb ai/A	PRE	A 11.38 A
5	Verdict Premix	5.57 EC	0.566 lb ai/A	PRE	A 10.55 A
6	Bicep II Magnum Premix Impact.....topramezone	5.5 L 2.8 SC	1.79 lb ai/A 0.0164 lb ai/A	PRE	A 15.29 A
	Atrazine 4L	4 L	0.5 lb ai/A	MPost	B
	Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B
7	Camix Premix Impact.....topramezone	3.67 SC 2.8 SC	1.83 lb ai/A 0.0164 lb ai/A	PRE	A 13.84 A
	Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B
8	Zidua.....pyroxasulfone Impact.....topramezone	85 WG 2.8 SC	0.106 lb ai/A 0.0164 lb ai/A	PRE	A 12.83 A
	Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B
9	Dual II Magnum..s-metolachlor Impact.....topramezone	7.64 E 2.8 SC	1.6 lb ai/A 0.0164 lb ai/A	PRE	A 16.83 A
	Atrazine 4L	4 L	0.5 lb ai/A	MPost	B
	Crop Oil Concentrate	100 L	1.25 % v/v	MPost	B
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	MPost	B
10	Camix Premix Ignite 280.....glufosinate	3.67 SC 2.34 SL	1.83 lb ai/A 0.402 lb ai/A	PRE	A 13.93 A
	Dry Ammonium Sulfate	100 D	1.02 % w/v	MPost	B
11	Zidua.....pyroxasulfone Ignite 280.....glufosinate	85 WG 2.34 SL	0.106 lb ai/A 0.402 lb ai/A	PRE	A 12.76 A
	Dry Ammonium Sulfate	100 D	1.02 % w/v	MPost	B
12	Dual II Magnum..s-metolachlor Ignite 280.....glufosinate	7.64 E 2.34 SL	1.6 lb ai/A 0.402 lb ai/A	PRE	A 14.13 A
	Atrazine 4L	4 L	0.5 lb ai/A	MPost	B
	Dry Ammonium Sulfate	100 D	1.02 % w/v	MPost	B
13	Verdict Premix Ignite 280.....glufosinate	5.57 EC 2.34 SL	0.566 lb ai/A 0.402 lb ai/A	PRE	A 14.03 A
	Dry Ammonium Sulfate	100 D	1.02 % w/v	MPost	B
14	Dual II Magnum..s-metolachlor Option.....foramsulfuron	7.64 E 35 WG	1.6 lb ai/A 0.0328 lb ai/A	PRE	A 14.26 A
	2,4-D amine	3.8 L	0.237 lb ae/A	MPost	B
	Methylated Seed Oil	100 L	1.25 % v/v	MPost	B
	30% Urea Ammonium Nitrate	100 L	2.5 % v/v	MPost	B
LSD (P=.05)					4.21
Standard Deviation					2.47
CV					18.92
Replicate F					1.222
Replicate Prob(F)					0.3156
Treatment F					1.977
Treatment Prob(F)					0.0826

(SCRN3-12)

University of Delaware

Impact Carryover to Double-Cropped Vegetables

Trial ID: SCRN3-12 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

Crop 1: Lima Bean	PHSLU	Variety: Cypress
Planting Date:	07/25/12	Planting Method: Row- Unit Planter Depth: 0.75 in
Rate:	5 Sd/row-ft	Row Spacing: 30 in Seed Bed: Smooth
Soil Temperature:	85 F	Soil Moisture: Moist Emergence Date: 07/30/12
Crop 2: Snap Bean	PHSVN	Variety: Envy and Slenderpack
Planting Date:	07/25/12	Planting Method: Row- Unit Planter Depth: 0.75 in
Rate:	5 Sd/row-ft	Row Spacing: 30 in Seed Bed: Smooth
Soil Temperature:	85 F	Soil Moisture: Moist Emergence Date: 07/31/12
Crop 3: Cucumber	CUMSA	Variety: Expedition
Planting Date:	07/25/12	Planting Method: Row- Unit Planter Depth: 0.75 in
Rate:	2.5 Sd/row-ft	Row Spacing: 30 in Seed Bed: Smooth
Soil Temperature:	85 F	Soil Moisture: Moist Emergence Date: 07/30/12

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
 Site Type: Field Study Design: SPLIT-PLOT
 Tillage Type: Disked Twice and field cultivated

MAINTENANCE

Field Prep./Maintenance: The seedbed was prepared prior to herbicide application. The study area was sprayed with Liberty 280 on 6-5-12 and Gramoxone SL on 7-6-12 and 7-17-12 to maintain the trial weed-free. The tillage plots were disked on 7-25-12 prior to planting. A total POST application of Sandea and Select Max was made on 8-8-12. All plots were cultivated in early August with a high residue no-till cultivator.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Unit
1.	07/06/12	Gramoxone SL	2	SL	2	qt/A
2.	07/06/12	Nonionic Surfactant			0.25	% v/v
3.	07/17/12	Gramoxone SL	2	SL	2	qt/A
4.	07/17/12	Nonionic Surfactant			0.25	% v/v
5.	06/05/12	Liberty 280	2.34	SL	32	fl oz/A
6.	06/05/12	Dry Ammonium Sulfate			2	lb/A
7.	08/08/12	Sandeal	75	DF	0.67	oz wt/A
8.	08/08/12	Select Max	1	EC	16	fl oz/A
9.	08/08/12	Nonionic Surfactant			0.25	% v/v

SOIL DESCRIPTION

% Sand: 79 % OM: 1.5 Texture: loamy sand
 % Silt: 14 pH: 6.2
 % Clay: 7 CEC: 4.9 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: 0.5 Unit: mi

APPLICATION DESCRIPTION	
	A
Application Date:	06/05/12
Time of Day:	10:00 am
Application Method:	Spray
Application Timing:	POST
Applie. Placement:	Brdcst
Air Temp., Unit:	63 F
% Relative Humidity:	60
Wind Velocity, Unit:	7 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	60 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	50

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

7/3/12: Rating residual control of Impact treatments.

8/23/12: Due to heavy palmer amaranth pressure the tillage plots were terminated.

9/19/12: No Slenderpack snap bean plants in 103-106; ran out of seed at planting.

10/10/12: Lima beans left in the field after harvest with pixall rated as 1=low, 2=moderate, 3=high.

Impact Carryover to Double-Cropped Vegetables

Trial ID: SCRN3-12 Cooperator:
 Location: Field #14 Investigator: Mark VanGessel

Weed Code	Crop Code	PHSLU	PHSVN	PHSVN	CUMSA	AMASS	IPOSS
Crop Code	Weed or Crop Name	LimaBean	SnapBean	SnapBean	Cucumber	Pigweed	Morngrly
Weed or Crop Name	Weed or Crop Name	Cypress	Envy	Slndrpak	Expeditin	Species	Species
Rating Data Type	Rating Unit	Injury %	Injury %	Injury %	Injury %	Control %	Control %
Rating Date		06/08/12	06/08/12	06/08/12	06/08/12	07/03/12	07/03/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1	No-Tillage Untreated Check				0.0a	0.0f	0.0d
2	No-Tillage Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST A	12.3a	14.7 abc	13.4 ab
	Crop Oil Concentrate	100 L	1.25 % v/v	POST A			
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			
3	No-Tillage Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST A	11.3a	15.7 abc	13.4 ab
	Crop Oil Concentrate	100 L	1.25 % v/v	POST A			
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			
4	No-Tillage Impact.....topramezone	2.8 SC	0.0875 lb ai/A	POST A	4.0a	21.7 a	14.9 a
	Crop Oil Concentrate	100 L	1.25 % v/v	POST A			
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			
5	No-Tillage Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST A	4.0a	12.0 b-e	12.4 abc
	Atrazine 4L	4 L	0.5 lb ai/A	POST A			
	Crop Oil Concentrate	100 L	1.25 % v/v	POST A			
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			
6	No-Tillage Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST A	5.0a	13.0 bcd	8.4 bc
	Atrazine 4L	4 L	1 lb ai/A	POST A			
	Crop Oil Concentrate	100 L	1.25 % v/v	POST A			
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			
7	Tillage Untreated Check				0.0a	0.0f	0.0d
8	Tillage Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST A	5.7 a	9.7 cde	9.0 bc
	Crop Oil Concentrate	100 L	1.25 % v/v	POST A			
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			
9	Tillage Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST A	6.7 a	13.0 bcd	9.7 bc
	Crop Oil Concentrate	100 L	1.25 % v/v	POST A			
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			

Weed Code		PHSLU	PHSVN	PHSVN	CUMSA	AMASS	IPOSS
Crop Code		LimaBean	SnapBean	SnapBean	Cucumber	Pigweed	Mornlgy
Weed or Crop Name		Cypress	Envy	Slndrpak	Expeditin	Species	Species
Weed or Crop Name		Injury %	Injury %	Injury %	Injury %	Control %	Control %
Rating Data Type		06/08/12	06/08/12	06/08/12	06/08/12	07/03/12	07/03/12
Rating Unit							
Rating Date							
Trt	Treatment	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	
No.	Name						
10	Tillage						
	Impact.....topramezone	2.8 SC	0.0875 lb ai/A	POST A			
	Crop Oil Concentrate	100 L	1.25 % v/v	POST A			
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			
11	Tillage						
	Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST A			
	Atrazine 4L	4 L	0.5 lb ai/A	POST A			
	Crop Oil Concentrate	100 L	1.25 % v/v	POST A			
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			
12	Tillage						
	Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST A			
	Atrazine 4L	4 L	1 lb ai/A	POST A			
	Crop Oil Concentrate	100 L	1.25 % v/v	POST A			
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST A			
LSD (P=.05)							
Standard Deviation							
CV							
Replicate F							
Replicate Prob(F)							
Treatment F							
Treatment Prob(F)							

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	PHSLU	PHSVN	PHSVN	CUMSA	CUMSA
Weed or Crop Name		LimaBean	SnapBean	SnapBean	Cucumber	Cucumber
Weed or Crop Name		Cypress	Envy	Slndrpak	Expeditin	Expeditin
Rating Data Type		Injury %	Injury %	Injury %	Injury %	Injury %
Rating Unit		08/23/12	08/23/12	08/23/12	08/23/12	08/23/12
Rating Date						09/06/12
Trt	Treatment	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code
No.	Name					
1	No-Tillage Untreated Check				0.0 b	0.0 d
2	No-Tillage Impact.....topramezone Crop Oil Concentrate 30% Urea Ammonium Nitrate	2.8 SC 100 L 100 L	0.0219 lb ai/A 1.25 % v/v 1.25 % v/v	POST A POST A POST A	10.0 a	40.0 b
3	No-Tillage Impact.....topramezone Crop Oil Concentrate 30% Urea Ammonium Nitrate	2.8 SC 100 L 100 L	0.0437 lb ai/A 1.25 % v/v 1.25 % v/v	POST A POST A POST A	10.7 a	43.3 b
4	No-Tillage Impact.....topramezone Crop Oil Concentrate 30% Urea Ammonium Nitrate	2.8 SC 100 L 100 L	0.0875 lb ai/A 1.25 % v/v 1.25 % v/v	POST A POST A POST A	0.0 b	60.0 a
5	No-Tillage Impact.....topramezone Atrazine 4L Crop Oil Concentrate 30% Urea Ammonium Nitrate	2.8 SC 4 L 100 L 100 L	0.0219 lb ai/A 0.5 lb ai/A 1.25 % v/v 1.25 % v/v	POST A POST A POST A POST A	2.3 b	36.7 bc
6	No-Tillage Impact.....topramezone Atrazine 4L Crop Oil Concentrate 30% Urea Ammonium Nitrate	2.8 SC 4 L 100 L 100 L	0.0437 lb ai/A 1 lb ai/A 1.25 % v/v 1.25 % v/v	POST A POST A POST A POST A	0.0 b	23.3 c
LSD (P=.05)				6.72	16.16	20.79
Standard Deviation				3.69	8.88	10.76
CV				96.32	26.21	45.08
Replicate F				1.797	0.070	1.335
Replicate Prob(F)				0.2154	0.9325	0.3228
Treatment F				5.768	15.789	6.475
Treatment Prob(F)				0.0092	0.0002	0.0147
						0.4514
						0.0737

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	PHSVN	PHSVN	PHSLU	PHSLU	PHSLU	PHSLU
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg						
1	No-Tillage Untreated Check			9.953 a	6.693 a	0.0 a	5.567 b	0.507 b	1.33 a			
2	No-Tillage Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST	4.587 bc	5.473 a	0.0 a	5.100 b	0.520 b	1.33 a		
	Crop Oil Concentrate	100 L	1.25 % v/v	POST								
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST								
3	No-Tillage Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST	3.613 bc	5.369 a	0.0 a	4.973 b	0.560 b	1.67 a		
	Crop Oil Concentrate	100 L	1.25 % v/v	POST								
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST								
4	No-Tillage Impact.....topramezone	2.8 SC	0.0875 lb ai/A	POST	2.200 c	8.138 a	0.0 a	8.327 a	1.053 a	1.83 a		
	Crop Oil Concentrate	100 L	1.25 % v/v	POST								
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST								
5	No-Tillage Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST	7.733 ab	7.702 a	0.0 a	5.520 b	0.620 b	1.67 a		
	Atrazine 4L	4 L	0.5 lb ai/A	POST								
	Crop Oil Concentrate	100 L	1.25 % v/v	POST								
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST								
6	No-Tillage Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST	7.887 ab	8.063 a	0.0 a	5.573 b	0.467 b	1.33 a		
	Atrazine 4L	4 L	1 lb ai/A	POST								
	Crop Oil Concentrate	100 L	1.25 % v/v	POST								
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST								
LSD (P=.05)					5.1302	4.0311	0.00	1.7462	0.3742	0.698		
Standard Deviation					2.8201	2.0176	0.00	0.9599	0.2057	0.384		
CV					47.04	29.21	0.0	16.43	33.12	25.11		
Replicate F					1.764	0.961	0.000	6.254	0.728	3.491		
Replicate Prob(F)					0.2208	0.4345	1.0000	0.0173	0.5066	0.0708		
Treatment F					3.344	1.172	0.000	5.034	3.371	1.000		
Treatment Prob(F)					0.0493	0.4193	1.0000	0.0145	0.0482	0.4651		

Means followed by same letter do not significantly differ ($P=.05$, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Impact Carryover to Double-Cropped Vegetables

Trial ID: SCRN3-12 Cooperator:
 Location: Field #14 Investigator: Mark VanGessel

Crop Code	PHSLU	PHSVN	PHSVN	CUMSA	
Weed or Crop Name	LimaBean	SnapBean	SnapBean	Cucumber	
Weed or Crop Name	Cypress	Envy	Slndrpak	Expeditin	
Rating Data Type	Injury %	Injury %	Injury %	Injury %	
Rating Unit	06/08/12	06/08/12	06/08/12	06/08/12	
Rating Date					
Trt Treatment No. Name	Form Form Conc Type	Rate Rate Unit	Grow Stg Appl Code		
TABLE OF R MEANS					
Replicate 1		3.3	10.6	9.0	3.5
Replicate 2		7.8	11.5	10.3	5.8
Replicate 3		5.4	10.4	8.5	6.0
TABLE OF A (Tillage) MEANS					
1 No-Tillage		6.1	12.8	10.4	5.1
2 Tillage		4.9	8.8	8.1	5.1
TABLE OF B (Impact treatment) MEANS					
1 Untreated Check		0.0	0.0	0.0	0.0
2 Impact.....topramezone	2.8 SC	0.0219 lb ai/A POST A	9.0	12.2	11.2
2 Crop Oil Concentrate	100 L	1.25 % v/v POST A			
2 30% Urea Ammonium Nitrate	100 L	1.25 % v/v POST A			
3 Impact.....topramezone	2.8 SC	0.0437 lb ai/A POST A	9.0	14.3	11.5
3 Crop Oil Concentrate	100 L	1.25 % v/v POST A			
3 30% Urea Ammonium Nitrate	100 L	1.25 % v/v POST A			
4 Impact.....topramezone	2.8 SC	0.0875 lb ai/A POST A	5.2	19.8	13.9
4 Crop Oil Concentrate	100 L	1.25 % v/v POST A			
4 30% Urea Ammonium Nitrate	100 L	1.25 % v/v POST A			
5 Impact.....topramezone	2.8 SC	0.0219 lb ai/A POST A	3.7	8.5	9.9
5 Atrazine 4L	4 L	0.5 lb ai/A POST A			
5 Crop Oil Concentrate	100 L	1.25 % v/v POST A			
5 30% Urea Ammonium Nitrate	100 L	1.25 % v/v POST A			
6 Impact.....topramezone	2.8 SC	0.0437 lb ai/A POST A	6.2	10.2	9.0
6 Atrazine 4L	4 L	1 lb ai/A POST A			
6 Crop Oil Concentrate	100 L	1.25 % v/v POST A			
6 30% Urea Ammonium Nitrate	100 L	1.25 % v/v POST A			
TABLE OF A (Tillage) B (Impact treatment) MEANS					
1 No-Tillage		0.0	0.0	0.0	0.0
1 Untreated Check					
2 Tillage		0.0	0.0	0.0	0.0
1 Untreated Check					
1 No-Tillage					
2 Impact.....topramezone	2.8 SC	0.0219 lb ai/A POST A	12.3	14.7	13.4
2 Crop Oil Concentrate	100 L	1.25 % v/v POST A			
2 30% Urea Ammonium Nitrate	100 L	1.25 % v/v POST A			

Crop Code			PHSLU	PHSVN	PHSVN	CUMSA					
Weed or Crop Name			LimaBean	SnapBean	SnapBean	Cucumber					
Weed or Crop Name			Cypress	Envy	Slndrpak	Expedition					
Rating Data Type			Injury %	Injury %	Injury %	Injury %					
Rating Unit			06/08/12	06/08/12	06/08/12	06/08/12					
Rating Date											
Trt	Treatment	Form No.	Form Name	Rate Conc	Grow Type	Appl Stg					
				Rate	Unit	Code					
2	Tillage						5.7	9.7	9.0	3.3	
2	Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST	A						
2	Crop Oil Concentrate	100 L	1.25 % v/v	POST	A						
2	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST	A						
1	No-Tillage						11.3	15.7	13.4	11.3	
3	Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST	A						
3	Crop Oil Concentrate	100 L	1.25 % v/v	POST	A						
3	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST	A						
2	Tillage						6.7	13.0	9.7	8.0	
3	Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST	A						
3	Crop Oil Concentrate	100 L	1.25 % v/v	POST	A						
3	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST	A						
1	No-Tillage						4.0	21.7	14.9	9.0	
4	Impact.....topramezone	2.8 SC	0.0875 lb ai/A	POST	A						
4	Crop Oil Concentrate	100 L	1.25 % v/v	POST	A						
4	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST	A						
2	Tillage						6.3	18.0	13.0	9.7	
4	Impact.....topramezone	2.8 SC	0.0875 lb ai/A	POST	A						
4	Crop Oil Concentrate	100 L	1.25 % v/v	POST	A						
4	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST	A						
1	No-Tillage						4.0	12.0	12.4	2.3	
5	Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST	A						
5	Atrazine 4L	4 L	0.5 lb ai/A	POST	A						
5	Crop Oil Concentrate	100 L	1.25 % v/v	POST	A						
5	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST	A						
2	Tillage						3.3	5.0	7.3	4.0	
5	Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST	A						
5	Atrazine 4L	4 L	0.5 lb ai/A	POST	A						
5	Crop Oil Concentrate	100 L	1.25 % v/v	POST	A						
5	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST	A						
1	No-Tillage						5.0	13.0	8.4	4.0	
6	Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST	A						
6	Atrazine 4L	4 L	1 lb ai/A	POST	A						
6	Crop Oil Concentrate	100 L	1.25 % v/v	POST	A						
6	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST	A						
2	Tillage						7.3	7.3	9.7	5.7	
6	Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST	A						
6	Atrazine 4L	4 L	1 lb ai/A	POST	A						
6	Crop Oil Concentrate	100 L	1.25 % v/v	POST	A						
6	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST	A						

Impact Carryover to Double-Cropped Vegetables

Trial ID: SCRN3-12 Cooperator:

Location: Field #14 Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For PHSLU LimaBean Cypress Injury % 06/08/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1197.000000				
R	2	126.166667	63.083333	2.303	0.1235	4.4
A	1	13.444444	13.444444	0.491	0.4909	3.6
B	5	352.000000	70.400000	2.571	0.0562	6.3
AB	5	102.888889	20.577778	0.751	0.5939	8.9
ERROR	22	602.500000	27.386364			

FACTORIAL/POOLED ERROR AOV For PHSVN SnapBean Envy Injury % 06/08/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1895.000000				
R	2	8.166667	4.083333	0.232	0.7948	3.6
A	1	144.000000	144.000000	8.183	0.0091	2.9
B	5	1309.666667	261.933333	14.884	0.0001	5.0
AB	5	46.000000	9.200000	0.523	0.7564	7.1
ERROR	22	387.166667	17.598485			

FACTORIAL/POOLED ERROR AOV For PHSVN SnapBean Slndrpak Injury % 06/08/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	962.727634				
R	2	19.441837	9.720919	1.455	0.2551	2.2
A	1	46.963313	46.963313	7.027	0.0146	1.8
B	5	701.093421	140.218684	20.981	0.0001	3.1
AB	5	48.198261	9.639652	1.442	0.2486	4.4
ERROR	22	147.030802	6.683218			

FACTORIAL/POOLED ERROR AOV For CUMSA Cucumber Expeditin Injury % 06/08/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1037.555556				
R	2	46.888889	23.444444	0.954	0.4004	4.2
A	1	0.000000	0.000000	0.000	1.0000	3.4
B	5	423.888889	84.777778	3.451	0.0188	5.9
AB	5	26.333333	5.266667	0.214	0.9527	8.4
ERROR	22	540.444444	24.565657			

(SCRN3a12)

University of Delaware

Impact Carryover to Double-Cropped Vegetables

Late Fall Vegetables with Light Tillage

Trial ID: SCRN3a12 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

Crop 1: Spinach	SPOOL	Variety: Bloomsdale and Persius
Planting Date: 08/30/12	Planting Method: Row- Unit Planter	Depth: 0.25 in
Rate: 2.4 Sd/row-ft	Row Spacing: 12 in	Seed Bed: Smooth
Soil Temperature: 85 F	Soil Moisture: Moist	Emergence Date: 09/04/12
Crop 2: Kale	BRSOA	Variety: Dwarf Siberian
Planting Date: 08/30/12	Planting Method: Row- Unit Planter	Depth: 0.25 in
Rate: 2.4 Sd/row-ft	Row Spacing: 12 in	Seed Bed: Smooth
Soil Temperature: 85 F	Soil Moisture: Moist	Emergence Date: 09/04/12
Crop 3: Collards	BRSOA	Variety: Champion
Planting Date: 08/30/12	Planting Method: Row- Unit Planter	Depth: 0.25 in
Rate: 2.4 Sd/row-ft	Row Spacing: 12 in	Seed Bed: Smooth
Soil Temperature: 85 F	Soil Moisture: Moist	Emergence Date: 09/04/12
Crop 4: Turnip	BRSRR	Variety: Seven Top
Planting Date: 08/30/12	Planting Method: Row- Unit Planter	Depth: 0.25 in
Rate: 2.4 Sd/row-ft	Row Spacing: 12 in	Seed Bed: Smooth
Soil Temperature: 85 F	Soil Moisture: Moist	Emergence Date: 09/04/12

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 and field cultivated

MAINTENANCE

Field Prep./Maintenance: The seedbed was prepared prior to herbicide application. The entire plot was sprayed with Liberty 280 on 6-5-12 and Gramoxone SL on 7-6-12, 7-17-12, and 8-8-12 to maintain the trial weed-free. All plots were lightly disked on 8-29-12 prior to planting.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Unit
1.	06/05/12	Liberty 280	2.34	SL	32	fl oz/A
2.	06/05/12	Dry Ammonium Sulfate			2	lb/A
3.	07/06/12	Gramoxone SL	2	SL	2	qt/A
4.	07/06/12	Nonionic Surfactant			0.25	% v/v
5.	07/17/12	Gramoxone SL	2	SL	2	qt/A
6.	07/17/12	Nonionic Surfactant			0.25	% v/v
7.	08/08/12	Gramoxone SL	2	SL	2	qt/A
8.	08/08/12	Nonionic Surfactant			0.25	% v/v

SOIL DESCRIPTION

% Sand: 79 % OM: 1.5 Texture: loamy sand
 % Silt: 14 pH: 6.2
 % Clay: 7 CEC: 4.9 Fert. Level: Optimum

(SCRN3a12)

University of Delaware

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: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	06/05/12
Time of Day:	10:00 am
Application Method:	Spray
Application Timing:	POST
Appl. Placement:	Brdcst
Air Temp., Unit:	63 F
% Relative Humidity:	60
Wind Velocity, Unit:	7 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	60 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	50

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

7/3/12: Rating residual control from impact treatments.

9/28/12: Spinach stand is too poor to take decent ratings. No dead seedlings observed of the crops or any chlorosis/whitening, only stunting.

10/11/12: No unusual symptoms observed other than stunting. There was considerable variation in the trial and it may have been due to inherent fertility issues.

Impact Carryover to Double-Cropped Vegetables

Late Fall Vegetables with Light Tillage

Trial ID: SCRN3a12 Cooperator:

Location: Field #14 Investigator: Mark VanGessel

Weed Code	AMASS	IPOSS	SPQOL	BRSOA	BRSOA	BRSRR	BRSAO
Crop Code	Palmer	Morngly	Spinach	Kale	Collards	Turnips	Kale
Weed or Crop Name	Amaranth	Species	Stunting	DwfSibrn	Champion	SevenTop	DwfSibrn
Weed or Crop Name	Control	Control	%	Stunting	Stunting	Stunting	Stunting
Rating Data Type	%	%	09/28/12	%	%	%	%
Rating Unit	07/03/12	07/03/12	09/28/12	09/28/12	09/28/12	09/28/12	10/11/12
Rating Date							
Trt Treatment	Form No.	Form Name	Rate Conc	Grow Type			
				Unit	Stg		
1 Untreated Check					0.0a	0.0a	0.0a
2 Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST		60.0d	10.0cd	7.3a
Crop Oil Concentrate	100 L	1.25 % v/v	POST				
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST				
3 Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST		60.0d	20.0bc	9.0a
Crop Oil Concentrate	100 L	1.25 % v/v	POST				
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST				
4 Impact.....topramezone	2.8 SC	0.0875 lb ai/A	POST		91.0b	36.7ab	12.3a
Crop Oil Concentrate	100 L	1.25 % v/v	POST				
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST				
5 Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST		81.0c	33.3ab	7.3a
Atrazine 4L	4 L	0.5 lb ai/A	POST				
Crop Oil Concentrate	100 L	1.25 % v/v	POST				
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST				
6 Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST		100.0a	40.0a	20.0a
Atrazine 4L	4 L	1 lb ai/A	POST				
Crop Oil Concentrate	100 L	1.25 % v/v	POST				
30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST				
LSD (P=.05)		6.99	17.26	12.42	11.22	10.96	9.25
Standard Deviation		3.84	9.49	4.83	6.17	6.03	5.08
CV		5.88	40.66	144.91	91.02	115.41	87.13
Replicate F		2.178	2.407	0.357	1.561	2.874	1.452
Replicate Prob(F)		0.1640	0.1401	0.5761	0.2571	0.1032	0.2796
Treatment F		261.318	8.593	2.500	2.458	2.121	2.548
Treatment Prob(F)		0.0001	0.0022	0.1687	0.1060	0.1459	0.2197

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Impact Carryover to Double-Cropped Vegetables

Late Fall Vegetables with Light Tillage

Trial ID: SCRN3a12 Cooperator:

Location: Field #14 Investigator: Mark VanGessel

Weed Code								
Crop Code								
Weed or Crop Name								
Weed or Crop Name								
Rating Data Type								
Rating Unit								
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg		
1	Untreated Check						0.0 a	0.0 a
2	Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST			3.3 a	7.3 a
	Crop Oil Concentrate	100 L	1.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST				
3	Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST			5.0 a	11.7 a
	Crop Oil Concentrate	100 L	1.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST				
4	Impact.....topramezone	2.8 SC	0.0875 lb ai/A	POST			5.7 a	11.7 a
	Crop Oil Concentrate	100 L	1.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST				
5	Impact.....topramezone	2.8 SC	0.0219 lb ai/A	POST			11.7 a	14.7 a
	Atrazine 4L	4 L	0.5 lb ai/A	POST				
	Crop Oil Concentrate	100 L	1.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST				
6	Impact.....topramezone	2.8 SC	0.0437 lb ai/A	POST			13.3 a	13.3 a
	Atrazine 4L	4 L	1 lb ai/A	POST				
	Crop Oil Concentrate	100 L	1.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	1.25 % v/v	POST				
LSD (P=.05)					16.05		13.01	
Standard Deviation					8.82		7.15	
CV					135.73		73.12	
Replicate F					5.617		3.366	
Replicate Prob(F)					0.0232		0.0763	
Treatment F					0.991		1.705	
Treatment Prob(F)					0.4694		0.2210	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(SCRN4-12)

University of Delaware

Influence of Additives on Sweet Corn Injury

Trial ID: SCRN4-12 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

Crop 1: Sweet Corn	ZEAMS	Variety: Silver King and Overland
Planting Date: 07/03/12	Planting Method: Row- Unit Planter	Depth: 0.75 in
Rate: 24000 Sd/A	Row Spacing: 30 in	Seed Bed: Smooth
Soil Temperature: 90 F	Soil Moisture: Moist	Emergence Date: 07/08/12

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 and Field Cultivated

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/05/12	Lumax	3.95	SC	2.5	qt/A

SOIL DESCRIPTION

% Sand: 81 % OM: 1.3 Texture: loamy sand
 % Silt: 12 pH: 5.9
 % Clay: 7 CEC: 3.9 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:	07/19/12
Time of Day:	12:30 pm
Application Method:	Spray
Application Timing:	POST
Applic. Placement:	Brdcst
Air Temp., Unit:	92 F
% Relative Humidity:	50
Wind Velocity, Unit:	3 mph
Wind Direction:	North
Dew Presence (Y/N):	N
Soil Temp., Unit:	92 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Wet
Leaf Surf. Moisture:	Moist
% Cloud Cover:	30

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code:	ZEAMS
Growth Stage:	V3
Height, Unit:	7 in
Crop Health:	Good

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:	23 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

7/27/12: Leaf wrapping occurred for treatments 5, 6, and 7.

Influence of Additives on Sweet Corn Injury

Trial ID: SCRN4-12 Cooperator:
 Location: Field #14 Investigator: Mark VanGessel

Crop Code	ZEAMS SwtCrn SlvrKng Stunting % 07/27/12	ZEAMS SwtCrn Overland Stunting % 07/27/12	ZEAMS SwtCrn SlvrKng LeafBurn % 07/27/12	ZEAMS SwtCrn Overland LeafBurn % 07/27/12	ZEAMS SwtCrn SlvrKng Stunting % 08/03/12	ZEAMS SwtCrn Overland Stunting % 08/03/12	ZEAMS SwtCrn SlvrKng Stunting % 08/10/12			
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit	Grow Stg					
1 Untreated Check			0.0e	0.0d	0.0e	0.0b	0.0d	0.0d	0.0e	
2 Cadet.....fluthiacet Nonionic Surfactant	0.91 EC 100 L	0.0064 lb ai/A 0.5 % v/v	POST	0.0e	0.0d	5.7 d	13.0 a	8.0 bc	3.3 d	0.0 e
3 Cadet.....fluthiacet Crop Oil Concentrate	0.91 EC 100 L	0.0064 lb ai/A 1 % v/v	POST	15.0 ab	14.0 b	9.0 bcd	12.3 a	12.3 ab	11.7 bc	8.0 bcd
4 Cadet.....fluthiacet LI-700	0.91 EC 100 L	0.0064 lb ai/A 0.25 % v/v	POST	0.0e	0.0d	10.7 bc	15.3 a	8.0 bc	9.7 c	6.3 bcd
5 Cadet.....fluthiacet Atrazine 4L Crop Oil Concentrate	0.91 EC 4 L 100 L	0.0064 lb ai/A 1.25 lb ai/A 1 % v/v	POST	16.7 a	14.9 b	7.3 cd	14.1 a	14.0 a	15.7 ab	13.4 a
6 Cadet.....fluthiacet Atrazine 90D Crop Oil Concentrate	0.91 EC 90 D 100 L	0.0064 lb ai/A 1.25 lb ai/A 1 % v/v	POST	12.0 bc	14.0 b	13.3 ab	14.0 a	15.0 a	14.0 bc	9.7 abc
7 Cadet.....fluthiacet Basagran.....bentazon Crop Oil Concentrate	0.91 EC 4 L 100 L	0.0064 lb ai/A 0.75 lb ai/A 1 % v/v	POST	14.0 ab	26.7 a	17.0 a	18.3 a	13.0 a	19.7 a	10.7 ab
8 Aim.....carfentrazone Nonionic Surfactant	2 EW 100 L	0.0125 lb ai/A 0.5 % v/v	POST	10.3 c	6.3 cd	13.0 ab	15.3 a	13.3 a	14.7 abc	5.7 cd
9 Aim.....carfentrazone Crop Oil Concentrate	2 EW 100 L	0.0125 lb ai/A 1 % v/v	POST	5.7 d	12.3 bc	9.7 bcd	12.0 a	4.7 cd	15.7 ab	4.0 de
10 Impact.....topramezone Atrazine 4L Crop Oil Concentrate 30% Urea Ammonium Nitrate	2.8 SC 4 L 100 L 100 L	0.0219 lb ai/A 1.25 lb ai/A 1 % v/v 2 % v/v	POST	0.0e	0.0d	0.0e	0.0b	12.0 ab	15.0 ab	7.3 bcd
LSD (P=.05)			3.52	6.38	4.47	6.58	4.68	5.21	4.51	
Standard Deviation			2.05	3.70	2.61	3.82	2.73	3.04	2.62	
CV			27.88	41.98	30.45	33.39	27.21	25.46	40.28	
Replicate F			1.904	0.039	1.093	0.343	0.125	0.892	6.239	
Replicate Prob(F)			0.1777	0.9622	0.3566	0.7145	0.8830	0.4273	0.0093	
Treatment F			34.687	17.957	13.523	8.146	9.259	11.928	8.201	
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Influence of Additives on Sweet Corn Injury

Trial ID: SCRN4-12 Cooperator:
 Location: Field #14 Investigator: Mark VanGessel

Crop Code	ZEAMS					
Weed or Crop Name	SwtCrn					
Weed or Crop Name	Overland					
Rating Data Type	Stunting %					
Rating Unit						
Rating Date	08/10/12					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	
1	Untreated Check					0.0 c
2	Cadet.....fluthiacet Nonionic Surfactant	0.91 EC 100 L	lb ai/A 0.5 % v/v	0.0064 POST		0.0 c
3	Cadet.....fluthiacet Crop Oil Concentrate	0.91 EC 100 L	lb ai/A 1 % v/v	0.0064 POST		8.3 b
4	Cadet.....fluthiacet LI-700	0.91 EC 100 L	lb ai/A 0.25 % v/v	0.0064 POST		4.0 bc
5	Cadet.....fluthiacet Atrazine 4L Crop Oil Concentrate	0.91 EC 4 L 100 L	lb ai/A 1.25 lb ai/A 1 % v/v	0.0064 POST		17.6 a
6	Cadet.....fluthiacet Atrazine 90D Crop Oil Concentrate	0.91 EC 90 D 100 L	lb ai/A 1.25 lb ai/A 1 % v/v	0.0064 POST		11.7 ab
7	Cadet.....fluthiacet Basagran.....bentazon Crop Oil Concentrate	0.91 EC 4 L 100 L	lb ai/A 0.75 lb ai/A 1 % v/v	0.0064 POST		17.0 a
8	Aim.....carfentrazone Nonionic Surfactant	2 EW 100 L	lb ai/A 0.5 % v/v	0.0125 POST		7.0 bc
9	Aim.....carfentrazone Crop Oil Concentrate	2 EW 100 L	lb ai/A 1 % v/v	0.0125 POST		6.7 bc
10	Impact.....topramezone Atrazine 4L Crop Oil Concentrate 30% Urea Ammonium Nitrate	2.8 SC 4 L 100 L 100 L	lb ai/A 1.25 lb ai/A 1 % v/v 2 % v/v	0.0219 POST		8.3 b
LSD (P=.05)						7.69
Standard Deviation						4.46
CV						55.42
Replicate F						0.411
Replicate Prob(F)						0.6694
Treatment F						5.565
Treatment Prob(F)						0.0012

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(SCRN5-12)

University of Delaware

PPO Herbicides for Sweet Corn Weed Control

Trial ID: SCRN5-12 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
3.	Annual Grasses	GGGAN	

Crop 1: Sweet Corn	ZEAMS	Variety: BC0805 and Argent
Planting Date:	04/27/12	Planting Method: Row- Unit Planter
Rate:	24000 Sd/A	Row Spacing: 30 in
Soil Temperature:	64 F	Seed Bed: Smooth Soil Moisture: Moist
		Emergence Date: 05/08/12

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 and chisel plowed

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

SOIL DESCRIPTION

% Sand: 79 % OM: 1.0 Texture: sandy loam
 % Silt: 10 pH: 6.2
 % Clay: 11 CEC: 4.6 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: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	04/28/12	05/14/12	05/25/12
Time of Day:	11:00 am	11:00 AM	2:00 pm
Application Method:	Spray	Spray	Spray
Application Timing:	Band/Pre	EPOST	POST
Applic. Placement:	Ban/Brc	Brdcst	Soil
Air Temp., Unit:	52 F	72 F	84 F
% Relative Humidity:	37	69	56
Wind Velocity, Unit:	2 mph	2 mph	6 mph
Wind Direction:	North	South	Southeast
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	52 F	71 F	84 F
Soil Surf. Moisture:	Dry	Moist	Moist
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry
% Cloud Cover:	65	85	55

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	ZEAMS	ZEAMS	ZEAMS
Growth Stage:		V2	V4
Height, Unit:		3 in	7 in
Crop Health:		Fair	Fair

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:		cot-1 leaf	
Height, Unit:		1.2 in	
Density, Unit:		5-8 m ²	
Weed 2 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:		cot-4 leaf	
Height, Unit:		0.75 in	
Density, Unit:		20-50 m ²	
Weed 3 Code:	GGGAN	GGGAN	GGGAN
Growth Stage:		1 leaf	
Height, Unit:		0.2 in	
Density, Unit:		5-50 m ²	

APPLICATION EQUIPMENT			
	A	B	C
Appl. Equipment:	Backpack	Tractor	Cultivator
Operating Pressure:	31 psi	40 psi	
Nozzle Type:	AIRMIX	AIRMIX	
Nozzle Size:	11002	11002	
Nozzle Spacing, Unit:	18 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:	CO2	Comp. Air	

Trial Comments
4/28/12: Pre broadcast and banded treatments were applied at the same time with backpack sprayers. The banded treatments were applied with a single-nozzle 8002E tip to obtain a 10-inch band over the rows.
5/14/12: Crop health considered fair due to uneven seedling emergence (poor seedling vigor).
5/14/12: Injury = Stunting, leaf burn and twisted leaves.
5/18/12: Rating was stunting and leaf burn. Cadet caused 12-15% leaf burn on the sweet corn. New leaf tissue looks fine. Similar amount of leaf burn with and without sharpen applied PRE.
5/25/12: Cadet showing minimal leaf burn now; estimation of burn shortly after application was 12-15%.
6/26/12: All cultivation treatments needed a second cultivation to control later emerging crabgrass.

PPO Herbicides for Sweet Corn Weed Control

Trial ID: SCRN5-12 Cooperator:
 Location: Field #14 Investigator: Mark VanGessel

Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	ZEAMS Sweet Corn Injury %	ZEAMS Sweet Corn Injury %	ZEAMS Sweet Corn Stunting %	AMASS Pigweed Species Control %	IPOSS Morngrly Species Control %	DIGSA Large Crabgras Control %
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg						
1	Untreated Check						0.0d	0.0c	0.0d	0.0b	0.0c	0.0c
2	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	BANDED	A	05/14/12	5.7 bc	0.0c	3.3 cd	100.0 a	80.3 b	96.7 a
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B							
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B							
	Standard Cultivator			POST	C							
3	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	BANDED	A	05/14/12	3.3 cd	2.3 c	0.0d			
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B							
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B							
	In-row Cultivator			POST	C							
4	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	BANDED	A	05/14/12	5.7 bc	7.0 ab	5.7 bcd			
	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	BANDED	A							
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B							
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B							
	Standard Cultivator			POST	C							
5	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	BANDED	A	05/14/12	15.7 a	10.0 a	11.7 ab	100.0 a	90.3 a	60.0 b
	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	BANDED	A							
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B							
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B							
	In-row Cultivator			POST	C							
6	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	PRE	A	05/14/12	10.3 b	2.3 c	16.3 a	100.0 a	97.0 a	97.3 a
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B							
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B							
7	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	PRE	A	05/14/12	5.7 bc	3.3 bc	5.7 bcd			
	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	PRE	A							
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B							
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B							
8	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	PRE	A	05/14/12	8.0 bc	0.0c	9.0 abc			
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B							
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B							
LSD (P=.05)							5.27	4.29	8.28	0.00	6.68	6.20
Standard Deviation							3.01	2.45	4.73	0.00	3.35	3.10
CV							44.33	78.38	73.24	0.0	5.0	4.89
Replicate F							0.170	4.000	0.091	0.000	2.598	1.115
Replicate Prob(F)							0.8453	0.0423	0.9133	1.0000	0.1539	0.3874
Treatment F							7.311	6.634	4.320	0.000	545.913	652.484
Treatment Prob(F)							0.0008	0.0014	0.0096	1.0000	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

PPO Herbicides for Sweet Corn Weed Control

Trial ID: SCRN5-12 Cooperator:
 Location: Field #14 Investigator: Mark VanGessel

Weed Code	Crop Code	Pigweed	IPOSS	GGGAN						
Weed or Crop Name	Weed or Crop Name	Species	Species	Annual						
Rating Data Type	Rating Unit	Control %	Control %	Grasses %						
Rating Date		06/26/12	06/26/12	06/26/12						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code	AMASS	IPOSS	GGGAN
1	Untreated Check							0.0e	4.0c	0.2c
2	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	BANDED	A			75.0 bc	66.7 ab	61.7 b
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B					
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B					
	Standard Cultivator			POST	C					
3	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	BANDED	A			75.0 bc	69.0 ab	65.0 b
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B					
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B					
	In-row Cultivator			POST	C					
4	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	BANDED	A			60.0 d	68.3 ab	60.0 b
	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	BANDED	A					
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B					
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B					
	Standard Cultivator			POST	C					
5	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	BANDED	A			75.0 bc	65.0 ab	71.7 ab
	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	BANDED	A					
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B					
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B					
	In-row Cultivator			POST	C					
6	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	PRE	A			79.3 b	51.7 b	66.7 ab
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B					
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B					
7	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	PRE	A			96.0 a	72.7 a	79.0 a
	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	PRE	A					
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B					
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B					
8	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	PRE	A			63.3 cd		0.0c
	Cadet.....fluthiacet	0.91 EC	.00427 lb ai/A	EPOST	B					
	Nonionic Surfactant	100 L	0.5 % v/v	EPOST	B					
LSD (P=.05)								13.05	18.17	13.63
Standard Deviation								7.33	9.99	7.66
CV								11.2	17.6	15.16
Replicate F								0.280	4.039	0.172
Replicate Prob(F)								0.7608	0.0518	0.8443
Treatment F								45.571	17.630	51.285
Treatment Prob(F)								0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Liberty POST Timing Demo

Trial ID: SCRN6-12 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Crabgrass Species	DIGSS	Digitaria sp.
3.	Morningglory Species	IPOSS	Ipomoea sp.

Crop 1: Sweet Corn	ZEAMS	Variety: Overland and BC0805
Planting Date:	05/18/12	Planting Method: Row- Unit Planter
Rate:	24000 Sd/A	Row Spacing: 30 in
Soil Temperature:	72 F	Seed Bed: Medium Soil Moisture: Moist
		Emergence Date: 05/24/12

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 1
 Site Type: Field Study Design: SPLIT-PLOT
 Tillage Type: Disked Twice

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

SOIL DESCRIPTION

% Sand: 83 % OM: 1.2 Texture: loamy sand
 % Silt: 10 pH: 6.0
 % Clay: 7 CEC: 5.6 Fert. Level: Optimum

Irrigation/Type: Sprinkler - Lateral Move Frequency: as needed

Overall Moisture Conditions: Maintained Moist

Closest Weather Station: Univ. of Delaware Research & Education Center, Georgetown
 Distance: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	05/18/12	06/07/12	06/15/12	06/20/12
Time of Day:	11:00 am	1:20 pm	9:45 am	10:00 am
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	3WAP	4WAP	5WAP
Applic. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	69 F	77 F	72 F	85 F
% Relative Humidity:	45	38	51	63
Wind Velocity, Unit:	7 mph	4 mph	6 mph	2 mph
Wind Direction:	Northeast	West	Northeast	Southwest
Dew Presence (Y/N):	N	N	N	N
Soil Temp., Unit:	67 F	75 F	70 F	82 F
Soil Surf. Moisture:	Dry	Moist	Dry	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry	Dry
% Cloud Cover:	15	25	0	20

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	ZEAMS	ZEAMS	ZEAMS	ZEAMS
Growth Stage:	V4	V6	V8	
Height, Unit:	9 in	20 in	24 in	
Crop Health:	Good	Good	Good	

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	AMAPA	AMAPA	AMAPA	AMAPA
Growth Stage:		vegetative	vegetative	vegetative
Height, Unit:	4 in	12 in	24 in	
Density, Unit:	0-80 m ²	0-20 m ²	0-20 m ²	
Weed 2 Code:	DIGSS	DIGSS	DIGSS	DIGSS
Growth Stage:	2-4 tiller	3-4 tiller	4-5 tiller	
Height, Unit:	3 in	7 in	10 in	
Density, Unit:	0-150 m ²	0-150 m ²	0-150 m ²	
Weed 3 Code:	IPOSS	IPOSS	IPOSS	IPOSS
Growth Stage:	4-6 leaf	vegetative	vegetative	
Height, Unit:	5 in	8 in	10 in	
Density, Unit:	5-8 m ²	5-8 m ²	5-8 m ²	

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:	18 in	25 in	34 in	38 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

Trial Comments
7/16/12: It appears as if heavy grass pressure suppressed morningglory growth. Overall impression: need Dual PRE and 29oz of Liberty at 4 WAP. 5WAP ok but gives grower no cushion for delayed application.

Liberty POST Timing Demo

Trial ID: SCRN6-12 Cooperator:

Location: Field #14 Investigator: Mark VanGessel

Weed Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	GGGAN Annual Grasses Control %	IPOSS Morngrly Species Control %	AMASS Pigweed Species Control %
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code		
1	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	75.0	50.0	85.0
	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	3WAP	B			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	3WAP	B			
	3 WAP							
2	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	97.0	70.0	100.0
	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	4WAP	C			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	4WAP	C			
	4 WAP							
3	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	85.0	40.0	100.0
	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	5WAP	D			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	5WAP	D			
	5 WAP							
4	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	90.0	70.0	100.0
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	3WAP	B			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	3WAP	B			
	3 WAP							
5	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	100.0	97.0	100.0
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	4WAP	C			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	4WAP	C			
	4 WAP							
6	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	100.0	97.0	100.0
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	5WAP	D			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	5WAP	D			
	5 WAP							
7	No Dual					30.0	.	30.0
	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	3WAP	B			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	3WAP	B			
	3 WAP							
8	No Dual					50.0	.	50.0
	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	4WAP	C			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	4WAP	C			
	4 WAP							
9	No Dual					30.0	.	30.0
	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	5WAP	D			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	5WAP	D			
	5 WAP							
10	No Dual					50.0	.	75.0
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	3WAP	B			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	3WAP	B			
	3 WAP							
11	No Dual					60.0	.	80.0
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	4WAP	C			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	4WAP	C			
	4 WAP							
12	No Dual					60.0	.	70.0
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	5WAP	D			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	5WAP	D			
	5 WAP							

No statistics; only one rep demonstration.

(SCRN7-12)

University of Delaware

Impact Safety with Mesotrione Applied at Planting

Trial ID: SCRN7-12 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

CROP AND WEED DESCRIPTION

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

Crop 1: Sweet Corn **ZEAMS** **Variety:** Silver King and Overland
Planting Date: 07/03/12 **Planting Method:** Row- Unit Planter **Depth:** 0.75 in
Rate: 24000 Sd/A **Row Spacing:** 30 in **Seed Bed:** Smooth
Soil Temperature: 90 F **Soil Moisture:** Moist **Emergence Date:** 07/08/12

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 and Field Cultivated

MAINTENANCE

Field Prep./Maintenance: Force 3G at 5.5 lb/A in furrow and 19-18.5-0 at 11.6 gal/A (25 lb N & 24 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 123 lb/A.

SOIL DESCRIPTION

% Sand: 81 % OM: 1.3 **Texture:** loamy sand
% Silt: 12 pH: 5.9
% Clay: 7 CEC: 3.9 **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:	07/05/12	07/19/12
Time of Day:	12:40 pm	12:30 pm
Application Method:	Spray	Spray
Application Timing:	PRE	POST
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	98 F	92 F
% Relative Humidity:	34	50
Wind Velocity, Unit:	2 mph	3 mph
Wind Direction:	Northwest	North
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	96 F	92 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Moist	Wet
Leaf Surf. Moisture:	Dry	Moist
% Cloud Cover:	5	30

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	ZEAMS	ZEAMS
Growth Stage:	V3	
Height, Unit:	7 in	
Crop Health:	Good	

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	IPOSS	IPOSS
Growth Stage:	cot-3 leaf	
Height, Unit:	1.8 in	
Density, Unit:	0-10 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	23 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

7/15/12: Only stunting was rated. No other symptom was observed.

7/27/12: Silver King is at the V-6 stage and is 14" tall. Overland is at the V5 stage and is 10-12" tall.

Impact Safety with Mesotrione Applied at Planting

Trial ID: SCRN7-12 Cooperator:

Location: Field #14 Investigator: Mark VanGessel

Crop Code	ZEAMS SwtCrn	ZEAMS SwtCrn	ZEAMS SwtCrn	ZEAMS SwtCrn	ZEAMS SwtCrn	ZEAMS SwtCrn
Weed or Crop Name	SlvrKing	Overland	SlvrKing	Overland	SlvrKing	Overland
Rating Data Type	Stunting %	Stunting %	Injury %	Injury %	Stunting %	Stunting %
Rating Unit	07/15/12	07/15/12	07/27/12	07/27/12	08/03/12	08/03/12
Rating Date						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1 Untreated Check						
Bicep II Magnum Premix	5.5 L	2.47 lb ai/A	PRE	A	0.0 a	0.0 a
2 Bicep II Magnum Premix Callisto.....mesotrione	5.5 L 4 SC	2.47 lb ai/A 0.312 lb ai/A	PRE	A	4.7 a	0.0 a
3 Bicep II Magnum Premix Callisto.....mesotrione Impact.....topramezone	5.5 L 4 SC 2.8 SC	2.47 lb ai/A 0.156 lb ai/A 0.0219 lb ai/A	PRE	A	0.0 a	0.0 a
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 Callisto.....mesotrione Impact.....topramezone	5.5 L 4 SC 2.8 SC	2.47 lb ai/A 0.312 lb ai/A 0.0219 lb ai/A	PRE	A		9.7 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 Callisto.....mesotrione Impact.....topramezone	5.5 L 4 SC 2.8 SC	2.47 lb ai/A 0.312 lb ai/A 0.0219 lb ai/A	PRE	A		15.3 a
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 Callisto.....mesotrione Impact.....topramezone	5.5 L 4 SC 2.8 SC	2.47 lb ai/A 0.312 lb ai/A 0.0437 lb ai/A	PRE	A		15.7 a
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		
7 Bicep II Magnum Premix Callisto.....mesotrione Laudis.....tembotrione	5.5 L 4 SC 3.5 SC	2.47 lb ai/A 0.312 lb ai/A 0.082 lb ai/A	PRE	A		14.7 ab
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 Callisto.....mesotrione Impact.....topramezone	5.5 L 4 SC 2.8 SC	2.47 lb ai/A 0.312 lb ai/A 0.0219 lb ai/A	PRE	A		12.3 ab
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)		5.29	0.00	5.58	6.81	3.39
Standard Deviation		2.33	0.00	3.18	3.89	1.93
CV		150.0	0.0	27.99	33.83	18.5
Replicate F		1.000	0.000	0.925	0.355	0.746
Replicate Prob(F)		0.4444	1.0000	0.4195	0.7072	0.4924
Treatment F		4.000	0.000	7.539	5.052	16.940
Treatment Prob(F)		0.1111	1.0000	0.0007	0.0049	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Impact Safety with Mesotrione Applied at Planting

Trial ID: SCRN7-12 Cooperator:
 Location: Field #14 Investigator: Mark VanGessel

Crop Code		ZEAMS							
Weed or Crop Name		SwtCrn							
Weed or Crop Name		SlvrKing							
Rating Data Type		Stunting							
Rating Unit		%							
Rating Date	08/10/12	08/10/12							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
1	Untreated Check							0.0d	0.0c
	Bicep II Magnum Premix	5.5 L	2.47 lb ai/A	ai/A	PRE	A			
2	Bicep II Magnum Premix Callisto.....mesotrione	5.5 L 4 SC	2.47 lb ai/A 0.312 lb ai/A	ai/A	PRE	A	0.0d	0.0c	
3	Bicep II Magnum Premix Callisto.....mesotrione Impact.....topramezone Atrazine 4L Crop Oil Concentrate 30% Urea Ammonium Nitrate	5.5 L 4 SC 2.8 SC 4 L 100 L 100 L	2.47 lb ai/A 0.156 lb ai/A 0.0219 lb ai/A	ai/A	POST	B	10.7 ab	10.7 ab	
4	Bicep II Magnum Premix Callisto.....mesotrione Impact.....topramezone Crop Oil Concentrate 30% Urea Ammonium Nitrate	5.5 L 4 SC 2.8 SC 100 L 100 L	2.47 lb ai/A 0.312 lb ai/A 0.0219 lb ai/A	ai/A	POST	B	4.7 cd	4.0bc	
5	Bicep II Magnum Premix Callisto.....mesotrione Impact.....topramezone Atrazine 4L Crop Oil Concentrate 30% Urea Ammonium Nitrate	5.5 L 4 SC 2.8 SC 4 L 100 L 100 L	2.47 lb ai/A 0.312 lb ai/A 0.0219 lb ai/A	ai/A	POST	B	11.7 a	14.0a	
6	Bicep II Magnum Premix Callisto.....mesotrione Impact.....topramezone Atrazine 4L Crop Oil Concentrate 30% Urea Ammonium Nitrate	5.5 L 4 SC 2.8 SC 4 L 100 L 100 L	2.47 lb ai/A 0.312 lb ai/A 0.0437 lb ai/A	ai/A	POST	B	10.7 ab	13.0a	
7	Bicep II Magnum Premix Callisto.....mesotrione Laudis.....tembotrione Atrazine 4L Crop Oil Concentrate 30% Urea Ammonium Nitrate	5.5 L 4 SC 3.5 SC 4 L 100 L 100 L	2.47 lb ai/A 0.312 lb ai/A 0.082 lb ai/A	ai/A	POST	B	12.3 a	12.3 a	
8	Bicep II Magnum Premix Callisto.....mesotrione Impact.....topramezone Methylated Seed Oil 30% Urea Ammonium Nitrate	5.5 L 4 SC 2.8 SC 100 L 100 L	2.47 lb ai/A 0.312 lb ai/A 0.0219 lb ai/A	ai/A	POST	B	5.7 bc	7.3 ab	
LSD (P=.05)							5.06	7.14	
Standard Deviation							2.89	4.08	
CV							41.53	53.2	
Replicate F							0.185	0.994	
Replicate Prob(F)							0.8334	0.3947	
Treatment F							9.356	5.936	
Treatment Prob(F)							0.0002	0.0023	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Controlling Volunteer Corn Prior to Planting Small Grains

Trial ID: SG1-12 Cooperator:
 Location: Field #36 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Volunteer Corn	ZEAMX	Zea mays L.

Crop 1: Barley	HORVV	Variety: Thoroughbred
Planting Date: 10/11/11	Planting Method: Drilled	Depth: 1 in
Rate: 2 Bu/A	Row Spacing: 7 in	Seed Bed: Medium
Soil Temperature: 64 F	Soil Moisture: Moist	Emergence Date: 10/18/11

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: 77 % OM: 2.1 Texture: sandy loam
 % Silt: 12 pH: 5.7
 % Clay: 11 CEC: 7.2 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:	10/01/11
Time of Day:	10:30 am
Application Method:	Spray
Application Timing:	Preplant
Applic. Placement:	Brdcst
Air Temp., Unit:	61 F
% Relative Humidity:	70
Wind Velocity, Unit:	4 mph
Wind Direction:	Northwest
Dew Presence (Y/N):	N
Soil Temp., Unit:	59 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	45

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	ZEAMX
Growth Stage:	vegetative
Height, Unit:	14 in

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:	30 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments

10/21/11: No barley injury observed.

Controlling Volunteer Corn Prior to Planting Small Grains

Trial ID: SG1-12 Cooperator:
 Location: Field #36 Investigator: Mark VanGessel

Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	ZEAMX Volunteer Corn Control %	HORVW Winter Barley Stunting %	HORVW Winter Barley Stunting %
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
1	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	PREPLANT	A		33.3 b	2.3 b	2.3 c
	Nonionic Surfactant	100 L	0.25 % v/v	PREPLANT	A				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	PREPLANT	A				
2	PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb ai/A	PREPLANT	A		29.5 b	1.0 b	13.0 b
	Nonionic Surfactant	100 L	0.25 % v/v	PREPLANT	A				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	PREPLANT	A				
3	Axial XL.....pinoxaden	0.42 L	0.054 lb ai/A	PREPLANT	A		43.3 b	1.7 b	0.0 c
	Nonionic Surfactant	100 L	0.25 % v/v	PREPLANT	A				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	PREPLANT	A				
4	Finesse Premix	75 DF	0.014 lb ai/A	PREPLANT	A		43.3 b	0.0 b	0.0 c
	Nonionic Surfactant	100 L	0.25 % v/v	PREPLANT	A				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	PREPLANT	A				
5	Gramoxone Inteon..paraquat	2 SL	0.5 lb ai/A	PREPLANT	A		100.0 a	0.0 b	0.0 c
	Nonionic Surfactant	100 L	0.25 % v/v	PREPLANT	A				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	PREPLANT	A				
6	Gramoxone Inteon..paraquat	2 SL	0.5 lb ai/A	PREPLANT	A		100.0 a	0.0 b	0.0 c
	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	PREPLANT	A				
	Nonionic Surfactant	100 L	0.25 % v/v	PREPLANT	A				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	PREPLANT	A				
7	Untreated Check						0.0 c	0.0 b	0.0 c
	Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb ae/A	PREPLANT	A				
8	Maverick.....sulfosulfuron	75 WG	0.031 lb ai/A	PREPLANT	A		36.7 b	30.0 a	43.3 a
	Nonionic Surfactant	100 L	0.25 % v/v	PREPLANT	A				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	PREPLANT	A				
LSD (P=.05)							15.71	6.60	4.73
Standard Deviation							8.91	3.77	2.70
CV							18.46	86.19	36.85
Replicate F							0.226	1.978	0.211
Replicate Prob(F)							0.8008	0.1752	0.8122
Treatment F							45.558	22.787	95.178
Treatment Prob(F)							0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Utility of PPO-Herbicides in Winter Wheat

Trial ID: SG2-12 Cooperator:
 Location: Field #7 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

CROP AND WEED DESCRIPTION

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

Crop 1: Winter Wheat	TRZAW	Variety: USG3770
Planting Date:	10/17/11	Planting Method: Drilled
Rate: 100 lb/A	Row Spacing: 7 in	Depth: 1 in
Soil Temperature: 71 F	Soil Moisture: Moist	Seed Bed: Firm/Trashy
		Emergence Date: 10/24/11

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 site was sprayed with Gramoxone Inteon for burndown prior to planting the wheat.

SOIL DESCRIPTION

% Sand: 78 % OM: 2.3 Texture: sandy loam
 % Silt: 13 pH: 5.9
 % Clay: 9 CEC: 7.8 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	B
Application Date:	10/21/11	10/31/11
Time of Day:	10:30 am	1:00 pm
Application Method:	Spray	Spray
Application Timing:	PRE	1-2 lvs
Appli. Placement:	Brdcst	Brdcst
Air Temp., Unit:	57 F	56 F
% Relative Humidity:	55	47
Wind Velocity, Unit:	3 mph	3 mph
Wind Direction:	Northwest	Southeast
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	53 F	54 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	5	20

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	TRZAW	TRZAW
Growth Stage:		2-leaf
Height, Unit:		3 in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	LAMAM	LAMAM
Growth Stage:		3-5 leaf
Height, Unit:		1 in
Density,Unit:		0-200 m ²
Weed 2 Code:	VIORA	VIORA
Growth Stage:		2-6 leaf
Height, Unit:		1 in
Density,Unit:		0-40 m ²
Weed 3 Code:	VICSS	VICSS
Growth Stage:		4-10 leaf
Height, Unit:		1.7 in
Density,Unit:		0-150 m ²
Weed 4 Code:	HLOUM	HLOUM
Growth Stage:		2-6 leaf
Height, Unit:		1.5 in
Density,Unit:		0-20 m ²
Weed 5 Code:	CERVU	CERVU
Growth Stage:		2-6 leaf
Height, Unit:		1 in
Density,Unit:		0-40 m ²
Weed 6 Code:	ERICA	ERICA
Growth Stage:		rosette
Height, Unit:		1.7 in
Density,Unit:		0-40 m ²
Weed 7 Code:	OEOLA	OEOLA
Growth Stage:		rosette
Height, Unit:		3 in
Density,Unit:		0-60 m ²

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

- 10-28-11: Wheat at 1-leaf stage; no injury observed.
 11-04-11: All had 0 leaf burn except Trt. 7 (R1-17%, R2-20%, R3-17%).
 12-21-11: Treatment 5 provided suppression of most broadleaves; very poor on field pansy and primrose.
 05-07-12: Not much to rate. Heavy powder downy mildew infestation.

Utility of PPO-Herbicides in Winter Wheat

Trial ID: SG2-12 Cooperator:
 Location: Field #7 Investigator: Mark VanGessel

Weed Code	TRZAW	TRZAW	TRZAW	LAMAM	VIORA	CERVU
Crop Code	Winter	Winter	Winter	Henbit	Field	Mouseear
Weed or Crop Name	Wheat	Wheat	Wheat	Control	Pansy	Chickwd
Weed or Crop Name	Stunting	Stunting	Stunting	%	Control %	%
Rating Data Type	%	%	%			
Rating Unit						
Rating Date	11/04/11	11/21/11	12/21/11	12/21/11	12/21/11	12/21/11
Trt Treatment	Form	Form	Rate	Grow	Appl	
No. Name	Conc	Type	Rate	Unit	Stg	Code
1 Spartan.....sulfentrazone	4 F	0.094 lb ai/A	PRE	A	10.7 c	9.7 ab
2 Spartan.....sulfentrazone	4 F	0.125 lb ai/A	PRE	A	14.7 b	15.0 a
3 Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	PRE	A	6.7 d	5.7 bc
4 Valor SX.....flumioxazin	51 WG	0.096 lb ai/A	PRE	A	9.7 cd	8.7 ab
5 Sharpen.....saflufenacil	2.85 SC	0.0223 lb ai/A	PRE	A	0.0 e	0.0 c
6 Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	PRE	A	1.0 e	5.7 bc
7 Spartan.....sulfentrazone	4 F	0.094 lb ai/A	1-2 lvs B		21.7 a	8.7 ab
Aim.....carfentrazone	2 EW	0.0104 lb ai/A	1-2 lvs B			
8 Untreated Check					0.0 e	0.0 c
LSD (P=.05)					3.98	6.64
Standard Deviation					2.27	3.79
CV					28.25	56.87
Replicate F					4.368	0.003
Replicate Prob(F)					0.0336	0.9971
Treatment F					34.869	0.3975
Treatment Prob(F)					0.0001	22.369
						0.0001

Weed Code	LAMAM	VIORA	HLOUM
Crop Code	Henbit	Field	Jagged
Weed or Crop Name	Control	Pansy	Chickwd
Weed or Crop Name	%	Control %	Control %
Rating Data Type			
Rating Unit			
Rating Date	03/14/12	03/14/12	03/14/12
Trt Treatment	Form	Form	Rate
No. Name	Conc	Type	Rate
			Unit
			Stg
			Code
1 Spartan.....sulfentrazone	4 F	0.094 lb ai/A	PRE
2 Spartan.....sulfentrazone	4 F	0.125 lb ai/A	PRE
3 Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	PRE
4 Valor SX.....flumioxazin	51 WG	0.096 lb ai/A	PRE
5 Sharpen.....saflufenacil	2.85 SC	0.0223 lb ai/A	PRE
6 Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	PRE
7 Spartan.....sulfentrazone	4 F	0.094 lb ai/A	1-2 lvs B
Aim.....carfentrazone	2 EW	0.0104 lb ai/A	1-2 lvs B
8 Untreated Check			
LSD (P=.05)	19.81	13.98	43.85
Standard Deviation	11.31	7.98	20.89
CV	18.05	17.73	101.1
Replicate F	2.018	6.084	1.544
Replicate Prob(F)	0.1698	0.0125	0.3005
Treatment F	19.227	20.486	2.863
Treatment Prob(F)	0.0001	0.0001	0.1365

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

ALS-Resistant Common Chickweed Control in Winter Wheat

Trial ID: SG3-12 Cooperator:
 Location: Field #9 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Knawel	SCRAN	Scleranthus annuus L.
3.	Vetch species	VICSS	Vicia Ssp.
4.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
5.	Ivyleaf Speedwell	VERHE	Veronica hederifolia L.
6.	Redstem Filaree	EROCI	Erodium cicutarium (L.) L'Her. ex Ait.
7.	Field Pansy	VIORA	Viola rafinesquii Greene

Crop 1: Winter Wheat	TRZAW	Variety: FS-621
Planting Date:	10/18/11	Planting Method: Drilled
Rate:	100 lb/A	Row Spacing: 7 in
Soil Temperature:	73 F	Seed Bed: Medium Soil Moisture: Moist
		Emergence Date: 10/25/11

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: 83 % OM: 1.7 Texture: loamy sand
 % Silt: 9 pH: 5.2
 % Clay: 8 CEC: 6.5 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: 0.1 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	10/21/11	10/26/11	11/15/11	03/15/12
Time of Day:	10:30 am	9:30 am	9:15 am	3:30 pm
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	Spike	Fall	Spring
Appli. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	57 F	61 F	66 F	56 F
% Relative Humidity:	55	59	67	80
Wind Velocity, Unit:	3 mph	4 mph	2 mph	4 mph
Wind Direction:	Northwest	Southwest	Southwest	Northeast
Dew Presence (Y/N):	N	Y	N	N
Soil Temp., Unit:	53 F	56 F	65 F	54 F
Soil Surf. Moisture:	Moist	Moist	Dry	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist	Dry	Moist
% Cloud Cover:	5	10	20	80

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:		Spike	2-leaf	jointing
Height, Unit:		1 in	3 in	10 in
Crop Health:		Good	Good	Good

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	LAMAM	LAMAM	LAMAM	LAMAM
Growth Stage:		cot-2 leaf	3-5 leaf	flower
Height, Unit:		0.5 in	1 in	6 in
Density,Unit:		0-80 m ²	0-80 m ²	0-20 m ²
Weed 2 Code:	SCRAN	SCRAN	SCRAN	SCRAN
Growth Stage:		cotyledon	vegetative	vegetative
Height, Unit:		0.5 in	1 in	3 in
Density,Unit:		0-400 m ²	0-400 m ²	0-250 m ²
Weed 3 Code:	VICSS	VICSS	VICSS	VICSS
Growth Stage:		cot-2 leaf	2-4 leaf	vegetative
Height, Unit:		0.7 in	1 in	6 in
Density,Unit:		0-40 m ²	0-40 m ²	0-20 m ²
Weed 4 Code:	CERVU	CERVU	CERVU	CERVU
Growth Stage:		cot-2 leaf	2-4 leaf	eaFlowr
Height, Unit:		0.7 in	1 in	4 in
Density,Unit:		0-20 m ²	0-20 m ²	0-5 m ²
Weed 5 Code:	VERHE	VERHE	VERHE	VERHE
Growth Stage:			cot-2 leaf	
Height, Unit:			0.7 in	
Density,Unit:			0-10 m ²	
Weed 6 Code:	EROCI	EROCI	EROCI	EROCI
Growth Stage:			rosette	
Height, Unit:			2.5 in	
Density,Unit:			0-10 m ²	
Weed 7 Code:	VIORA	VIORA	VIORA	VIORA
Growth Stage:				vegetative
Height, Unit:				3 in
Density,Unit:				0-20 m ²

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	26 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:	CO ₂	CO ₂	CO ₂	CO ₂

Trial Comments
10-28-11: Did not observe injury due to herbicide, but some chlorotic bands at base of stems/leaf at the soil surface.
05-28-12: Knawel was only species consistent enough to rate. Metribuzin at 2 or 4 oz applied in the fall (timing C) was the highest level of control at good; and metribuzin at spike stage was fair to good. Starane was rated poor; and rate of metribuzin in Axiom was too low for effective control.

ALS-Resistant Common Chickweed Control in Winter Wheat

Trial ID: SG3-12 Cooperator:

Location: Field #9 Investigator: Mark VanGessel

Weed Code	Crop Code	TRZAW	TRZAW	TRZAW	LAMAM	SCRAN	VICSS
Weed or Crop Name		Winter	Winter	Winter	Henbit	Knawel	Vetch
Weed or Crop Name		Wheat	Wheat	Wheat	Control	Control	Species
Rating Data Type		Stunting	Leaf Brn	Injury	%	%	Control %
Rating Unit		%	%	%			%
Rating Date		11/04/11	11/04/11	11/21/11	03/14/12	03/14/12	03/14/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1	Untreated Check				0.0a	0.0b	0.0d
2	Sharpen.....saflufenacil Crop Oil Concentrate	2.85 SC 100 L	0.0445 lb ai/A 1% v/v	PRE PRE	0.0a	0.0b	0.0d
	30% Urea Ammonium Nitrate	100 L	2.5% v/v	PRE			73.3 ab
3	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.094 lb ai/A 0.25% v/v	Spike Spike	1.7 a	1.0 b	86.7 abc
4	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.187 lb ai/A 0.25% v/v	Spike Spike	4.7 a	3.7 a	95.0 a
5	Axiom Premix Nonionic Surfactant	68 WG 100 L	0.255 lb ai/A 0.25% v/v	Spike Spike	4.7 a	2.0 ab	68.1 bc
6	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.094 lb ai/A 0.25% v/v	Fall Fall		8.3 bc	90.0 ab
7	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.187 lb ai/A 0.25% v/v	Fall Fall		15.7 a	90.0 a
8	Starane Ultra...fluropypr	2.8 EC	0.105 lb ae/A	Fall C		1.7 cd	78.3 abc
9	Starane Ultra...fluropypr Metribuzin.....metribuzin Nonionic Surfactant	2.8 EC 75 DF 100 L	0.105 lb ae/A 0.094 lb ai/A 0.25% v/v	Fall C Fall C		1.7 cd	91.7 ab
10	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.094 lb ai/A 0.25% v/v	Spring D			
11	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.187 lb ai/A 0.25% v/v	Spring D			
12	Starane Ultra...fluropypr	2.8 EC	0.105 lb ae/A	Spring D			
13	Starane Ultra...fluropypr	2.8 EC	0.14 lb ae/A	Spring D			
14	Starane Ultra...fluropypr Metribuzin.....metribuzin Nonionic Surfactant	2.8 EC 75 DF 100 L	0.105 lb ae/A 0.094 lb ai/A 0.25% v/v	Spring D			
LSD (P=.05)				5.28	2.16	7.30	24.16
Standard Deviation				2.80	1.15	4.22	13.89
CV				127.35	86.06	66.2	18.85
Replicate F				1.223	1.570	0.264	0.490
Replicate Prob(F)				0.3440	0.2660	0.7709	0.6218
Treatment F				2.115	5.443	6.074	13.745
Treatment Prob(F)				0.1706	0.0205	0.0011	0.0001
							6.887
							5.707
							0.0070
							0.0154
							15.292
							12.908
							0.0001
							0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

ALS-Resistant Common Chickweed Control in Winter Wheat

Trial ID: SG3-12 Cooperator:
 Location: Field #9 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Knawel	SCRAN	Scleranthus annuus L.
3.	Vetch species	VICSS	Vicia Ssp.
4.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
5.	Ivyleaf Speedwell	VERHE	Veronica hederifolia L.
6.	Redstem Filaree	EROCI	Erodium cicutarium (L.) L'Her. ex Ait.
7.	Field Pansy	VIORA	Viola rafinesquii Greene

Crop 1: Winter Wheat	TRZAW	Variety: FS-621
Planting Date:	10/18/11	Planting Method: Drilled
Rate:	100 lb/A	Row Spacing: 7 in
Soil Temperature:	73 F	Seed Bed: Medium Soil Moisture: Moist
		Emergence Date: 10/25/11

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: 83 % OM: 1.7 Texture: loamy sand
 % Silt: 9 pH: 5.2
 % Clay: 8 CEC: 6.5 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: 0.1 Unit: mi

APPLICATION DESCRIPTION

	A	B	C	D
Application Date:	10/21/11	10/26/11	11/15/11	03/15/12
Time of Day:	10:30 am	9:30 am	9:15 am	3:30 pm
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	Spike	Fall	Spring
Appli. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	57 F	61 F	66 F	56 F
% Relative Humidity:	55	59	67	80
Wind Velocity, Unit:	3 mph	4 mph	2 mph	4 mph
Wind Direction:	Northwest	Southwest	Southwest	Northeast
Dew Presence (Y/N):	N	Y	N	N
Soil Temp., Unit:	53 F	56 F	65 F	54 F
Soil Surf. Moisture:	Moist	Moist	Dry	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist	Dry	Moist
% Cloud Cover:	5	10	20	80

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:		Spike	2-leaf	jointing
Height, Unit:		1 in	3 in	10 in
Crop Health:		Good	Good	Good

WEED STAGE AT EACH APPLICATION				
	A	B	C	D
Weed 1 Code:	LAMAM	LAMAM	LAMAM	LAMAM
Growth Stage:		cot-2 leaf	3-5 leaf	flower
Height, Unit:		0.5 in	1 in	6 in
Density,Unit:		0-80 m ²	0-80 m ²	0-20 m ²
Weed 2 Code:	SCRAN	SCRAN	SCRAN	SCRAN
Growth Stage:		cotyledon	vegetative	vegetative
Height, Unit:		0.5 in	1 in	3 in
Density,Unit:		0-400 m ²	0-400 m ²	0-250 m ²
Weed 3 Code:	VICSS	VICSS	VICSS	VICSS
Growth Stage:		cot-2 leaf	2-4 leaf	vegetative
Height, Unit:		0.7 in	1 in	6 in
Density,Unit:		0-40 m ²	0-40 m ²	0-20 m ²
Weed 4 Code:	CERVU	CERVU	CERVU	CERVU
Growth Stage:		cot-2 leaf	2-4 leaf	eaFlowr
Height, Unit:		0.7 in	1 in	4 in
Density,Unit:		0-20 m ²	0-20 m ²	0-5 m ²
Weed 5 Code:	VERHE	VERHE	VERHE	VERHE
Growth Stage:			cot-2 leaf	
Height, Unit:			0.7 in	
Density,Unit:			0-10 m ²	
Weed 6 Code:	EROCI	EROCI	EROCI	EROCI
Growth Stage:			rosette	
Height, Unit:			2.5 in	
Density,Unit:			0-10 m ²	
Weed 7 Code:	VIORA	VIORA	VIORA	VIORA
Growth Stage:				vegetative
Height, Unit:				3 in
Density,Unit:				0-20 m ²

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	26 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:	CO ₂	CO ₂	CO ₂	CO ₂

Trial Comments
10-28-11: Did not observe injury due to herbicide, but some chlorotic bands at base of stems/leaf at the soil surface.
05-28-12: Knawel was only species consistent enough to rate. Metribuzin at 2 or 4 oz applied in the fall (timing C) was the highest level of control at good; and metribuzin at spike stage was fair to good. Starane was rated poor; and rate of metribuzin in Axiom was too low for effective control.

ALS-Resistant Common Chickweed Control in Winter Wheat

Trial ID: SG3-12 Cooperator:

Location: Field #9 Investigator: Mark VanGessel

Weed Code	Crop Code	TRZAW	TRZAW	TRZAW	LAMAM	SCRAN	VICSS
Weed or Crop Name		Winter	Winter	Winter	Henbit	Knawel	Vetch
Weed or Crop Name		Wheat	Wheat	Wheat	Control	Control	Species
Rating Data Type		Stunting	Leaf Brn	Injury	%	%	Control %
Rating Unit		%	%	%			%
Rating Date		11/04/11	11/04/11	11/21/11	03/14/12	03/14/12	03/14/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1	Untreated Check				0.0a	0.0b	0.0d
2	Sharpen.....saflufenacil Crop Oil Concentrate	2.85 SC 100 L	0.0445 lb ai/A 1% v/v	PRE PRE	0.0a	0.0b	0.0d
	30% Urea Ammonium Nitrate	100 L	2.5% v/v	PRE	A		73.3 ab
3	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.094 lb ai/A 0.25% v/v	Spike Spike	1.7 a	1.0 b	86.7 abc
4	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.187 lb ai/A 0.25% v/v	Spike Spike	4.7 a	3.7 a	95.0 a
5	Axiom Premix Nonionic Surfactant	68 WG 100 L	0.255 lb ai/A 0.25% v/v	Spike Spike	4.7 a	2.0 ab	68.1 bc
6	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.094 lb ai/A 0.25% v/v	Fall Fall	C		8.3 bc
7	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.187 lb ai/A 0.25% v/v	Fall Fall	C		15.7 a
8	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	Fall	C		78.3 abc
9	Starane Ultra...fluroxypyr Metribuzin.....metribuzin Nonionic Surfactant	2.8 EC 75 DF 100 L	0.105 lb ae/A 0.094 lb ai/A 0.25% v/v	Fall Fall Fall	C C C		50.0 c
10	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.094 lb ai/A 0.25% v/v	Spring Spring	D D		49.3 bc
11	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.187 lb ai/A 0.25% v/v	Spring Spring	D D		85.0 a
12	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	Spring	D		
13	Starane Ultra...fluroxypyr	2.8 EC	0.14 lb ae/A	Spring	D		
14	Starane Ultra...fluroxypyr Metribuzin.....metribuzin Nonionic Surfactant	2.8 EC 75 DF 100 L	0.105 lb ae/A 0.094 lb ai/A 0.25% v/v	Spring Spring Spring	D D D		68.3 a
LSD (P=.05)				5.28	2.16	7.30	24.16
Standard Deviation				2.80	1.15	4.22	22.88
CV				127.35	86.06	66.2	13.22
Replicate F				1.223	1.570	0.264	17.90
Replicate Prob(F)				0.3440	0.2660	0.7709	10.22
Treatment F				2.115	5.443	6.074	13.745
Treatment Prob(F)				0.1706	0.0205	0.0011	0.0070
							0.0154
							15.292
							12.908
							0.0001
							0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

ALS-Resistant Horseweed Control in Winter Wheat

Trial ID: SG4-12 Cooperator:
 Location: Field #7 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

CROP AND WEED DESCRIPTION

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

Crop 1: Winter Wheat	TRZAW	Variety: USG3770	
Planting Date:	10/17/11	Planting Method:	Drilled
Rate:	100 lb/A	Row Spacing:	7 in
Soil Temperature:	71 F	Soil Moisture:	Moist
		Seed Bed:	Firm/Trashy
		Emergence Date:	10/24/11

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: 78 % OM: 2.3 Texture: sandy loam
 % Silt: 13 pH: 5.9
 % Clay: 9 CEC: 7.8 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	B	C	D
Application Date:	10/21/11	10/26/11	11/15/11	03/15/12
Time of Day:	10:30 am	9:30 am	9:15 am	3:30 pm
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	PRE	Spike	Fall	Spring
Appli. Placement:	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	57 F	61 F	66 F	56 F
% Relative Humidity:	55	59	67	80
Wind Velocity, Unit:	3 mph	4 mph	2 mph	4 mph
Wind Direction:	Northwest	Southwest	Southwest	Northeast
Dew Presence (Y/N):	N	Y	N	N
Soil Temp., Unit:	53 F	56 F	65 F	54 F
Soil Surf. Moisture:	Moist	Moist	Dry	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist	Dry	Moist
% Cloud Cover:	5	10	20	80

CROP STAGE AT EACH APPLICATION				
	A	B	C	D
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:		spike-1 lf	3lf-1Tillr	jointing
Height, Unit:	2 in	4 in	10 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-8 lf	vegetative	eaFlower
Height, Unit:	0.8 in	1 in	6 in	
Density,Unit:	0-240 m2	0-240 m2	0-30 m2	
Weed 2 Code:	VIORA	VIORA	VIORA	VIORA
Growth Stage:		cot-4 leaf	vegetative	flower
Height, Unit:	0.5 in	1 in	7 in	
Density,Unit:	0-50 m2	0-50 m2	0-50 m2	
Weed 3 Code:	VICSS	VICSS	VICSS	VICSS
Growth Stage:		cot-8 leaf	vegetative	vegetative
Height, Unit:	1 in	1.8 in	5 in	
Density,Unit:	0-160 m2	0-160 m2	0-20 m2	
Weed 4 Code:	HLOUM	HLOUM	HLOUM	HLOUM
Growth Stage:		cot-4 leaf	vegetative	
Height, Unit:	0.5 in	1.5 in		
Density,Unit:	0-20 m2	0-20 m2		
Weed 5 Code:	CERVU	CERVU	CERVU	CERVU
Growth Stage:		cot-4 leaf	vegetative	
Height, Unit:	0.8 in	1.8 in		
Density,Unit:	0-40 m2	0-40 m2		
Weed 6 Code:	ERICA	ERICA	ERICA	ERICA
Growth Stage:		rosette	rosette	
Height, Unit:	1.25 in	2 in		
Density,Unit:	0-40 m2	0-40 m2		
Weed 7 Code:	OEOLA	OEOLA	OEOLA	OEOLA
Growth Stage:		rosette	rosette	
Height, Unit:	2.5 in	3 in		
Density,Unit:	0-60 m2	0-60 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	26 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				
10-28-11: No injury observed in trts. 1-4 (only PRE and Spike applications have been made).				
03-14-12: Starane is weak on primrose, poor control				
05-07-12: Few weeds to rate. Most winter annuals have senesced.				

ALS-Resistant Horseweed Control in Winter Wheat

Trial ID: SG4-12 Cooperator:
Location: Field #7 Investigator: Mark VanGessel

Weed Code	Crop Code	TRZAW	TRZAW	TRZAW	TRZAW	LAMAM	VIORA				
Weed or Crop Name		Winter Wheat	Winter Wheat	Winter Wheat	Winter Wheat	Henbit	Field Pansy				
Weed or Crop Name		Stunting %	Lf Burn %	Stunting %	Stunting %	Control %	Contol %				
Rating Data Type		11/04/11	11/04/11	11/21/11	12/21/11	03/14/12	03/14/12				
Rating Unit											
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code				
1	Untreated Check				0.0b	0.0b	0.0c	0.0d	0.0e	0.0g	
2	Sharpen.....saflufenacil	2.85 SC	0.0223 lb ai/A	PRE	A	2.3b	0.0b	1.7c	0.0d	81.7 abc	71.7 bc
	Crop Oil Concentrate	100 L	1% v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L	2.5% v/v	PRE	A						
3	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	PRE	A	4.7 b	0.0 b	9.0 b	5.7 bcd	88.3 a	88.3 a
	Crop Oil Concentrate	100 L	1% v/v	PRE	A						
	30% Urea Ammonium Nitrate	100 L	2.5% v/v	PRE	A						
4	Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	Spike	B	18.3 a	15.7 a	85.0 a	78.3 a	91.7 a	50.0 ef
	Nonionic Surfactant	100 L	0.25 % v/v	Spike	B						
5	Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	Fall	C			11.3 b	8.7 bc	86.7 ab	63.3 cd
	Nonionic Surfactant	100 L	0.25 % v/v	Fall	C						
6	Starane Ultra...fluroxypyr	2.8 EC	0.14 lb ae/A	Fall	C			2.3 c	4.0 cd	76.7 bc	43.3 f
7	Banvel.....dicamba	4 EC	0.125 lb ai/A	Fall	C			11.3 b	10.7 b	53.3 d	56.7 de
	Nonionic Surfactant	100 L	0.25 % v/v	Fall	C						
8	2,4-D amine	3.8 L	0.25 lb ae/A	Fall	C			8.0 b	7.3 bc	75.0 c	78.3 ab
9	Unison.....2,4-D acid	1.74 L	0.25 lb ae/A	Fall	C			12.0 b	10.7 b	76.7 bc	75.0 bc
10	Starane Ultra...fluroxypyr	2.8 EC	0.14 lb ae/A	Spring	D					0.0 e	0.0 g
11	Banvel.....dicamba	4 EC	0.187 lb ai/A	Spring	D					0.0 e	0.0 g
	Nonionic Surfactant	100 L	0.25 % v/v	Spring	D						
12	2,4-D amine	3.8 L	0.374 lb ae/A	Spring	D					0.0 e	0.0 g
LSD (P=.05)				4.88	1.15	4.02	6.45	11.01	12.67		
Standard Deviation				2.44	0.58	2.32	3.73	6.50	7.48		
CV				38.59	14.74	14.87	26.76	12.38	17.05		
Replicate F				3.865	1.000	0.954	1.363	6.363	0.608		
Replicate Prob(F)				0.0834	0.4219	0.4062	0.2840	0.0066	0.5535		
Treatment F				33.972	552.250	387.671	129.516	113.238	64.216		
Treatment Prob(F)				0.0004	0.0001	0.0001	0.0001	0.0001	0.0001		

Means followed by same letter do not significantly differ ($P=.05$, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

ALS-Resistant Horseweed Control in Winter Wheat

Trial ID: SG4-12 Cooperator:
 Location: Field #7 Investigator: Mark VanGessel

Weed Code						
Crop Code						
Weed or Crop Name						
Weed or Crop Name						
Rating Data Type						
Rating Unit						
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg
1	Untreated Check					
2	Sharpen.....saflufenacil Crop Oil Concentrate 30% Urea Ammonium Nitrate	2.85 SC 100 L 100 L		0.0223 lb ai/A 1 % v/v 2.5 % v/v	PRE PRE PRE	A A A
3	Sharpen.....saflufenacil Crop Oil Concentrate 30% Urea Ammonium Nitrate	2.85 SC 100 L 100 L		0.0445 lb ai/A 1 % v/v 2.5 % v/v	PRE PRE PRE	A A A
4	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.187 lb ai/A 0.25 % v/v	Spike Spike	B B
5	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L		0.187 lb ai/A 0.25 % v/v	Fall Fall	C C
6	Starane Ultra...fluroxypyr	2.8 EC		0.14 lb ae/A	Fall	C
7	Banvel.....dicamba Nonionic Surfactant	4 EC 100 L		0.125 lb ai/A 0.25 % v/v	Fall Fall	C C
8	2,4-D amine	3.8 L		0.25 lb ae/A	Fall	C
9	Unison.....2,4-D acid	1.74 L		0.25 lb ae/A	Fall	C
10	Starane Ultra...fluroxypyr	2.8 EC		0.14 lb ae/A	Spring	D
11	Banvel.....dicamba Nonionic Surfactant	4 EC 100 L		0.187 lb ai/A 0.25 % v/v	Spring	D
12	2,4-D amine	3.8 L		0.374 lb ae/A	Spring	D
LSD (P=.05)						14.34
Standard Deviation						4.08
CV						16.33
Replicate F						3.000
Replicate Prob(F)						0.2500
Treatment F						16.000
Treatment Prob(F)						0.0572

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL

Wheat Varieties Response to Metribuzin

Trial ID: SG5a-12 Cooperator: Mark VanGessel
 Location: Field #34 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
Investigator: Mark VanGessel

Crop 1: Winter Wheat	TRZAW	Variety:	see treatment list	
Planting Date:	10/18/11	Planting Method:	Drilled- Cone System	
Rate:	24 Sd/row-ft	Row Spacing:	7 in	
Soil Temperature:	73 F	Soil Moisture:	Moist	
		Seed Bed:	Smooth	
		Emergence Date:	10/25/11	
Crop 2: Barley		HORVW	Variety:	see treatment list
Planting Date:	10/18/11	Planting Method:	Drilled- Cone System	
Rate:	24 Sd/row-ft	Row Spacing:	7 in	
Soil Temperature:	73 F	Soil Moisture:	Moist	
		Seed Bed:	Smooth	
		Emergence Date:	10/25/11	

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
 Site Type: Field Study Design: FACTORIAL
 Tillage Type: Disked and Field Cultivated

MAINTENANCE

Field Prep./Maintenance: The untreated plots were treated with Harmony Extra at 0.7 oz/A + nonionic surfactant on 11-9-11.

SOIL DESCRIPTION

% Sand:	79	% OM:	1.3	Texture:	sandy loam
% Silt:	10	pH:	5.8		
% Clay:	11	CEC:	5.8	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:	11/09/11
Time of Day:	10:30 am
Application Method:	Spray
Application Timing:	Fall
Applic. Placement:	Brdcst
Air Temp., Unit:	61 F
% Relative Humidity:	71
Wind Velocity, Unit:	1 mph
Wind Direction:	South
Dew Presence (Y/N):	Y
Soil Temp., Unit:	58 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Wet
% Cloud Cover:	15

CROP STAGE AT EACH APPLICATION	
	A
Crop 1 Code:	TRZAW
Growth Stage:	2-3 leaf
Height, Unit:	3.5 in
Crop Health:	Good
Crop 2 Code:	HORVW
Growth Stage:	2-3 leaf
Height, Unit:	3.5 in
Crop Health:	Good

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIR MIX
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
11-19-11: No injury observed, no stunting or leaf burn.
12-08-11: Injury= Biomass reduction (combined stand loss and stunting)

Three treatments were applied to the border rows to USG 3770 wheat. Data below

Treatment	Injury	Injury	Dry Wt gr	Injury	Avg. Ht.	Yield Bu/A
	12-8-11	2-28-12	3-22-12	4-10-12	6-14-12	6-20-12
Untreated	Rep1	0	38.23	0	30	56.3
	Rep2	0	22.34	0	26	67.5
	Check	0	12.60	0	23.5	38.1
	Average	0	24.39	0	26.5	54.0
Metribuzin 4 oz/A	Rep1	0	25.47	0	28	66.8
	Rep2	0	36.62	0	31	73.0
	Rep3	0	14.84	0	26.5	60.7
	Average	0	25.64	0	28.5	66.8
Metribuzin 12 oz/A	Rep1	25	24.88	20	29	60.1
	Rep2	25	20.13	20	28.5	47.4
	Rep3	40	16.13	17	26.5	22.2
	Average	30	20.38	17.3	28.0	43.2

Wheat Varieties Response to Metribuzin

Trial ID: SG5a-12 Cooperator: Mark VanGessel
 Location: Field #34 Investigator: Mark VanGessel

Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	Wheat/ Barley BiomsRdx % 12/08/11	Wheat/ Barley BiomsRdx % 02/28/12	Wheat/ Barley wt1m-row grams 03/22/12	Wheat/ Barley BiomsRdx % 04/10/12	Wheat/ Barley Height Inches 06/14/12	Wheat/ Barley Yield Bu/A 06/20/12	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg						
1	Sunburst, tol., wheat Untreated Check			0.0 h	0.0 g	17.4 bcd	0.0 h	26.67 a	55.1 c-h		
2	Sunburst, tol., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	0.188 lb ai/A Fall Fall	5.0 fgh	2.3 fg	12.1 cde	4.7 fgh	27.50 a	63.4 b-g	
3	Sunburst, tol., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	0.56 lb ai/A Fall Fall	11.3 de	22.3 c	11.4 cde	14.0 def	27.33 a	49.1 d-i	
4	SS 520, tol., wheat Untreated Check			0.0 h	0.0 g	23.1 ab	0.0 h	30.33 a	70.0 a-g		
5	SS 520, tol., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	0.188 lb ai/A Fall Fall	1.7 h	10.7 def	23.2 ab	3.3 gh	30.67 a	62.2 b-g	
6	SS 520, tol., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	0.56 lb ai/A Fall Fall	40.0 c	56.7 b	10.2 def	35.0 c	30.50 a	38.3 f-i	
7	Shirley, mod., wheat Untreated Check			0.0 h	0.0 g	21.3 abc	0.0 h	29.00 a	69.2 a-g		
8	Shirley, mod., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	0.188 lb ai/A Fall Fall	9.7 def	15.0 cde	18.7 bcd	8.3 e-h	28.17 a	62.7 b-g	
9	Shirley, mod., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	0.56 lb ai/A Fall Fall	85.0 a	93.3 a	0.1 f	90.0 a	24.33 a	16.8 i	
10	Chesapeake, sen., wheat Untreated Check			0.0 h	0.0 g	19.5 bcd	0.0 h	30.83 a	64.9 a-g		
11	Chesapeake, sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	0.188 lb ai/A Fall Fall	4.0 fgh	6.3 efg	21.7 abc	6.3 e-h	31.17 a	58.2 c-g	
12	Chesapeake, sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	0.56 lb ai/A Fall Fall	36.7 c	48.3 b	6.4 ef	22.3 d	28.00 a	44.4 e-i	
13	USG-3209, v. sen., wheat Untreated Check			0.0 h	0.0 g	23.2 ab	0.0 h	28.17 a	80.7 a-e		
14	USG-3209, v. sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	0.188 lb ai/A Fall Fall	15.0 d	15.7 cde	20.9 abc	6.7 e-h	28.67 a	68.8 a-g	
15	USG-3209, v. sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	0.56 lb ai/A Fall Fall	85.0 a	90.0 a	0.2 f	85.0 a	26.50 a	20.6 hi	

Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	Wheat/ Barley BiomsRdx % 12/08/11	Wheat/ Barley BiomsRdx % 02/28/12	Wheat/ Barley wt1m-row grams 03/22/12	Wheat/ Barley BiomsRdx % 04/10/12	Wheat/ Barley Height Inches 06/14/12	Wheat/ Barley Yield Bu/A 06/20/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg					
16	USG-3555, v.sen., wheat Untreated Check			0.0 h	0.0 g	25.3 ab	0.0 h	28.00 a	67.8 a-g	
17	USG-3555, v.sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	Fall Fall	9.0 ef	14.0 cde	20.6 abc	2.3 gh	29.33 a	62.1 b-g
18	USG-3555, v.sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	Fall Fall	66.7 b	83.3 a	0.8 f	66.7 b	24.33 a	36.8 ghi
19	FS-950, barley Untreated Check			0.0 h	0.0 g	30.4 a	0.0 h	29.50 a	96.7 ab	
20	FS-950, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	Fall Fall	2.3 gh	3.3 fg	25.4 ab	2.3 gh	28.00 a	100.7 a
21	FS-950, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	Fall Fall	8.0 efg	12.3 c-f	23.3 ab	15.7 de	29.33 a	90.0 abc
22	Nomini, barley Untreated Check			0.0 h	0.0 g	26.4 ab	0.0 h	30.17 a	84.2 a-d	
23	Nomini, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	Fall Fall	0.0 h	10.0 d-g	24.3 ab	5.7 e-h	31.83 a	73.8 a-f
24	Nomini, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	Fall Fall	11.3 de	17.3 cd	19.9 bcd	11.7 efg	28.00 a	67.5 a-g
25	Thoroughbred, barley Untreated Check			0.0 h	0.0 g	26.1 ab	0.0 h	23.33 a	80.2 a-e	
26	Thoroughbred, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	Fall Fall	1.7 h	0.0 g	27.2 ab	0.0 h	23.00 a	63.0 b-g
27	Thoroughbred, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	Fall Fall	4.7 fgh	8.3 d-g	21.6 abc	9.0 e-h	23.83 a	63.9 b-g
LSD (P=.05)					5.79	10.02	10.31	10.47	6.159	36.44
Standard Deviation					3.54	6.13	6.31	6.41	3.771	22.32
CV					24.11	32.51	34.05	44.48	13.46	35.21
Replicate F					2.971	2.104	4.755	0.587	0.059	0.673
Replicate Prob(F)					0.0600	0.1322	0.0127	0.5596	0.9425	0.5144
Treatment F					154.246	66.406	5.478	47.132	1.292	2.427
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.2126	0.0032

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Wheat Varieties Response to Metribuzin

Trial ID: SG5a-12 Cooperator: Mark VanGessel
 Location: Field #34 Investigator: Mark VanGessel

Weed or Crop Name	Wheat/ Barley	Wheat/ Barley	Wheat/ Barley	Wheat/ Barley	Wheat/ Barley	Wheat/ Barley
Rating Data Type	BiomsRdx	BiomsRdx	wt1m-row	BiomsRdx	Height	Yield
Rating Unit	%	%	grams	%	Inches	Bu/A
Rating Date	12/08/11	02/28/12	03/22/12	04/10/12	06/14/12	06/20/12
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg		
TABLE OF R MEANS						
Replicate 1		14.3	19.9	15.6	14.4	27.85
Replicate 2		13.8	16.9	19.2	13.4	28.00
Replicate 3		16.0	19.8	20.8	15.3	28.20
TABLE OF A (Wheat Variety) MEANS						
1 Sunburst, tol., wheat		5.4	8.2	13.6	6.2	27.17
2 SS 520, tol., wheat		13.9	22.4	18.8	12.8	30.50
3 Shirley, mod., wheat		31.6	36.1	13.4	32.8	27.17
4 Chesapeake, sen., wheat		13.6	18.2	15.8	9.6	30.00
5 USG-3209, v. sen., wheat		33.3	35.2	14.8	30.6	27.78
6 USG-3555, v.sen., wheat		25.2	32.4	15.6	23.0	27.22
7 FS-950, barley		3.4	5.2	26.3	6.0	28.94
8 Nomini, barley		3.8	9.1	23.5	5.8	30.00
9 Thoroughbred, barley		2.1	2.8	25.0	3.0	23.39
TABLE OF B (Metribuzin Rate) MEANS						
1 Untreated Check		0.0	0.0	23.6	0.0	28.44
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall			
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall	5.4	8.6	21.6
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall			
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall	38.7	48.0	10.4
TABLE OF A (Wheat Variety) B (Metribuzin Rate) MEANS						
1 Sunburst, tol., wheat		0.0	0.0	17.4	0.0	26.67
1 Untreated Check						
2 SS 520, tol., wheat		0.0	0.0	23.1	0.0	30.33
1 Untreated Check						
3 Shirley, mod., wheat		0.0	0.0	21.3	0.0	29.00
1 Untreated Check						
4 Chesapeake, sen., wheat		0.0	0.0	19.5	0.0	30.83
1 Untreated Check						
5 USG-3209, v. sen., wheat		0.0	0.0	23.2	0.0	28.17
1 Untreated Check						
6 USG-3555, v.sen., wheat		0.0	0.0	25.3	0.0	28.00
1 Untreated Check						
7 FS-950, barley		0.0	0.0	30.4	0.0	29.50
1 Untreated Check						
8 Nomini, barley		0.0	0.0	26.4	0.0	30.17
1 Untreated Check						
9 Thoroughbred, barley		0.0	0.0	26.1	0.0	23.33
1 Untreated Check						

Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	Wheat/ Barley BiomsRdx % 12/08/11	Wheat/ Barley BiomsRdx % 02/28/12	Wheat/ Barley wt1m-row grams 03/22/12	Wheat/ Barley BiomsRdx % 04/10/12	Wheat/ Barley Height Inches 06/14/12	Wheat/ Barley Yield Bu/A 06/20/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg					
1	Sunburst, tol., wheat					5.0	2.3	12.1	4.7	27.50
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall						63.4
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
2	SS 520, tol., wheat					1.7	10.7	23.2	3.3	30.67
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall						62.2
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
3	Shirley, mod., wheat					9.7	15.0	18.7	8.3	28.17
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall						62.7
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
4	Chesapeake, sen., wheat					4.0	6.3	21.7	6.3	31.17
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall						58.2
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
5	USG-3209, v. sen., wheat					15.0	15.7	20.9	6.7	28.67
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall						68.8
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
6	USG-3555, v.sen., wheat					9.0	14.0	20.6	2.3	29.33
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall						62.1
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
7	FS-950, barley					2.3	3.3	25.4	2.3	28.00
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall						100.7
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
8	Nomini, barley					0.0	10.0	24.3	5.7	31.83
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall						73.8
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
9	Thoroughbred, barley					1.7	0.0	27.2	0.0	23.00
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall						63.0
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
1	Sunburst, tol., wheat					11.3	22.3	11.4	14.0	27.33
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall						49.1
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
2	SS 520, tol., wheat					40.0	56.7	10.2	35.0	30.50
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall						38.3
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
3	Shirley, mod., wheat					85.0	93.3	0.1	90.0	24.33
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall						16.8
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
4	Chesapeake, sen., wheat					36.7	48.3	6.4	22.3	28.00
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall						44.4
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
5	USG-3209, v. sen., wheat					85.0	90.0	0.2	85.0	26.50
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall						20.6
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
6	USG-3555, v.sen., wheat					66.7	83.3	0.8	66.7	24.33
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall						36.8
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
7	FS-950, barley					8.0	12.3	23.3	15.7	29.33
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall						90.0
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
8	Nomini, barley					11.3	17.3	19.9	11.7	28.00
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall						67.5
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						
9	Thoroughbred, barley					4.7	8.3	21.6	9.0	23.83
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall						63.9
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						

Wheat Varieties Response to Metribuzin

Trial ID: SG5a-12 Cooperator: Mark VanGessel
 Location: Field #34 Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For Wheat/ Barley BiomsRdx % 12/08/11

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	51114.888889				
R	2	74.666667	37.333333	2.971	0.0600	1.9
A	8	11107.111111	1388.388889	110.504	0.0001	3.3
B	2	23789.407407	11894.703704	946.721	0.0001	1.9
AB	16	15490.370370	968.148148	77.057	0.0001	5.8
ERROR	52	653.333333	12.564103			

FACTORIAL/POOLED ERROR AOV For Wheat/ Barley BiomsRdx % 02/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	67071.506173				
R	2	158.320988	79.160494	2.104	0.1322	3.3
A	8	12743.506173	1592.938272	42.341	0.0001	5.8
B	2	35376.987654	17688.493827	470.163	0.0001	3.3
AB	16	16836.345679	1052.271605	27.970	0.0001	10.0
ERROR	52	1956.345679	37.622032			

FACTORIAL/POOLED ERROR AOV For Wheat/ Barley wt1m-row grams 03/22/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	8124.561326				
R	2	378.899591	189.449796	4.755	0.0127	3.4
A	8	1869.667598	233.708450	5.866	0.0001	6.0
B	2	2735.602237	1367.801118	34.333	0.0001	3.4
AB	16	1068.775369	66.798461	1.677	0.0817	10.3
ERROR	52	2071.616531	39.838779			

FACTORIAL/POOLED ERROR AOV For Wheat/ Barley BiomsRdx % 04/10/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	52515.555556				
R	2	48.222222	24.111111	0.587	0.5596	3.5
A	8	9364.888889	1170.611111	28.501	0.0001	6.0
B	2	24388.962963	12194.481481	296.900	0.0001	3.5
AB	16	16577.703704	1036.106481	25.226	0.0001	10.5
ERROR	52	2135.777778	41.072650			

FACTORIAL/POOLED ERROR AOV For Wheat/ Barley Height Inches 06/14/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	1219.222222				
R	2	1.685185	0.842593	0.059	0.9425	2.05
A	8	346.000000	43.250000	3.041	0.0070	3.56
B	2	50.907407	25.453704	1.789	0.1772	2.05
AB	16	80.981481	5.061343	0.356	0.9869	6.16
ERROR	52	739.648148	14.224003			

FACTORIAL/POOLED ERROR AOV For Wheat/ Barley Yield Bu/A 06/20/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	57994.327851				
R	2	670.728731	335.364365	0.673	0.5143	12.1
A	8	15057.130540	1882.141317	3.780	0.0015	21.0
B	2	10714.181725	5357.090863	10.758	0.0001	12.1
AB	16	5657.063649	353.566478	0.710	0.7711	36.4
ERROR	52	25895.223207	497.985062			

Wheat Varieties Response to Metribuzin

Trial ID: SG5b-12 Cooperator: Mark VanGessel
 Location: Middletown 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
Investigator: Mark VanGessel

Crop 1: Winter Wheat	TRZAW	Variety:	see treatment list
Planting Date:	10/17/11	Planting Method:	Drilled- Cone System
Rate:	24 Sd/row-ft	Row Spacing:	7 in
Soil Temperature:	70 F	Soil Moisture:	Moist
		Seed Bed:	Medium
		Emergence Date:	10/24/11
Crop 2: Barley	HORVW	Variety:	see treatment list
Planting Date:	10/17/11	Planting Method:	Drilled- Cone System
Rate:	24 Sd/row-ft	Row Spacing:	7 in
Soil Temperature:	70 F	Soil Moisture:	Moist
		Seed Bed:	Medium
		Emergence Date:	10/24/11

SITE AND DESIGN

Plot Width, Unit: 6 FT Plot Length, Unit: 25 FT Reps: 3
 Site Type: Field Study Design: FACTORIAL
 Tillage Type: Conventional Tillage

MAINTENANCE

Field Prep./Maintenance: The untreated plots were treated with Harmony Extra at 0.7 oz/A + nonionic surfactant on 11-10-11.

SOIL DESCRIPTION

% OM: 2.3 Texture: silt loam
 pH: 7.74 Fert. Level: Optimum

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

APPLICATION DESCRIPTION

	A
Application Date:	11/10/11
Time of Day:	12:10 pm
Application Method:	Spray
Application Timing:	Fall
Applic. Placement:	Brdcst
Air Temp., Unit:	57 F
% Relative Humidity:	100
Wind Velocity, Unit:	3 mph
Wind Direction:	Northwest
Dew Presence (Y/N):	Y
Soil Temp., Unit:	55 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Moist
% Cloud Cover:	100

CROP STAGE AT EACH APPLICATION	
	A
Crop 1 Code:	TRZAW
Growth Stage:	2-leaf
Height, Unit:	3 in
Crop Health:	Good
Crop 2 Code:	HORVW
Growth Stage:	2-leaf
Height, Unit:	3 in
Crop Health:	Good

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIR MIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	4 nozl
Boom Height, Unit:	22 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trial Comments
11-22-11: Some leaf burn (<5%).
12-08-11: Injuries = biomass reduction, stand loss, & stunting.
01-06-12: Injuries = biomass reduction, stand loss, & stunting. 4 oz. rate poor control of annual bluegrass (Post).
03-02-12: Biomass Reduction is a combination of stand loss AND stunting.

Weed or Crop Name	Barley/ Wheat Chloross %	Barley/ Wheat BiomRsRdx %	Barley/ Wheat BiomRsRdx %	Barley/ Wheat Biomass g/1m-row	Barley/ Wheat BiomRsRdx %	Barley/ Wheat BiomRsRdx %	Barley/ Wheat BiomRsRdx %
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg			
16 USG-3555, v.sen., wheat Untreated Check			0.0 a	0.0 h	0.0f	49.53 a	0.0 h
17 USG-3555, v.sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	Fall	13.3 de	12.3 ef	40.09 abc	13.3 efg
18 USG-3555, v.sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	Fall	3.3 a	53.3 b	81.7 a	3.15 j
19 FS-950, barley Untreated Check			0.0 a	0.0 h	0.0f	32.84 b-g	0.0 h
20 FS-950, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	Fall	3.3 a	0.0 h	1.7 f	38.19 a-e
21 FS-950, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	Fall	5.7 a	15.7 d	19.0 cde	30.57 c-h
22 Nomini, barley Untreated Check			0.0 a	0.0 h	0.0f	26.68 e-i	0.0 h
23 Nomini, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	Fall	0.0 a	2.3 gh	8.0 ef	27.20 e-i
24 Nomini, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	Fall	1.7 a	7.0 fg	3.3 ef	25.77 f-i
25 Thoroughbred, barley Untreated Check			0.0 a	0.0 h	0.0f	34.54 b-g	0.0 h
26 Thoroughbred, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	Fall	0.0 a	0.0 h	6.7 ef	35.83 b-f
27 Thoroughbred, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	Fall	2.3 a	7.3 fg	11.7 ef	30.02 c-h
LSD (P=.05)			4.62	5.92	16.63	11.562	10.99
Standard Deviation			2.83	3.62	10.18	7.007	6.73
CV			238.69	29.89	54.06	24.63	34.99
Replicate F			2.198	2.207	0.445	1.188	0.655
Replicate Prob(F)			0.1212	0.1202	0.6432	0.3135	0.5239
Treatment F			0.994	85.781	20.486	9.992	50.012
Treatment Prob(F)			0.4915	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed or Crop Name		Barley/ Wheat				
Weed or Crop Name		Yield Bu/A				
Rating Data Type						
Rating Unit						
Rating Date		June 2012				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	
1	Sunburst, tol., wheat Untreated Check					62.3 ij
2	Sunburst, tol., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	lb ai/A Fall		70.7 hi
3	Sunburst, tol., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	lb ai/A Fall		60.8 ij
4	SS 520, tol., wheat Untreated Check					70.2 hi
5	SS 520, tol., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	lb ai/A Fall		71.3 hi
6	SS 520, tol., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	lb ai/A Fall		57.9 ij
7	Shirley, mod., wheat Untreated Check					84.5 fgh
8	Shirley, mod., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	lb ai/A Fall		88.3 d-g
9	Shirley, mod., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	lb ai/A Fall		32.1 k
10	Chesapeake, sen., wheat Untreated Check					71.4 hi
11	Chesapeake, sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	lb ai/A Fall		72.8 ghi
12	Chesapeake, sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	lb ai/A Fall		63.0 ij
13	USG-3209, v. sen., wheat Untreated Check					85.0 e-h
14	USG-3209, v. sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	lb ai/A Fall		84.0 fgh
15	USG-3209, v. sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	lb ai/A Fall		24.9 k

Weed or Crop Name		Barley/ Wheat				
Weed or Crop Name		Yield Bu/A				
Rating Data Type						
Rating Unit						
Rating Date		June 2012				
Trt	Treatment	Form	Form	Rate	Grow	
No.	Name	Conc	Type	Rate	Unit	Stg
16	USG-3555, v.sen., wheat					92.4 def
	Untreated Check					
17	USG-3555, v.sen., wheat					89.8 def
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/A	Fall	
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	
18	USG-3555, v.sen., wheat					51.4 j
	Metribuzin.....metribuzin	75 DF		0.56 lb ai/A	Fall	
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	
19	FS-950, barley					93.2 def
	Untreated Check					
20	FS-950, barley					100.5 cde
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/A	Fall	
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	
21	FS-950, barley					90.4 def
	Metribuzin.....metribuzin	75 DF		0.56 lb ai/A	Fall	
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	
22	Nomini, barley					98.1 c-f
	Untreated Check					
23	Nomini, barley					101.2 bcd
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/A	Fall	
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	
24	Nomini, barley					102.4 a-d
	Metribuzin.....metribuzin	75 DF		0.56 lb ai/A	Fall	
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	
25	Thoroughbred, barley					116.7 a
	Untreated Check					
26	Thoroughbred, barley					116.2 ab
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/A	Fall	
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	
27	Thoroughbred, barley					112.1 abc
	Metribuzin.....metribuzin	75 DF		0.56 lb ai/A	Fall	
	Nonionic Surfactant	100 L		0.25 % v/v	Fall	
LSD (P=.05)						15.54
Standard Deviation						9.52
CV						11.88
Replicate F						3.520
Replicate Prob(F)						0.0369
Treatment F						17.893
Treatment Prob(F)						0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Wheat Varieties Response to Metribuzin

Trial ID: SG5b-12 Cooperator: Mark VanGessel
 Location: Middletown Investigator: Mark VanGessel

Weed or Crop Name	Barley/ Wheat	Barley/ Wheat	Barley/ Wheat	Barley/ Wheat	Barley/ Wheat	Barley/ Wheat
Rating Data Type	Chloross %	BiomsRdx %	BiomsRdx %	Biomass g/1m-row	BiomsRdx %	BiomsRdx %
Rating Unit	11/22/11	12/08/11	01/06/12	04/04/12	03/02/12	03/29/12
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg		
TABLE OF R MEANS						
Replicate 1		0.8	11.3	20.0	29.45	18.6
Replicate 2		0.6	11.7	17.4	29.12	18.7
Replicate 3		2.1	13.3	19.0	26.76	20.4
TABLE OF A (Wheat Variety) MEANS						
1 Sunburst, tol., wheat		1.7	6.4	22.4	22.53	9.1
2 SS 520, tol., wheat		0.0	8.9	18.9	32.73	22.7
3 Shirley, mod., wheat		0.6	24.1	32.4	12.99	34.0
4 Chesapeake, sen., wheat		1.1	10.0	13.2	33.19	26.3
5 USG-3209, v. sen., wheat		1.9	26.7	34.4	29.74	37.4
6 USG-3555, v.sen., wheat		1.1	22.2	31.3	30.92	23.3
7 FS-950, barley		3.0	5.2	6.9	33.87	11.3
8 Nomini, barley		0.6	3.1	3.8	26.55	2.7
9 Thoroughbred, barley		0.8	2.4	6.1	33.46	6.2
TABLE OF B (Metribuzin Rate) MEANS						
1 Untreated Check		0.0	0.0	0.0	35.05	0.0
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall			
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall	0.8	4.6	12.2
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall			
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall	2.7	31.7	44.3
TABLE OF A (Wheat Variety) B (Metribuzin Rate) MEANS						
1 Sunburst, tol., wheat		0.0	0.0	0.0	23.18	0.0
1 Untreated Check						
2 SS 520, tol., wheat		0.0	0.0	0.0	43.86	0.0
1 Untreated Check						
3 Shirley, mod., wheat		0.0	0.0	0.0	20.10	0.0
1 Untreated Check						
4 Chesapeake, sen., wheat		0.0	0.0	0.0	36.12	0.0
1 Untreated Check						
5 USG-3209, v. sen., wheat		0.0	0.0	0.0	48.62	0.0
1 Untreated Check						
6 USG-3555, v.sen., wheat		0.0	0.0	0.0	49.53	0.0
1 Untreated Check						
7 FS-950, barley		0.0	0.0	0.0	32.84	0.0
1 Untreated Check						0.4
8 Nomini, barley		0.0	0.0	0.0	26.68	0.0
1 Untreated Check						0.0
9 Thoroughbred, barley		0.0	0.0	0.0	34.54	0.0
1 Untreated Check						0.0

University of Delaware

Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	Barley/ Wheat Chloross % 11/22/11	Barley/ Wheat BiomsRdx % 12/08/11	Barley/ Wheat BiomsRdx % 01/06/12	Barley/ Wheat Biomass g/1m-row 04/04/12	Barley/ Wheat BiomsRdx % 03/02/12	Barley/ Wheat BiomsRdx % 03/29/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg					
1	Sunburst, tol., wheat									
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall		1.7	0.3	32.3	27.79	5.7
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						2.3
2	SS 520, tol., wheat									
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall		0.0	0.0	10.0	34.69	14.7
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						2.3
3	Shirley, mod., wheat									
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall		0.0	9.0	15.7	17.65	12.0
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						13.0
4	Chesapeake, sen., wheat									
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall		0.0	0.0	8.0	38.84	10.7
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						4.0
5	USG-3209, v. sen., wheat									
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall		2.3	16.7	15.0	38.13	22.3
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						17.3
6	USG-3555, v.sen., wheat									
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall		0.0	13.3	12.3	40.09	13.3
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						13.0
7	FS-950, barley									
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall		3.3	0.0	1.7	38.19	5.7
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						5.4
8	Nomini, barley									
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall		0.0	2.3	8.0	27.20	3.3
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						4.0
9	Thoroughbred, barley									
2	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall		0.0	0.0	6.7	35.83	8.0
2	Nonionic Surfactant	100 L	0.25 % v/v	Fall						0.0
1	Sunburst, tol., wheat									
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall		3.3	19.0	35.0	16.62	21.7
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						12.3
2	SS 520, tol., wheat									
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall		0.0	26.7	46.7	19.63	53.3
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						44.0
3	Shirley, mod., wheat									
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall		1.7	63.3	81.7	1.22	90.0
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						90.0
4	Chesapeake, sen., wheat									
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall		3.3	30.0	31.7	24.60	68.3
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						40.0
5	USG-3209, v. sen., wheat									
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall		3.3	63.3	88.3	2.48	90.0
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						88.3
6	USG-3555, v.sen., wheat									
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall		3.3	53.3	81.7	3.15	56.7
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						76.7
7	FS-950, barley									
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall		5.7	15.7	19.0	30.57	28.3
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						16.4
8	Nomini, barley									
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall		1.7	7.0	3.3	25.77	4.7
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						2.3
9	Thoroughbred, barley									
3	Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall		2.3	7.3	11.7	30.02	10.7
3	Nonionic Surfactant	100 L	0.25 % v/v	Fall						6.3

Weed or Crop Name		Barley/ Wheat	Barley/ Wheat
Weed or Crop Name		BiomsRdx	
Rating Data Type		%	
Rating Unit			
Rating Date	04/16/12		
Trt Treatment No.	Form Name	Form Conc	Rate
		Type	Unit
			Stg
TABLE OF R MEANS			
Replicate 1		12.6	84.1
Replicate 2		11.5	77.6
Replicate 3		13.4	78.7
TABLE OF A (Wheat Variety) MEANS			
1 Sunburst, tol., wheat		2.2	64.6
2 SS 520, tol., wheat		9.6	66.4
3 Shirley, mod., wheat		27.8	68.3
4 Chesapeake, sen., wheat		6.7	69.1
5 USG-3209, v. sen., wheat		29.7	64.6
6 USG-3555, v.sen., wheat		22.2	77.9
7 FS-950, barley		5.5	94.7
8 Nominis, barley		1.1	100.5
9 Thoroughbred, barley		7.8	115.0
TABLE OF B (Metribuzin Rate) MEANS			
1 Untreated Check		0.1	86.0
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall
TABLE OF A (Wheat Variety) B (Metribuzin Rate) MEANS			
1 Sunburst, tol., wheat		0.0	62.3
1 Untreated Check			
2 SS 520, tol., wheat		0.0	70.2
1 Untreated Check			
3 Shirley, mod., wheat		0.0	84.5
1 Untreated Check			
4 Chesapeake, sen., wheat		0.0	71.4
1 Untreated Check			
5 USG-3209, v. sen., wheat		0.0	85.0
1 Untreated Check			
6 USG-3555, v.sen., wheat		0.0	92.4
1 Untreated Check			
7 FS-950, barley		0.5	93.2
1 Untreated Check			
8 Nominis, barley		0.0	98.1
1 Untreated Check			
9 Thoroughbred, barley		0.0	116.7
1 Untreated Check			

Weed or Crop Name		Barley/ Wheat BiomsRdx %	Barley/ Wheat Yield Bu/A			
Rating Date	04/16/12					
Trt Treatment No.	Form Conc	Form Type	Rate Unit	Grow Stg		
1 Sunburst, tol., wheat				0.0	70.7	
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall			
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
2 SS 520, tol., wheat				0.5	71.3	
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall			
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
3 Shirley, mod., wheat				0.0	88.3	
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall			
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
4 Chesapeake, sen., wheat				0.0	72.8	
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall			
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
5 USG-3209, v. sen., wheat				5.7	84.0	
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall			
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
6 USG-3555, v.sen., wheat				6.7	89.8	
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall			
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
7 FS-950, barley				0.5	100.5	
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall			
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
8 Nominis, barley				3.3	101.2	
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall			
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
9 Thoroughbred, barley				10.0	116.2	
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Fall			
2 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
1 Sunburst, tol., wheat				6.7	60.8	
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall			
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
2 SS 520, tol., wheat				28.3	57.9	
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall			
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
3 Shirley, mod., wheat				83.3	32.1	
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall			
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
4 Chesapeake, sen., wheat				20.0	63.0	
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall			
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
5 USG-3209, v. sen., wheat				83.3	24.9	
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall			
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
6 USG-3555, v.sen., wheat				60.0	51.4	
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall			
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
7 FS-950, barley				15.5	90.4	
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall			
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
8 Nominis, barley				0.0	102.4	
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall			
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall			
9 Thoroughbred, barley				13.3	112.1	
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Fall			
3 Nonionic Surfactant	100 L	0.25 % v/v	Fall			

Wheat Varieties Response to Metribuzin

Trial ID: SG5b-12 Cooperator: Mark VanGessel
 Location: Middletown Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat Chloross % 11/22/11

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	658.222222				
R	2	35.185185	17.592593	2.198	0.1212	1.5
A	8	57.555556	7.194444	0.899	0.5243	2.7
B	2	106.962963	53.481481	6.683	0.0026	1.5
AB	16	42.370370	2.648148	0.331	0.9910	4.6
ERROR	52	416.148148	8.002849			

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat BiomsRdx % 12/08/11

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	30022.765432				
R	2	57.950617	28.975309	2.207	0.1202	2.0
A	8	6542.543210	817.817901	62.290	0.0001	3.4
B	2	15875.283951	7937.641975	604.581	0.0001	2.0
AB	16	6864.271605	429.016975	32.677	0.0001	5.9
ERROR	52	682.716049	13.129155			

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat BiomsRdx % 01/06/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	60732.913580				
R	2	92.320988	46.160494	0.445	0.6432	5.5
A	8	10448.469136	1306.058642	12.592	0.0001	9.6
B	2	28326.839506	14163.419753	136.548	0.0001	5.5
AB	16	16471.604938	1029.475309	9.925	0.0001	16.6
ERROR	52	5393.679012	103.724596			

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat Biomass g/1m-row 04/04/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	15275.949316				
R	2	116.600571	58.300286	1.260	0.2921	3.70
A	8	3426.056726	428.257091	9.258	0.0001	6.41
B	2	5242.206320	2621.103160	56.660	0.0001	3.70
AB	16	4085.572079	255.348255	5.520	0.0001	11.11
ERROR	52	2405.513620	46.259877			

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat BiomsRdx % 03/02/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	61265.371940				
R	2	59.308679	29.654340	0.668	0.5173	3.6
A	8	11134.602097	1391.825262	31.331	0.0001	6.3
B	2	32916.536076	16458.268038	370.493	0.0001	3.6
AB	16	14844.950694	927.809418	20.886	0.0001	10.9
ERROR	52	2309.974394	44.422585			

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat BiomsRdx % 03/29/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	60256.927856				
R	2	61.227727	30.613864	0.779	0.4639	3.4
A	8	13357.336689	1669.667086	42.511	0.0001	5.9
B	2	27146.888889	13573.444444	345.589	0.0001	3.4
AB	16	17649.111117	1103.069445	28.085	0.0001	10.2
ERROR	52	2042.363434	39.276220			

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat BiomsRdx % 04/16/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	46240.600180				
R	2	51.509684	25.754842	1.627	0.2063	2.2
A	8	8749.956321	1093.744540	69.108	0.0001	3.8
B	2	19707.191714	9853.595857	622.595	0.0001	2.2
AB	16	16908.956951	1056.809809	66.774	0.0001	6.5
ERROR	52	822.985510	15.826644			

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat Yield Bu/A

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	80	47488.524945				
R	2	637.697347	318.848674	3.520	0.0368	5.2
A	8	25049.035598	3131.129450	34.568	0.0001	9.0
B	2	8037.385786	4018.692893	44.366	0.0001	5.2
AB	16	9054.249756	565.890610	6.247	0.0001	15.5
ERROR	52	4710.156458	90.579932			

(SG5c-12)

University of Delaware

Wheat Varieties Response to Metribuzin - First Planting Middletown Location

Trial ID: SG5c-12 Cooperator:
 Location: Middletown 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

Crop 1: Winter Wheat **Variety:** see treatment list
Planting Date: 10/17/11 **Planting Method:** Drilled- Cone System **Depth:** 1 in
Rate: 24 Sd/row-ft **Row Spacing:** 7 in **Seed Bed:** Medium
Soil Temperature: 70 F **Soil Moisture:** Moist **Emergence Date:** 10/24/11

Crop 2: Barley **Variety:** see treatment list
Planting Date: 10/17/11 **Planting Method:** Drilled- Cone System **Depth:** 1 in
Rate: 24 Sd/row-ft **Row Spacing:** 7 in **Seed Bed:** Medium
Soil Temperature: 70 F **Soil Moisture:** Moist **Emergence Date:** 10/24/11

SITE AND DESIGN

Plot Width, Unit: 6 FT **Plot Length, Unit:** 23 FT **Reps:** 3
Site Type: Field **Study Design:** FACTORIAL
Tillage Type: Conventional Tillage

MAINTENANCE

Field Prep./Maintenance: The untreated plots were sprayed with Harmony Extra 0.7 oz/A + NIS 0.25 %v/v on 3-20-12.

SOIL DESCRIPTION

% OM: 2.3 Texture: silt loam
 pH: 7.74 Fert. Level: Optimum

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

APPLICATION DESCRIPTION

	A	B
Application Date:	02/23/12	03/20/12
Time of Day:	10:30 am	11:30 am
Application Method:	Spray	Spray
Application Timing:	ESpring	Spring
Applc. Placement:	Brdcst	Brdcst
Air Temp., Unit:	57 F	64 F
% Relative Humidity:	54	88
Wind Velocity, Unit:	6 mph	2 mph
Wind Direction:	West	Northeast
Dew Presence (Y/N):	N	Y
Soil Temp., Unit:	54 F	62 F
Soil Surf. Moisture:	Moist	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist
% Cloud Cover:	25	90

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	TRZAW	TRZAW
Growth Stage:	4-5 tiller	jointing
Height, Unit:	8 in	9 in
Crop Health:	Good	Good
Crop 2 Code:	HORVW	HORVW
Growth Stage:	3-4 tiller	jointing
Height, Unit:	6 in	9 in
Crop Health:	Good	Good

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:	4 nozl	6 nozl
Boom Height, Unit:	22 in	26 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO2	CO2

Trial Comments

03-20-12: Wheat and barley height were somewhat variable (7-11"). Early Spring treatments had no injury; in fact, the crops were slightly taller in treated plots than in untreated plots.

Wheat Varieties Response to Metribuzin - First Planting Middletown Location

Trial ID: SG5c-12 Cooperator:
 Location: Middletown Investigator: Mark VanGessel

Weed or Crop Name	Barley/ Wheat LeafBurn %	Barley/ Wheat Stunting %	Barley/ Wheat Stunting %	Barley/ Wheat Yield Bu/A
	03/27/12	03/27/12	04/16/12	
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Stg Appl Code
1 Thoroughbred, barley Untreated Check			0.2f	0.0g 0.0c 121.1 a
2 Thoroughbred, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	0.188 lb ai/A Spring	B B
3 Thoroughbred, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	0.56 lb ai/A Spring	B B
4 FS-950, barley Untreated Check			0.0f	0.0g 0.0c 100.1 c
5 FS-950, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	2.7 def	0.0g 0.0c 106.6 bc
6 FS-950, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	5.7 b-e	7.3 cde 2.3 bc 100.7 c
7 Nomini, barley Untreated Check			0.0f	0.0g 0.0c 117.8 a
8 Nomini, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	0.0f	0.0g 0.0c 114.8 ab
9 Nomini, barley Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	1.0ef	11.3 a-d 11.7 a 96.8 c
10 Sunburst, tol., wheat Untreated Check			0.0f	0.0g 0.0c 61.0 f-i
11 Sunburst, tol., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	1.0ef	0.0g 0.0c 59.0 g-j
12 Sunburst, tol., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	7.3 a-d	6.3 def 5.7 b 49.8 j
13 Chesapeake, sen., wheat Untreated Check			0.0f	0.0g 0.0c 70.3 def
14 Chesapeake, sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	11.3 a	3.3 efg 4.0 bc 68.6 d-h
15 Chesapeake, sen., wheat Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	11.3 a	12.9 abc 12.4 a 61.5 f-i

Weed or Crop Name			Barley/ Wheat LeafBurn %	Barley/ Wheat Stunting %	Barley/ Wheat Stunting %	Barley/ Wheat Yield Bu/A
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
16 SS 520, tol., wheat	Untreated Check			0.0f	0.0 g	0.0c
17 SS 520, tol., wheat	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	Spring B	11.3 a	9.7 a-d
18 SS 520, tol., wheat	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	Spring B	4.0 c-f	15.0 a
19 Shirley, mod., wheat	Untreated Check			0.0f	0.0 g	0.0c
20 Shirley, mod., wheat	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	Spring B	6.3 a-d	0.0 g
21 Shirley, mod., wheat	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	Spring B	5.0 c-f	8.0 b-e
22 Chesapeake, wheat	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.187 lb ai/A 0.25 % v/v	ESpring A	2.7 def	7.3 cde
23 Chesapeake, wheat	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	ESpring A	2.7 def	2.3 efg
24 Chesapeake, wheat	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.47 lb ai/A 0.25 % v/v	Spring B	10.7 ab	14.0 ab
25 Shirley, wheat	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.187 lb ai/A 0.25 % v/v	ESpring A	0.0f	0.0 g
26 Shirley, wheat	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	ESpring A	8.0 abc	0.4 fg
27 Shirley, wheat	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.47 lb ai/A 0.25 % v/v	Spring B	4.0 c-f	14.7 a
LSD (P=.05)				5.01	6.27	4.28
Standard Deviation				3.03	3.80	2.59
CV				85.09	90.67	97.64
Replicate F				1.029	1.049	0.286
Replicate Prob(F)				0.3646	0.3583	0.7522
Treatment F				5.361	6.233	7.852
Treatment Prob(F)				0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Wheat Varieties Response to Metribuzin - First Planting Middletown Location

Trial ID: SG5c-12 Cooperator:
 Location: Middletown Investigator: Mark VanGessel

Weed or Crop Name		Barley/ Wheat	Barley/ Wheat	Barley/ Wheat	Barley/ Wheat
Weed or Crop Name		LeafBurn %	Stunting %	Stunting %	Yield Bu/A
Rating Data Type		03/27/12	03/27/12	04/16/12	
Rating Unit					
Rating Date					
Trt Treatment No.	Form Conc	Form Type Rate	Rate Unit	Grow Stg	Appl Code
Replicate 1				3.7	3.0 1.8 86.2
Replicate 2				2.5	2.7 1.7 81.6
Replicate 3				3.5	4.9 1.7 85.7
TABLE OF R MEANS					
1 Thoroughbred, barley				0.4	0.1 0.0 121.5
2 FS-950, barley				2.8	2.4 0.8 102.5
3 Nomini, barley				0.3	3.8 3.9 109.8
4 Sunburst, tol., wheat				2.8	2.1 1.9 56.6
5 Chesapeake, sen., wheat				7.6	5.4 5.5 66.8
6 SS 520, tol., wheat				5.1	8.2 0.0 61.2
7 Shirley, mod., wheat				3.8	2.7 0.0 73.1
TABLE OF A (Wheat Variety) MEANS					
1 Untreated Check				0.0	0.0 0.0 88.5
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Spring B	4.8	1.9 0.6 86.3
2 Nonionic Surfactant	100 L	0.25 % v/v	Spring B		
3 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	Spring B	4.9	8.8 4.6 78.7
3 Nonionic Surfactant	100 L	0.25 % v/v	Spring B		
TABLE OF A (Wheat Variety) B (Metribuzin Rate) MEANS					
1 Thoroughbred, barley				0.2	0.0 0.0 121.1
1 Untreated Check					
2 FS-950, barley				0.0	0.0 0.0 100.1
1 Untreated Check					
3 Nomini, barley				0.0	0.0 0.0 117.8
1 Untreated Check					
4 Sunburst, tol., wheat				0.0	0.0 0.0 61.0
1 Untreated Check					
5 Chesapeake, sen., wheat				0.0	0.0 0.0 70.3
1 Untreated Check					
6 SS 520, tol., wheat				0.0	0.0 0.0 71.4
1 Untreated Check					
7 Shirley, mod., wheat				0.0	0.0 0.0 77.7
1 Untreated Check					
1 Thoroughbred, barley				1.0	0.0 0.0 124.2
2 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	Spring B		
2 Nonionic Surfactant	100 L	0.25 % v/v	Spring B		

University of Delaware

Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	Barley/ Wheat LeafBurn %	Barley/ Wheat Stunting %	Barley/ Wheat Stunting %	Barley/ Wheat Yield Bu/A
Trt	Treatment	Form No.	Form Name	Rate	Grow Conc	Appl Type	Stg	Code
2 FS-950, barley					03/27/12	03/27/12	04/16/12	
2 Metribuzin.....metribuzin	75 DF	0.188 lb	ai/A	Spring	B	2.7	0.0	106.6
2 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
3 Nominis, barley						0.0	0.0	114.8
2 Metribuzin.....metribuzin	75 DF	0.188 lb	ai/A	Spring	B			
2 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
4 Sunburst, tol., wheat						1.0	0.0	59.0
2 Metribuzin.....metribuzin	75 DF	0.188 lb	ai/A	Spring	B			
2 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
5 Chesapeake, sen., wheat						11.3	3.3	68.6
2 Metribuzin.....metribuzin	75 DF	0.188 lb	ai/A	Spring	B			
2 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
6 SS 520, tol., wheat						11.3	9.7	58.1
2 Metribuzin.....metribuzin	75 DF	0.188 lb	ai/A	Spring	B			
2 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
7 Shirley, mod., wheat						6.3	0.0	72.8
2 Metribuzin.....metribuzin	75 DF	0.188 lb	ai/A	Spring	B			
2 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
1 Thoroughbred, barley						0.0	0.4	119.3
3 Metribuzin.....metribuzin	75 DF	0.56 lb	ai/A	Spring	B			
3 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
2 FS-950, barley						5.7	7.3	100.7
3 Metribuzin.....metribuzin	75 DF	0.56 lb	ai/A	Spring	B			
3 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
3 Nominis, barley						1.0	11.3	96.8
3 Metribuzin.....metribuzin	75 DF	0.56 lb	ai/A	Spring	B			
3 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
4 Sunburst, tol., wheat						7.3	6.3	49.8
3 Metribuzin.....metribuzin	75 DF	0.56 lb	ai/A	Spring	B			
3 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
5 Chesapeake, sen., wheat						11.3	12.9	61.5
3 Metribuzin.....metribuzin	75 DF	0.56 lb	ai/A	Spring	B			
3 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
6 SS 520, tol., wheat						4.0	15.0	54.1
3 Metribuzin.....metribuzin	75 DF	0.56 lb	ai/A	Spring	B			
3 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			
7 Shirley, mod., wheat						5.0	8.0	69.0
3 Metribuzin.....metribuzin	75 DF	0.56 lb	ai/A	Spring	B			
3 Nonionic Surfactant	100 L	0.25 %	v/v	Spring	B			

Wheat Varieties Response to Metribuzin - First Planting Middletown Location

Trial ID: SG5c-12 Cooperator:
 Location: Middletown Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat LeafBurn % 03/27/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	62	1421.686911				
R	2	17.289193	8.644596	0.906	0.4123	1.9
A	6	353.971693	58.995282	6.183	0.0001	2.9
B	2	326.249198	163.124599	17.097	0.0001	1.9
AB	12	342.526287	28.543857	2.992	0.0046	5.1
ERROR	40	381.650542	9.541264			

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat Stunting % 03/27/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	62	2128.192495				
R	2	59.869698	29.934849	2.356	0.1078	2.2
A	6	369.490143	61.581691	4.847	0.0008	3.4
B	2	896.470473	448.235236	35.277	0.0001	2.2
AB	12	294.119304	24.509942	1.929	0.0599	5.9
ERROR	40	508.242877	12.706072			

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat Stunting % 04/16/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	62	987.058300				
R	2	0.098043	0.049021	0.014	0.9861	1.2
A	6	257.527348	42.921225	12.226	0.0001	1.8
B	2	262.272623	131.136312	37.353	0.0001	1.2
AB	12	326.730915	27.227576	7.756	0.0001	3.1
ERROR	40	140.429371	3.510734			

FACTORIAL/POOLED ERROR AOV For Barley/ Wheat Yield Bu/A

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	62	40855.023086				
R	2	261.409728	130.704864	2.780	0.0741	4.3
A	6	36865.849174	6144.308196	130.664	0.0001	6.5
B	2	1101.986896	550.993448	11.717	0.0001	4.3
AB	12	744.833252	62.069438	1.320	0.2457	11.3
ERROR	40	1880.944036	47.023601			

Broad-Spectrum Herbicide Combinations

Trial ID: SG7-12 Cooperator:
 Location: Field #9 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Knawel	SCRAN	Scleranthus annuus L.
3.	Vetch species	VICSS	Vicia Ssp.
4.	Redstem Filaree	EROCI	Erodium cicutarium (L.) L'Her. ex Ait.

Crop 1: Winter Wheat	TRZAW	Variety: FS-621
Planting Date: 10/18/11	Planting Method: Drilled	Depth: 1 in
Rate: 100 lb/A	Row Spacing: 7 in	Seed Bed: Medium
Soil Temperature: 73 F	Soil Moisture: Moist	Emergence Date: 10/25/11

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: 83 % OM: 1.7 Texture: loamy sand
 % Silt: 9 pH: 5.2
 % Clay: 8 CEC: 6.5 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: 0.1 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	11/08/11
Time of Day:	1:00 pm
Application Method:	Spray
Application Timing:	POST
Applic. Placement:	Brdcst
Air Temp., Unit:	68 F
% Relative Humidity:	40
Wind Velocity, Unit:	1 mph
Wind Direction:	South
Dew Presence (Y/N):	N
Soil Temp., Unit:	65 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	0

CROP STAGE AT EACH APPLICATION	
	A
Crop 1 Code:	TRZAW
Growth Stage:	2-3 leaf
Height, Unit:	3.5 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	LAMAM
Growth Stage:	cot-2 leaf
Height, Unit:	0.8 in
Density,Unit:	0-150 m ²
Weed 2 Code:	SCRAN
Growth Stage:	cot-4 leaf
Height, Unit:	0.5 in
Density,Unit:	90-800 m ²
Weed 3 Code:	VICSS
Growth Stage:	4-6 leaf
Height, Unit:	2 in
Density,Unit:	0-40 m ²
Weed 4 Code:	EROCI
Growth Stage:	cot-2 leaf
Height, Unit:	0.5 in
Density,Unit:	0-12 m ²

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIR MIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	21 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO ₂

Trial Comments
10-28-12: Osprey and Starane poor on vetch.
12-14-11: Osprey and Osprey + Starane poor on redstem filaree. Some nutritional problems, deficiency occurring. Injury is difficult to see.
03-15-12: Treatment 14 (2,4-D with Powerflex) did not improve control of the vetch.
05-28-12: Knawel was only species consistent enough to rate. Harmony Extra treatments were all rated as good. Osprey and Powerflex were poor on knawel, but the addition of metribuzin improved control to fair to good.

Broad-Spectrum Herbicide Combinations								
Trial ID:	SG7-12	Cooperator:						
Location:	Field #9	Investigator:	Mark VanGessel					
Weed Code								
Crop Code								
Weed or Crop Name								
Weed or Crop Name								
Rating Data Type								
Rating Unit								
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit			
1	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	10.0 ef	0.0 f	75.0 a	85.0 abc
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST				
	No Tank Mix Partner							
2	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	16.3 bc	7.0 cde	86.7 a	85.0 abc
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST				
	Metribuzin.....metribuzin	75 DF	0.094 lb ai/A	POST				
3	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	18.3 ab	15.0 ab	86.7 a	90.0 a
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST				
	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	POST				
4	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	6.3 f	2.3 ef	81.7 a	78.3 bc
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST				
	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST				
5	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	12.3 cde	4.0 def	73.3 a	76.7 c
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST				
	No Tank Mix Partner							
6	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	15.7 bcd	7.0 cde	86.7 a	81.7 abc
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST				
	Metribuzin.....metribuzin	75 DF	0.094 lb ai/A	POST				
7	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	20.7 a	16.7 a	90.0 a	85.0 abc
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST				
	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	POST				
8	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	13.0 cde	6.9 cde	78.3 a	80.0 abc
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST				
	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST				
9	PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb ai/A	POST	10.0 ef	0.0 f	83.3 a	81.7 abc
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST				
	No Tank Mix Partner							

Weed Code	Crop Code	TRZAW	TRZAW	SCRAN	LAMAM	VICVI
Weed or Crop Name		Winter Wheat	Winter Wheat	Knawel	Henbit	Hairy Vetch
Rating Data Type		Injury %	Stunting %	Control %	Control %	Control %
Rating Unit						
Rating Date		11/21/11	12/14/11	12/14/11	12/14/11	12/14/11
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	
10	PowerFlex HL....pyroxsulam Nonionic Surfactant	13.1 WG 100 L	WG	0.0164 lb ai/A 0.25 % v/v	POST POST	19.7 ab
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	10.7 bc
	Metribuzin.....metribuzin	75 DF		0.094 lb ai/A	POST	
11	PowerFlex HL....pyroxsulam Nonionic Surfactant	13.1 WG 100 L	WG	0.0164 lb ai/A 0.25 % v/v	POST POST	19.0 ab
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	4.7 def
	Metribuzin.....metribuzin	75 DF		0.188 lb ai/A	POST	
12	PowerFlex HL....pyroxsulam Nonionic Surfactant	13.1 WG 100 L	WG	0.0164 lb ai/A 0.25 % v/v	POST POST	11.7 de
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	3.4 ef
	Starane Ultra...fluroxypyr	2.8 EC		0.105 lb ae/A	POST	
13	Untreated Check			0.0 g	0.0 f	0.0 b
14	PowerFlex HL....pyroxsulam 2,4-D amine	13.1 WG 3.8 L	WG	0.0164 lb ai/A 0.238 lb ae/A	POST POST	10.0 ef
	Nonionic Surfactant	100 L		0.25 % v/v	POST	9.0 cd
	30% Urea Ammonium Nitrate	100 L		2 % v/v	POST	
LSD (P=.05)				4.17	5.09	17.16
Standard Deviation				2.49	3.02	10.22
CV				19.02	48.83	13.15
Replicate F				0.046	0.114	7.905
Replicate Prob(F)				0.9549	0.8929	0.0021
Treatment F				15.992	9.143	15.094
Treatment Prob(F)				0.0001	0.0001	0.0001
						32.993
						0.0001
						0.0001
						39.856
						0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Broad-Spectrum Herbicide Combinations

Trial ID: SG7-12 Cooperator:
 Location: Field #9 Investigator: Mark VanGessel

Weed Code	TRZAW	TRZAW	SCRAN	LAMAM	VICVI	
Crop Code	Winter	Winter	Knawel	Henbit	Hairy	Vetch
Weed or Crop Name	Wheat	Wheat	Control	Control	Control	Control
Weed or Crop Name	Injury %	Stunting %	%	%	%	%
Rating Data Type						
Rating Unit						
Rating Date	11/21/11	12/14/11	12/14/11	12/14/11	12/14/11	
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg	
TABLE OF R MEANS						
Replicate 1			14.4	7.0	75.4	81.7
Replicate 2			14.3	6.2	91.7	93.3
Replicate 3			14.6	6.3	82.9	75.4
TABLE OF A (ALS herbicides) MEANS						
1 Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	12.8	6.1	82.5
1 Nonionic Surfactant	100 L	0.25 % v/v	POST			
1 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST			
2 Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	15.4	8.6	82.1
2 Nonionic Surfactant	100 L	0.25 % v/v	POST			
2 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST			
3 PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb ai/A	POST	15.1	4.7	85.4
3 Nonionic Surfactant	100 L	0.25 % v/v	POST			
3 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST			
TABLE OF B (Tankmix Partner) MEANS						
1 No Tank Mix Partner			10.8	1.3	77.2	81.1
2 Metribuzin.....metribuzin	75 DF	0.094 lb ai/A	POST	17.2	8.2	86.7
3 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	POST	19.3	12.1	87.2
4 Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST	10.3	4.2	82.2
TABLE OF A (ALS herbicides) B (Tankmix Partner) MEANS						
1 Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	10.0	0.0	75.0
1 Nonionic Surfactant	100 L	0.25 % v/v	POST			
1 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST			
1 No Tank Mix Partner						
2 Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	12.3	4.0	73.3
2 Nonionic Surfactant	100 L	0.25 % v/v	POST			
2 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST			
1 No Tank Mix Partner						
3 PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb ai/A	POST	10.0	0.0	83.3
3 Nonionic Surfactant	100 L	0.25 % v/v	POST			
3 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST			
1 No Tank Mix Partner						
1 Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	16.3	7.0	86.7
1 Nonionic Surfactant	100 L	0.25 % v/v	POST			
1 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST			
2 Metribuzin.....metribuzin	75 DF	0.094 lb ai/A	POST			

Weed Code	Crop Code	TRZAW	TRZAW	SCRAN	LAMAM	VICVI
Weed or Crop Name		Winter Wheat Injury %	Winter Wheat Stunting %	Knawel Control %	Henbit Control %	Hairy Vetch Control %
Rating Data Type		11/21/11	12/14/11	12/14/11	12/14/11	12/14/11
Rating Unit						
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg
2	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	15.7	7.0
2	Nonionic Surfactant	100 L	0.25 % v/v	POST		
2	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST		
2	Metribuzin.....metribuzin	75 DF	0.094 lb ai/A	POST		
3	PowerFlex HL....pyroxslam	13.1 WG	0.0164 lb ai/A	POST	19.7	10.7
3	Nonionic Surfactant	100 L	0.25 % v/v	POST		
3	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST		
2	Metribuzin.....metribuzin	75 DF	0.094 lb ai/A	POST		
1	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	18.3	15.0
1	Nonionic Surfactant	100 L	0.25 % v/v	POST		
1	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST		
3	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	POST		
2	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	20.7	16.7
2	Nonionic Surfactant	100 L	0.25 % v/v	POST		
2	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST		
3	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	POST		
3	PowerFlex HL....pyroxslam	13.1 WG	0.0164 lb ai/A	POST	19.0	4.7
3	Nonionic Surfactant	100 L	0.25 % v/v	POST		
3	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST		
3	Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	POST		
1	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	6.3	2.3
1	Nonionic Surfactant	100 L	0.25 % v/v	POST		
1	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST		
4	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST		
2	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	13.0	6.9
2	Nonionic Surfactant	100 L	0.25 % v/v	POST		
2	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST		
4	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST		
3	PowerFlex HL....pyroxslam	13.1 WG	0.0164 lb ai/A	POST	11.7	3.4
3	Nonionic Surfactant	100 L	0.25 % v/v	POST		
3	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST		
4	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST		

Broad-Spectrum Herbicide Combinations

Trial ID: SG7-12 Cooperator:
 Location: Field #9 Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Injury % 11/21/11

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	840.750000				
R	2	0.666667	0.333333	0.046	0.9555	2.3
A	2	50.666667	25.333333	3.469	0.0490	2.3
B	3	557.638889	185.879630	25.452	0.0001	2.6
AB	6	71.111111	11.851852	1.623	0.1880	4.6
ERROR	22	160.666667	7.303030			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 12/14/11

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1159.345865				
R	2	5.106865	2.553432	0.267	0.7679	2.6
A	2	96.700339	48.350169	5.061	0.0156	2.6
B	3	597.347778	199.115926	20.843	0.0001	3.0
AB	6	250.017654	41.669609	4.362	0.0048	5.2
ERROR	22	210.173229	9.553329			

FACTORIAL/POOLED ERROR AOV For SCRAN Knawel Control % 12/14/11

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	5000.000000				
R	2	1587.500000	793.750000	6.950	0.0046	9.0
A	2	79.166667	39.583333	0.347	0.7109	9.0
B	3	583.333333	194.444444	1.703	0.1956	10.4
AB	6	237.500000	39.583333	0.347	0.9043	18.1
ERROR	22	2512.500000	114.204545			

FACTORIAL/POOLED ERROR AOV For LAMAM Henbit Control % 12/14/11

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	3390.972222				
R	2	1984.722222	992.361111	29.163	0.0001	4.9
A	2	126.388889	63.194444	1.857	0.1798	4.9
B	3	429.861111	143.287037	4.211	0.0170	5.7
AB	6	101.388889	16.898148	0.497	0.8040	9.9
ERROR	22	748.611111	34.027778			

FACTORIAL/POOLED ERROR AOV For VICVI Hairy Vetch Control % 12/14/11

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	3874.305556				
R	2	2401.388889	1200.694444	38.735	0.0001	4.7
A	2	88.888889	44.444444	1.434	0.2598	4.7
B	3	340.972222	113.657407	3.667	0.0278	5.4
AB	6	361.111111	60.185185	1.942	0.1187	9.4
ERROR	22	681.944444	30.997475			

Vetch Control in Winter Wheat: Part of a Broadspectrum Program

Trial ID: SG8-12 Cooperator: Bayer CropScience
 Location: Field #9 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Vetch species	VICSS	Vicia Ssp.
3.	Knawel	SCRAN	Scleranthus annuus L.
4.	Field Pansy	VIORA	Viola rafinesquii Greene
5.	Curly Dock	RUMCR	Rumex crispus L.
6.	Redstem Filaree	EROCI	Erodium cicutarium (L.) L'Her. ex Ait.
7.	Ivyleaf Speedwell	VERHE	Veronica hederifolia L.

Crop 1: Winter Wheat	TRZAW	Variety: USG3770	
Planting Date:	10/11/11	Planting Method:	Drilled
Rate:	100 lb/A	Row Spacing:	7 in
Soil Temperature:	63 F	Soil Moisture:	Moist
		Seed Bed:	Medium
		Emergence Date:	10/18/11

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: 83 % OM: 1.7 Texture: loamy sand
 % Silt: 9 pH: 5.2
 % Clay: 8 CEC: 6.5 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: 0.1 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	10/21/11	11/08/11
Time of Day:	10:45 am	11:30 am
Application Method:	Spray	Spray
Application Timing:	Spike	POST
Appli. Placement:	Brdcst	Brdcst
Air Temp., Unit:	57 F	65 F
% Relative Humidity:	55	45
Wind Velocity, Unit:	3 mph	0 mph
Wind Direction:	Northwest	N/A
Dew Presence (Y/N):	N	Y
Soil Temp., Unit:	53 F	62 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist
% Cloud Cover:	5	0

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	TRZAW	TRZAW
Growth Stage:	1 leaf	2-tiller
Height, Unit:	2.5 in	5 in
Crop Health:	Good	Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	LAMAM	LAMAM
Growth Stage:	cotyledon	2-8 leaf
Height, Unit:	0.5 in	1 in
Density,Unit:	0-60 m ²	0-200 m ²
Weed 2 Code:	VICSS	VICSS
Growth Stage:	vegetative	4-8 leaf
Height, Unit:	1.5 in	2.5 in
Density,Unit:	40-100 m ²	0-40 m ²
Weed 3 Code:	SCRAN	SCRAN
Growth Stage:	cotyledon	cot-2 leaf
Height, Unit:	0.25 in	0.5 in
Density,Unit:	40-200 m ²	80-800 m ²
Weed 4 Code:	VIORA	VIORA
Growth Stage:	cotyledon	cot-2 leaf
Height, Unit:	0.5 in	0.7 in
Density,Unit:	0-20 m ²	0-20 m ²
Weed 5 Code:	RUMCR	RUMCR
Growth Stage:		cot-2 leaf
Height, Unit:		1 in
Density,Unit:		0-35 m ²
Weed 6 Code:	EROCI	EROCI
Growth Stage:		rosette
Height, Unit:		1.8 in
Density,Unit:		0-20 m ²
Weed 7 Code:	VERHE	VERHE
Growth Stage:		cot-2-leaf
Height, Unit:		1 in
Density,Unit:		0-20 m ²

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:	CO ₂	CO ₂

Trial Comments
12/22/11: Treatment 15 was weak on field pansy and redstem filaree,
03/13/12: Osprey was weak on field pansy and knawel. Treatment 15 (Axiom) provided little to no control of knawel and field pansy.
05/28/12: Weed density was sporadic. No ratings taken.

Vetch Control in Winter Wheat: Part of a Broadspectrum Program

Trial ID: SG8-12 Cooperator: Bayer CropScience

Location: Field #9 Investigator: Mark VanGessel

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	Lf. Burn	Stunting	Lf. Burn
Rating Unit	%	%	%	%
Rating Date	11/01/11	11/01/11	11/04/11	11/04/11
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Stg Appl Code
13 Untreated Check				
15 Axiom Premix	68 WG	0.255 lb ai/A	SPIKE A	8.0 a
16 Axiom Premix	68 WG	0.255 lb ai/A	SPIKE A	8.0 a
Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST B	
Nonionic Surfactant	100 L	0.25 % v/v	POST B	
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B	
LSD (P=.05)				4.10
Standard Deviation				1.81
CV				35.42
Replicate F				0.847
Replicate Prob(F)				0.4933
Treatment F				18.034
Treatment Prob(F)				0.0100

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Vetch Control in Winter Wheat: Part of a Broadspectrum Program

Trial ID: SG8-12 Cooperator: Bayer CropScience
 Location: Field #9 Investigator: Mark VanGessel

Weed Code	Crop Code	TRZAW	VICSS	LAMAM	VICSS	LAMAM
Weed or Crop Name	Weed or Crop Name	Winter Wheat Stunting %	Vetch Species Control %	Henbit Control %	Vetch Species Control %	Henbit Control %
Rating Data Type	Rating Unit	11/21/11	12/22/11	12/22/11	03/13/12	03/13/12
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	B	14.0 bcd
	Nonionic Surfactant	100 L	0.25% v/v	POST	B	
	30% Urea Ammonium Nitrate	100 L	2% v/v	POST	B	
	No Tank Mix Partner					
2	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	B	0.0 g
	Nonionic Surfactant	100 L	0.25% v/v	POST	B	
	30% Urea Ammonium Nitrate	100 L	2% v/v	POST	B	
	2,4-D amine	3.8 L	0.25 lb ae/A	POST	B	
3	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST	B	13.3 b-e
	Nonionic Surfactant	100 L	0.25% v/v	POST	B	
	30% Urea Ammonium Nitrate	100 L	2% v/v	POST	B	
	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST	B	
4	Harmony Extra SG Premix	50 SG	0.028 lb ai/A	POST	B	10.0 ef
	Nonionic Surfactant	100 L	0.25% v/v	POST	B	
	30% Urea Ammonium Nitrate	100 L	2% v/v	POST	B	
	No Tank Mix Partner					
5	Harmony Extra SG Premix	50 SG	0.028 lb ai/A	POST	B	8.0 f
	Nonionic Surfactant	100 L	0.25% v/v	POST	B	
	30% Urea Ammonium Nitrate	100 L	2% v/v	POST	B	
	2,4-D amine	3.8 L	0.25 lb ae/A	POST	B	
6	Harmony Extra SG Premix	50 SG	0.028 lb ai/A	POST	B	11.7 cde
	Nonionic Surfactant	100 L	0.25% v/v	POST	B	
	30% Urea Ammonium Nitrate	100 L	2% v/v	POST	B	
	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST	B	
7	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	B	15.0 abc
	Nonionic Surfactant	100 L	0.25% v/v	POST	B	
	30% Urea Ammonium Nitrate	100 L	2% v/v	POST	B	
	No Tank Mix Partner					
8	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	B	18.3 a
	Nonionic Surfactant	100 L	0.25% v/v	POST	B	
	30% Urea Ammonium Nitrate	100 L	2% v/v	POST	B	
	2,4-D amine	3.8 L	0.25 lb ae/A	POST	B	
9	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	B	16.3 ab
	Nonionic Surfactant	100 L	0.25% v/v	POST	B	
	30% Urea Ammonium Nitrate	100 L	2% v/v	POST	B	
	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST	B	
10	PowerFlex HL....pyroxslam	13.1 WG	0.0164 lb ai/A	POST	B	10.7 def
	Nonionic Surfactant	100 L	0.25% v/v	POST	B	
	30% Urea Ammonium Nitrate	100 L	2% v/v	POST	B	
	No Tank Mix Partner					
11	PowerFlex HL....pyroxslam	13.1 WG	0.0164 lb ai/A	POST	B	18.3 a
	Nonionic Surfactant	100 L	0.25% v/v	POST	B	
	30% Urea Ammonium Nitrate	100 L	2% v/v	POST	B	
	2,4-D amine	3.8 L	0.25 lb ae/A	POST	B	

Weed Code	Crop Code	TRZAW	VICSS	LAMAM	VICSS	LAMAM
Weed or Crop Name	Winter Wheat	Vetch Species	Henbit	Vetch Species	Henbit	
Rating Data Type	Stunting %	Control %	Control %	Control %	Control %	
Rating Unit						
Rating Date						
Trt Treatment No.	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
12 PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb ai/A	POST	B	12.3 cde	
Nonionic Surfactant	100 L	0.25 % v/v	POST	B		
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST	B		
Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST	B		
13 Untreated Check			0.0 g	0.0 e	0.0 d	0.0 g
14 Pulsar Premix	1.67 EC	0.163 lb ae/A	POST	B	0.0 g	
15 Axiom Premix	68 WG	0.255 lb ai/A	SPIKE	A	0.0 g	21.7 d
16 Axiom Premix	68 WG	0.255 lb ai/A	SPIKE	A	12.0 cde	63.3 a
Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST	B		
Nonionic Surfactant	100 L	0.25 % v/v	POST	B		
30% Urea Ammonium Nitrate	100 L	2 % v/v	POST	B		
LSD (P=.05)			3.63	8.61	7.34	13.36
Standard Deviation			2.18	4.84	4.12	7.98
CV			21.8	14.98	6.51	12.41
Replicate F			3.591	1.038	0.490	1.869
Replicate Prob(F)			0.0400	0.3839	0.6243	0.1738
Treatment F			27.267	58.441	180.608	17.428
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Vetch Control in Winter Wheat: Part of a Broadspectrum Program

Trial ID: SG8-12 Cooperator: Bayer CropScience
 Location: Field #9 Investigator: Mark VanGessel

Weed Code		TRZAW	VICSS	LAMAM	
Crop Code		Winter	Vetch	Henbit	
Weed or Crop Name		Wheat	Species	Control	
Weed or Crop Name		Stunting	Control	%	
Rating Data Type		%	03/13/12	03/13/12	
Rating Unit					
Rating Date					

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code

TABLE OF R MEANS

Replicate 1		10.8	69.2	85.4
Replicate 2		13.0	67.8	86.1
Replicate 3		13.3	73.1	84.5

TABLE OF A (ALS herbicides) MEANS

1 Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST B	9.1	67.8	80.6
1 Nonionic Surfactant	100 L	0.25 % v/v	POST B			
1 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
2 Harmony Extra SG Premix	50 SG	0.028 lb ai/A	POST B	9.9	67.1	84.1
2 Nonionic Surfactant	100 L	0.25 % v/v	POST B			
2 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
3 Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST B	16.6	66.8	83.9
3 Nonionic Surfactant	100 L	0.25 % v/v	POST B			
3 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
4 PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb ai/A	POST B	13.8	78.4	92.8
4 Nonionic Surfactant	100 L	0.25 % v/v	POST B			
4 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			

TABLE OF B (Tankmix Partner) MEANS

1 No Tank Mix Partner			12.4	68.8	81.7
2 2,4-D amine	3.8 L	0.25 lb ae/A	POST B	11.2	72.8
3 Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST B	13.4	68.5

TABLE OF A (ALS herbicides) B (Tankmix Partner) MEANS

1 Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST B	14.0	63.3	80.0
1 Nonionic Surfactant	100 L	0.25 % v/v	POST B			
1 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
1 No Tank Mix Partner						
2 Harmony Extra SG Premix	50 SG	0.028 lb ai/A	POST B	10.0	68.3	78.3
2 Nonionic Surfactant	100 L	0.25 % v/v	POST B			
2 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
1 No Tank Mix Partner						
3 Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST B	15.0	66.7	75.0
3 Nonionic Surfactant	100 L	0.25 % v/v	POST B			
3 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
1 No Tank Mix Partner						
4 PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb ai/A	POST B	10.7	76.7	93.3
4 Nonionic Surfactant	100 L	0.25 % v/v	POST B			
4 30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
1 No Tank Mix Partner						

Weed Code				TRZAW	VICSS	LAMAM	
Crop Code				Winter	Vetch	Henbit	
Weed or Crop Name				Wheat	Species		
Weed or Crop Name				Stunting	Control		
Rating Data Type				%	%		
Rating Unit				11/21/11	03/13/12	03/13/12	
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST B	0.0	71.7	76.7
1	Nonionic Surfactant	100 L	0.25 % v/v	POST B			
1	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
2	2,4-D amine	3.8 L	0.25 lb ae/A	POST B			
2	Harmony Extra SG Premix	50 SG	0.028 lb ai/A	POST B	8.0	66.3	89.5
2	Nonionic Surfactant	100 L	0.25 % v/v	POST B			
2	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
2	2,4-D amine	3.8 L	0.25 lb ae/A	POST B			
3	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST B	18.3	75.0	86.7
3	Nonionic Surfactant	100 L	0.25 % v/v	POST B			
3	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
2	2,4-D amine	3.8 L	0.25 lb ae/A	POST B			
4	PowerFlex HL....pyroxslam	13.1 WG	0.0164 lb ai/A	POST B	18.3	78.3	90.0
4	Nonionic Surfactant	100 L	0.25 % v/v	POST B			
4	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
2	2,4-D amine	3.8 L	0.25 lb ae/A	POST B			
1	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	POST B	13.3	68.3	85.0
1	Nonionic Surfactant	100 L	0.25 % v/v	POST B			
1	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
3	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST B			
2	Harmony Extra SG Premix	50 SG	0.028 lb ai/A	POST B	11.7	66.7	84.3
2	Nonionic Surfactant	100 L	0.25 % v/v	POST B			
2	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
3	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST B			
3	Osprey.....mesosulfuron	4.5 WG	0.0134 lb ai/A	POST B	16.3	58.6	90.0
3	Nonionic Surfactant	100 L	0.25 % v/v	POST B			
3	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
3	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST B			
4	PowerFlex HL....pyroxslam	13.1 WG	0.0164 lb ai/A	POST B	12.3	80.3	95.0
4	Nonionic Surfactant	100 L	0.25 % v/v	POST B			
4	30% Urea Ammonium Nitrate	100 L	2 % v/v	POST B			
3	Starane Ultra...fluroxypyr	2.8 EC	0.105 lb ae/A	POST B			

Vetch Control in Winter Wheat: Part of a Broadspectrum Program

Trial ID: SG8-12 Cooperator: Bayer CropScience
 Location: Field #9 Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 11/21/11

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1012.000000				
R	2	45.500000	22.750000	3.816	0.0378	2.1
A	3	326.444444	108.814815	18.251	0.0001	2.4
B	2	30.500000	15.250000	2.558	0.1003	2.1
AB	6	478.388889	79.731481	13.373	0.0001	4.1
ERROR	22	131.166667	5.962121			

FACTORIAL/POOLED ERROR AOV For VICSS Vetch Species Control % 03/13/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	2669.673041				
R	2	179.491843	89.745921	1.797	0.1893	6.0
A	3	855.804461	285.268154	5.712	0.0048	6.9
B	2	142.599606	71.299803	1.428	0.2613	6.0
AB	6	392.995748	65.499291	1.311	0.2935	12.0
ERROR	22	1098.781382	49.944608			

FACTORIAL/POOLED ERROR AOV For LAMAM Henbit Control % 03/13/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	1943.504919				
R	2	15.769011	7.884506	0.358	0.7032	4.0
A	3	737.328100	245.776033	11.153	0.0001	4.6
B	2	289.876106	144.938053	6.577	0.0058	4.0
AB	6	415.739468	69.289911	3.144	0.0222	7.9
ERROR	22	484.792233	22.036011			

Vetch Control in Winter Wheat

Trial ID: SG9-12 Cooperator:
 Location: Field #9 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Vetch species	VICSS	Vicia Ssp.
3.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
4.	Carolina Geranium	GERCA	Geranium carolinianum L.
5.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
6.	Field Pansy	VIORA	Viola rafinesquii Greene
7.	Curly Dock	RUMCR	Rumex crispus L.
8.	Mouseear Cress	ARBTH	Arabidopsis thaliana (L.) Heynh.
9.	Ivyleaf Speedwell	VERHE	Veronica hederifolia L.
10.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.

Crop 1: Winter Wheat **TRZAW** **Variety:** USG3770
Planting Date: 10/11/11 **Planting Method:** Drilled **Depth:** 1 in
Rate: 100 lb/A **Row Spacing:** 7 in **Seed Bed:** Medium
Soil Temperature: 63 F **Soil Moisture:** Moist **Emergence Date:** 10/18/11

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: Lawel 5% Manganese at 3 pt/A was applied in 20 gpa on 12-14-11 to try and alleviate suspected Mn deficiency.

SOIL DESCRIPTION

% Sand: 83 % OM: 1.7 Texture: loamy sand
 % Silt: 9 pH: 5.2
 % Clay: 8 CEC: 6.5 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: 0.1 **Unit:** mi

CROP STAGE AT EACH APPLICATION

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

APPLICATION DESCRIPTION	
	A
Application Date:	11/08/11
Time of Day:	1:30 pm
Application Method:	Spray
Application Timing:	Fall
Appli. Placement:	Brdcst
Air Temp., Unit:	68 F
% Relative Humidity:	40
Wind Velocity, Unit:	1 mph
Wind Direction:	South
Dew Presence (Y/N):	N
Soil Temp., Unit:	65 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:	cot-4 leaf
Height, Unit:	1 in
Density,Unit:	90-500 m2
Weed 2 Code:	VICSS
Growth Stage:	4-8 leaf
Height, Unit:	2 in
Density,Unit:	0-80 m2
Weed 3 Code:	OEOLA
Growth Stage:	rosette
Height, Unit:	0.5 in
Density,Unit:	0-60 m2
Weed 4 Code:	GERCA
Growth Stage:	cot-1 leaf
Height, Unit:	0.75 in
Density,Unit:	0-60 m2
Weed 5 Code:	STEME
Growth Stage:	cot-2 leaf
Height, Unit:	0.5 in
Density,Unit:	0-40 m2
Weed 6 Code:	VIORA
Growth Stage:	cot-2 leaf
Height, Unit:	0.5 in
Density,Unit:	0-40 m2
Weed 7 Code:	RUMCR
Growth Stage:	cot-2 leaf
Height, Unit:	0.5 in
Density,Unit:	0-60 m2
Weed 8 Code:	ARBTH
Growth Stage:	rosette
Height, Unit:	0.25 in
Density,Unit:	0-80 m2
Weed 9 Code:	VERHE
Growth Stage:	cot-2 leaf
Height, Unit:	1 in
Density,Unit:	0-60 m2
Weed10 Code:	HLOUM
Growth Stage:	cot-2 leaf
Height, Unit:	0.5 in
Density,Unit:	0-40 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

05-28-12: Very few weeds in untreated check.

Vetch Control in Winter Wheat

Trial ID: SG9-12 Cooperator:

Location: Field #9 Investigator: Mark VanGessel

Weed Code		TRZAW	TRZAW	LAMAM
Crop Code		Winter	Winter	Henbit
Weed or Crop Name		Wheat	Wheat	
Weed or Crop Name		Stunting	Chloross	Control
Rating Data Type		%	%	%
Rating Unit		11/19/11	11/19/11	03/13/12
Rating Date				
Trt Treatment No.	Form Name	Form Conc	Rate Type	Grow Rate Unit
1 Untreated Check				Stg
2 Banvel.....dicamba	4 EC	0.125 lb	ai/A	Fall
3 2,4-D amine	3.8 L	0.25 lb	ae/A	Fall
4 Stinger.....clopyralid	3 EC	0.047 lb	ae/A	Fall
5 Harmony SG.....thifensulfuron	50 SG	0.028 lb	ai/A	Fall
6 Harmony SG.....thifensulfuron	50 SG	0.0188 lb	ai/A	Fall
7 Osprey.....mesosulfuron	4.5 WG	0.0134 lb	ai/A	Fall
8 PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb	ai/A	Fall
9 PowerFlex HL....pyroxsulam	13.1 WG	0.0164 lb	ai/A	Fall
Metribuzin.....metribuzin	75 DF	0.188 lb	ai/A	Fall
LSD (P=.05)		2.63	5.63	14.48
Standard Deviation		1.51	2.48	8.37
CV		31.77	43.82	14.88
Replicate F		3.507	0.703	0.354
Replicate Prob(F)		0.0563	0.5476	0.7072
Treatment F		40.773	14.486	32.648
Treatment Prob(F)		0.0001	0.0147	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Wheat Safety to Metribuzin Timing

Trial ID: SG10-12 Cooperator:
 Location: Field #34 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

Crop 1: Winter Wheat	TRZAW	Variety: USG3770
Planting Date: 10/11/11	Planting Method: Drilled	Depth: 1.25 in
Rate: 100 lb/A	Row Spacing: 7 in	Seed Bed: Medium
Soil Temperature: 63 F	Soil Moisture: Moist	Emergence Date: 10/18/11

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
 Site Type: Field Study Design: FACTORIAL
 Tillage Type: Disked and Field Cultivated

SOIL DESCRIPTION

% Sand: 79 % OM: 1.3 Texture: sandy loam
 % Silt: 10 pH: 5.8
 % Clay: 11 CEC: 5.8 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	E
Application Date:	10/14/11	10/21/11	10/26/11	02/21/12	03/15/12
Time of Day:	10:00 am	10:15 am	9:15 am	10:30 am	3:00 pm
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	PRE	Spike	2-leaf	EaSpring	Spring
Appli. Placement:	Brdcst	Brdcst	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	71 F	57 F	61 F	47 F	56 F
% Relative Humidity:	78	55	59	46	80
Wind Velocity, Unit:	5 mph	3 mph	4 mph	5 mph	4 mph
Wind Direction:	South	Northwest	Southwest	South	Northeast
Dew Presence (Y/N):	N	N	Y	N	N
Soil Temp., Unit:	68 F	53 F	56 F	44 F	54 F
Soil Surf. Moisture:	Dry	Moist	Moist	Moist	Moist
Root Zone Moisture:	Moist	Moist	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Moist	Dry	Moist
% Cloud Cover:	60	5	10	20	80

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code:	TRZAW	TRZAW	TRZAW	TRZAW	TRZAW
Growth Stage:		1-2 leaf	2-leaf	4-tiller	jointing
Height, Unit:		3 in	4 in	8 in	14 in
Crop Health:		Good	Good	Good	Good

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	20 in	20 in	24 in	28 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

12-08-11: BiomsRed = stunting, stand loss, and biomass reduction.

Wheat Safety to Metribuzin Timing									
Trial ID: SG10-12		Cooperator:							
Location: Field #34		Investigator: Mark VanGessel							
Crop Code			TRZAW	TRZAW	TRZAW	TRZAW	TRZAW	TRZAW	TRZAW
Weed or Crop Name			Winter	Winter	Winter	Winter	Winter	Winter	Winter
Weed or Crop Name			Wheat	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat
Rating Data Type			BiomsRdx	BiomsRdx	BiomsRdx	BiomsRdx	BiomsRdx	BiomsRdx	BiomsRdx
Rating Unit			%	%	%	%	%	%	%
Rating Date			10/28/11	11/07/11	11/21/11	12/08/11	02/28/12	04/06/12	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
1	Metribuzin.....metribuzin Nonionic Surfactant PRE application	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	lb ai/A v/v	PRE	A	26.7 c	31.7 d	28.3 c
2	Metribuzin.....metribuzin Nonionic Surfactant EPOST - Fall (2lvs)	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	lb ai/A v/v	2-leaf 2-leaf	C C		23.3 d	19.0 c
3	Metribuzin.....metribuzin Nonionic Surfactant Spring - First N application	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	lb ai/A v/v	EaSpring EaSpring	D D			16.7 c
4	Metribuzin.....metribuzin Nonionic Surfactant Spring - After Green Up	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	lb ai/A v/v	Spring Spring	E E			36.7 c
5	Metribuzin.....metribuzin Nonionic Surfactant PRE application	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	lb ai/A v/v	PRE	A	80.0 a	83.3 a	93.0 a
6	Metribuzin.....metribuzin Nonionic Surfactant EPOST - Fall (2lvs)	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	lb ai/A v/v	2-leaf 2-leaf	C C		53.3 c	95.3 a
7	Metribuzin.....metribuzin Nonionic Surfactant Spring - First N application	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	lb ai/A v/v	EaSpring EaSpring	D D			88.3 a
8	Metribuzin.....metribuzin Nonionic Surfactant Spring - After Green Up	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	lb ai/A v/v	Spring Spring	E E			88.3 a
9	Untreated Check				0.0 d	0.0 e	0.0 d	0.0 d	0.0 d
10	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	lb ai/A v/v	Spike	B	56.7 b	66.7 b	70.0 b
LSD (P=.05)					11.65	13.14	14.02	13.98	21.07
Standard Deviation					5.83	7.11	7.71	7.68	11.58
CV					14.29	16.52	15.13	16.21	21.38
Replicate F					1.163	0.768	0.161	0.072	0.093
Replicate Prob(F)					0.3742	0.4920	0.8536	0.9314	0.9118
Treatment F					107.347	55.213	83.092	84.746	27.050
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter 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						06/20/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code
1	Metribuzin.....metribuzin Nonionic Surfactant PRE application	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	0.188 lb ai/A 0.25 % v/v	PRE 2-leaf	A C
2	Metribuzin.....metribuzin Nonionic Surfactant EPOST - Fall (2lvs)	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	0.188 lb ai/A 0.25 % v/v	EaSpring D 2-leaf	D C
3	Metribuzin.....metribuzin Nonionic Surfactant Spring - First N application	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	0.188 lb ai/A 0.25 % v/v	EaSpring D	D
4	Metribuzin.....metribuzin Nonionic Surfactant Spring - After Green Up	75 DF 100 L	0.188 lb ai/A 0.25 % v/v	0.188 lb ai/A 0.25 % v/v	Spring Spring	E E
5	Metribuzin.....metribuzin Nonionic Surfactant PRE application	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	0.56 lb ai/A 0.25 % v/v	PRE PRE	A A
6	Metribuzin.....metribuzin Nonionic Surfactant EPOST - Fall (2lvs)	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	0.56 lb ai/A 0.25 % v/v	2-leaf 2-leaf	C C
7	Metribuzin.....metribuzin Nonionic Surfactant Spring - First N application	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	0.56 lb ai/A 0.25 % v/v	EaSpring D EaSpring D	D
8	Metribuzin.....metribuzin Nonionic Surfactant Spring - After Green Up	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	0.56 lb ai/A 0.25 % v/v	Spring Spring	E E
9	Untreated Check					80.8 ab
10	Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.56 lb ai/A 0.25 % v/v	0.56 lb ai/A 0.25 % v/v	Spike Spike	B B
LSD (P=.05)						15.14
Standard Deviation						8.82
CV						14.64
Replicate F						4.413
Replicate Prob(F)						0.0276
Treatment F						22.174
Treatment Prob(F)						0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Wheat Safety to Metribuzin Timing

Trial ID: SG10-12 Cooperator:
 Location: Field #34 Investigator: Mark VanGessel

Crop Code		TRZAW		
Weed or Crop Name		Winter		
Weed or Crop Name		Wheat		
Rating Data Type		BiomsRdx		
Rating Unit	%		Yield	
Rating Date	04/06/12		Bu/A	
06/20/12				
Trt No.	Treatment Name	Form Type	Rate Rate	Grow Unit
				Appl Stg Code
TABLE OF R MEANS				
Replicate 1			25.9	62.5
Replicate 2			27.8	61.7
Replicate 3			27.1	53.6
TABLE OF A (Metribuzin Rate) MEANS				
1 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	PRE	A
1 Nonionic Surfactant	100 L	0.25 % v/v	PRE	A
2 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	PRE	A
2 Nonionic Surfactant	100 L	0.25 % v/v	PRE	A
TABLE OF B (Timing (Wheat Stage)) MEANS				
1 PRE application			56.7	38.4
2 EPOST - Fall (2lvs)			51.0	50.7
3 Spring - First N application			0.0	77.7
4 Spring - After Green Up			0.0	70.2
TABLE OF A (Metribuzin Rate) B (Timing (Wheat Stage)) MEANS				
1 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	PRE	A
1 Nonionic Surfactant	100 L	0.25 % v/v	PRE	A
1 PRE application			23.3	66.8
2 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	PRE	A
2 Nonionic Surfactant	100 L	0.25 % v/v	PRE	A
1 PRE application			90.0	9.9
1 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	PRE	A
1 Nonionic Surfactant	100 L	0.25 % v/v	PRE	A
2 EPOST - Fall (2lvs)			13.7	72.4
2 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	PRE	A
2 Nonionic Surfactant	100 L	0.25 % v/v	PRE	A
2 EPOST - Fall (2lvs)			88.3	29.0
1 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	PRE	A
1 Nonionic Surfactant	100 L	0.25 % v/v	PRE	A
3 Spring - First N application			0.0	82.8
2 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	PRE	A
2 Nonionic Surfactant	100 L	0.25 % v/v	PRE	A
3 Spring - First N application			0.0	72.7
1 Metribuzin.....metribuzin	75 DF	0.188 lb ai/A	PRE	A
1 Nonionic Surfactant	100 L	0.25 % v/v	PRE	A
4 Spring - After Green Up			0.0	74.9
2 Metribuzin.....metribuzin	75 DF	0.56 lb ai/A	PRE	A
2 Nonionic Surfactant	100 L	0.25 % v/v	PRE	A
4 Spring - After Green Up			0.0	65.4

Wheat Safety to Metribuzin Timing

Trial ID: SG10-12 Cooperator:
Location: Field #34 Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat BiomsRdx % 04/06/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	32813.833333				
R	2	14.583333	7.291667	0.358	0.7055	4.8
A	1	7490.666667	7490.666667	367.425	0.0001	4.0
B	3	17484.500000	5828.166667	285.878	0.0001	5.6
AB	3	7538.666667	2512.888889	123.260	0.0001	7.9
ERROR	14	285.416667	20.386905			

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Yield Bu/A 06/20/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	15197.780616				
R	2	389.164676	194.582338	2.684	0.1031	9.1
A	1	5391.736410	5391.736410	74.370	0.0001	7.5
B	3	5821.479660	1940.493220	26.766	0.0001	10.5
AB	3	2580.411536	860.137179	11.864	0.0004	14.9
ERROR	14	1014.988334	72.499167			

(SG11-12)

University of Delaware

ALS-Resistant Common Chickweed Control in Winter Wheat w/ Metribuzin or Starane

Trial ID: SG11-12 Cooperator: DuPont
 Location: Ridgely, 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
2.	Ivyleaf Speedwell	VERHE	Veronica hederifolia L.
3.	Henbit	LAMAM	Lamium amplexicaule L.
4.	Field Pansy	VIORA	Viola rafinesquii Greene
5.	Common Groundsel	SENVU	Senecio vulgaris L.
6.	Annual Bluegrass	POAAN	Poa annua L.
7.	Vetch species	VICSS	Vicia Ssp.

Crop 1: Winter Wheat	TRZAW	Planting Method:	Broadcast
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SITE AND DESIGN

Plot Width, Unit: 10 FT **Plot Length, Unit:** 25 FT **Reps:** 3
Site Type: Field **Study Design:** FACTORIAL
Tillage Type: Conventional Tillage

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

APPLICATION DESCRIPTION

	A	B
Application Date:	12/02/11	02/23/12
Time of Day:	12:00 pm	12:30 pm
Application Method:	Spray	Spray
Application Timing:	Fall	Spring
Applc. Placement:	Brdcst	Brdcst
Air Temp., Unit:	54 F	63 F
% Relative Humidity:	58	50
Wind Velocity, Unit:	5 mph	6 mph
Wind Direction:	Southwest	Northwest
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	52 F	58 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	0	20

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	TRZAW	TRZAW
Growth Stage:	2-3 tiller	3-4 tiller
Height, Unit:	5 in	7 in
Crop Health:	Good	Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	STEME	STEME
Growth Stage:	vegetative	veg-eaFlow
Height, Unit:	2 in	3 in
Density,Unit:	0-30 m2	0-30 m2
Weed 2 Code:	VERHE	VERHE
Growth Stage:	vegetative	vegetative
Height, Unit:	1.5 in	2 in
Density,Unit:	20-200 m2	20-200 m2
Weed 3 Code:	LAMAM	LAMAM
Growth Stage:	vegetative	vegetative
Height, Unit:	2 in	2 in
Density,Unit:	0-80 m2	0-80 m2
Weed 4 Code:	VIORA	VIORA
Growth Stage:	vegetative	vegetative
Height, Unit:	1.5 in	2 in
Density,Unit:	0-40 m2	0-40 m2
Weed 5 Code:	SENVU	SENVU
Growth Stage:	vegetative	vegetative
Height, Unit:	1 in	2 in
Density,Unit:	0-40 m2	0-40 m2
Weed 6 Code:	POAAN	POAAN
Growth Stage:	tillered	tillered
Height, Unit:	3 in	4 in
Density,Unit:	0-20 m2	0-20 m2
Weed 7 Code:	VICSS	VICSS
Growth Stage:	vegetative	vegetative
Height, Unit:	3 in	5 in
Density,Unit:	0-20 m2	0-20 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

12-02-11: Earlier emerged common chickweed was 5 to 7 inches wide, and more recently emerged chickweed was 0.5 to 2.5 inches tall.

12-13-11: Necrosis is on leaf ends.

ALS-Resistant Common Chickweed Control in Winter Wheat w/ Metribuzin or Starane

Trial ID: SG11-12 Cooperator: DuPont
 Location: Ridgely, MD Investigator: Mark VanGessel

Weed Code	Crop Code	TRZAW	TRZAW	TRZAW	STEME	VERPG
Weed or Crop Name	Winter Wheat Chloross %	Winter Wheat Necrosis %	Winter Wheat Stunting %	Common Chickwd Control %	Purslane Speedwll Control %	
Rating Data Type						
Rating Unit						
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg Code
1	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	Fall	A	2.0 d
	Nonionic Surfactant	100 L	0.25 % v/v	Fall	A	
	Metribuzin.....metribuzin	75 DF	0 lb ai/A	Fall		
	No Partner					
2	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	Fall	A	3.3 bc
	Nonionic Surfactant	100 L	0.25 % v/v	Fall	A	
	Metribuzin.....metribuzin	75 DF	0.094 lb ai/A	Fall	A	
	Low Rate					
3	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	Fall	A	3.7 b
	Nonionic Surfactant	100 L	0.25 % v/v	Fall	A	
	Metribuzin.....metribuzin	75 DF	0.14 lb ai/A	Fall	A	
	Mid Rate					
4	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	Fall	A	4.7 a
	Nonionic Surfactant	100 L	0.25 % v/v	Fall	A	
	Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	Fall	A	
	High Rate					
5	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	Fall	A	2.0 d
	Nonionic Surfactant	100 L	0.25 % v/v	Fall	A	
	Starane Ultra...fluroxypyrr	2.8 EC	0 lb ae/A	Fall		
	No Partner					
6	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	Fall	A	2.7 cd
	Nonionic Surfactant	100 L	0.25 % v/v	Fall	A	
	Starane Ultra...fluroxypyrr	2.8 EC	0.105 lb ae/A	Fall	A	
	Low Rate					
7	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	Fall	A	2.7 cd
	Nonionic Surfactant	100 L	0.25 % v/v	Fall	A	
	Starane Ultra...fluroxypyrr	2.8 EC	0.14 lb ae/A	Fall	A	
	Mid Rate					
8	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	Fall	A	2.7 cd
	Nonionic Surfactant	100 L	0.25 % v/v	Fall	A	
	Starane Ultra...fluroxypyrr	2.8 EC	0.175 lb ae/A	Fall	A	
	High Rate					
9	Harmony Extra SG Premix	50 SG	0.0234 lb ai/A	Spring	B	
	Nonionic Surfactant	100 L	0.25 % v/v	Spring	B	
	Metribuzin.....metribuzin	75 DF	0 lb ai/A	Spring		
	No Partner					

Weed Code	Crop Code	TRZAW	TRZAW	TRZAW	STEME	VERPG
Weed or Crop Name	Winter Wheat	Winter Wheat	Winter Wheat	Common Chickwd	Purslane	
Rating Data Type	Chloross %	Necrosis %	Stunting %	Control %	Speedwll Control %	
Rating Unit	12/13/11		03/20/12	03/20/12	03/20/12	
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Grow Stg	Appl Code
10	Harmony Extra SG Premix Nonionic Surfactant Metribuzin.....metribuzin Low Rate	50 SG 100 L 75 DF	0.0234 lb ai/A 0.25 % v/v 0.094 lb ai/A	Spring B Spring B Spring B		0.0 a
11	Harmony Extra SG Premix Nonionic Surfactant Metribuzin.....metribuzin Mid Rate	50 SG 100 L 75 DF	0.0234 lb ai/A 0.25 % v/v 0.14 lb ai/A	Spring B Spring B Spring B		0.0 a
12	Harmony Extra SG Premix Nonionic Surfactant Metribuzin.....metribuzin High Rate	50 SG 100 L 75 DF	0.0234 lb ai/A 0.25 % v/v 0.187 lb ai/A	Spring B Spring B Spring B		0.0 a
13	Harmony Extra SG Premix Nonionic Surfactant Starane Ultra...fluroxypyrr No Partner	50 SG 100 L 2.8 EC	0.0234 lb ai/A 0.25 % v/v 0 lb ae/A	Spring B Spring B Spring		0.0 a
14	Harmony Extra SG Premix Nonionic Surfactant Starane Ultra...fluroxypyrr Low Rate	50 SG 100 L 2.8 EC	0.0234 lb ai/A 0.25 % v/v 0.105 lb ae/A	Spring B Spring B Spring B		0.0 a
15	Harmony Extra SG Premix Nonionic Surfactant Starane Ultra...fluroxypyrr Mid Rate	50 SG 100 L 2.8 EC	0.0234 lb ai/A 0.25 % v/v 0.14 lb ae/A	Spring B Spring B Spring B		0.0 a
16	Harmony Extra SG Premix Nonionic Surfactant Starane Ultra...fluroxypyrr High Rate	50 SG 100 L 2.8 EC	0.0234 lb ai/A 0.25 % v/v 0.175 lb ae/A	Spring B Spring B Spring B		0.0 a
17	Harmony Extra SG Premix Nonionic Surfactant Metribuzin.....metribuzin Metribuzin.....metribuzin	50 SG 100 L 75 DF 75 DF	0.0234 lb ai/A 0.25 % v/v 0.094 lb ai/A 0.094 lb ai/A	Fall A Fall A Fall A Spring B	3.0 bc	5.3 c
18	Untreated Check		0.0 e	0.0 d	0.0 a	0.0 g
LSD (P=.05)			0.80	0.72	0.00	16.61
Standard Deviation			0.47	0.42	0.00	9.93
CV			17.53	12.4	0.0	21.59
Replicate F			4.729	2.250	0.000	14.59
Replicate Prob(F)			0.0224	0.1342	1.0000	54.02
Treatment F			20.678	427.000	0.000	4.379
Treatment Prob(F)			0.0001	0.0001	1.0000	0.0333
					0.5256	0.0001
					28.628	0.0031
					4.624	
					0.0001	
					0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

ALS-Resistant Common Chickweed Control in Winter Wheat w/ Metribuzin or Starane

Trial ID: SG11-12 Cooperator: DuPont
 Location: Ridgely, MD Investigator: Mark VanGessel

Weed Code		TRZAW	STEME	VERPG
Crop Code		Winter	Common	Purslane
Weed or Crop Name		Wheat	Chickwd	Speedwll
Weed or Crop Name		Stunting	Control	Control
Rating Data Type		%	%	%
Rating Unit		03/20/12	03/20/12	03/20/12
Rating Date				

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg

TABLE OF R MEANS

Replicate 1	0.0	72.7	27.7
Replicate 2	0.0	68.5	49.5
Replicate 3	0.0	69.8	45.5

TABLE OF A (Application Timing) MEANS

1 Fall	0.0	86.3	56.2
2 Spring	0.0	54.4	27.5

TABLE OF B (Herbicide Partner) MEANS

1 Metribuzin.....metribuzin	75 DF	0.0	66.9	38.6
2 Starane Ultra...fluroxypyr	2.8 EC	0.0	73.8	43.5

TABLE OF C (Partner Rate) MEANS

1 No Partner	0.0	44.1	19.1
2 Low Rate	0.0	69.6	55.4
3 Mid Rate	0.0	78.6	41.3
4 High Rate	0.0	89.1	50.1

TABLE OF A (Application Timing) B (Herbicide Partner) MEANS

1 Harmony Extra SG Premix	50 SG	Fall	0.0	88.3	57.6
1 Nonionic Surfactant	100 L	Fall			
1 Metribuzin.....metribuzin	75 DF	Fall			
2 Harmony Extra SG Premix	50 SG	Spring	0.0	45.5	19.5
2 Nonionic Surfactant	100 L	Spring			
1 Metribuzin.....metribuzin	75 DF	Spring			
1 Harmony Extra SG Premix	50 SG	Fall	0.0	84.3	54.3
1 Nonionic Surfactant	100 L	Fall			
2 Starane Ultra...fluroxypyr	2.8 EC	Fall			
2 Harmony Extra SG Premix	50 SG	Spring	0.0	63.3	35.5
2 Nonionic Surfactant	100 L	Spring			
2 Starane Ultra...fluroxypyr	2.8 EC	Spring			

TABLE OF A (Application Timing) C (Partner Rate) MEANS

1 Harmony Extra SG Premix	50 SG	Fall	0.0	54.0	25.8
1 Nonionic Surfactant	100 L	Fall			
1 No Partner					
2 Harmony Extra SG Premix	50 SG	Spring	0.0	34.2	12.3
2 Nonionic Surfactant	100 L	Spring			
1 No Partner					

Weed Code	Crop Code	TRZAW	STEME	VERPG
Weed or Crop Name	Weed or Crop Name	Winter Wheat	Common Chickwd	Purslane
Rating Data Type	Rating Unit	Stunting %	Control %	Speedwll Control %
Rating Date		03/20/12	03/20/12	03/20/12
Trt Treatment No.	Form Name	Form Conc	Rate Type	Grow Unit Stg
1 Harmony Extra SG Premix	50 SG			Fall
1 Nonionic Surfactant	100 L			Fall
2 Low Rate				
2 Harmony Extra SG Premix	50 SG			Spring
2 Nonionic Surfactant	100 L			Spring
2 Low Rate				
1 Harmony Extra SG Premix	50 SG			Fall
1 Nonionic Surfactant	100 L			Fall
3 Mid Rate				
2 Harmony Extra SG Premix	50 SG			Spring
2 Nonionic Surfactant	100 L			Spring
3 Mid Rate				
1 Harmony Extra SG Premix	50 SG			Fall
1 Nonionic Surfactant	100 L			Fall
4 High Rate				
2 Harmony Extra SG Premix	50 SG			Spring
2 Nonionic Surfactant	100 L			Spring
4 High Rate				
TABLE OF B (Herbicide Partner) C (Partner Rate) MEANS				
1 No Partner			0.0	48.2
1 No Partner			0.0	40.0
1 Metribuzin.....metribuzin	75 DF		0.0	62.5
2 Low Rate				36.0
2 Starane Ultra...fluroxypyr	2.8 EC		0.0	76.7
2 Low Rate				74.9
1 Metribuzin.....metribuzin	75 DF		0.0	71.0
3 Mid Rate				48.0
2 Starane Ultra...fluroxypyr	2.8 EC		0.0	86.2
3 Mid Rate				34.6
1 Metribuzin.....metribuzin	75 DF		0.0	85.8
4 High Rate				54.7
2 Starane Ultra...fluroxypyr	2.8 EC		0.0	92.3
4 High Rate				40.9
TABLE OF A (Application Timing) B (Herbicide Partner) C (Partner Rate) MEANS				
1 Harmony Extra SG Premix	50 SG		0.0	64.7
1 Nonionic Surfactant	100 L			Fall
1 Metribuzin.....metribuzin	75 DF			Fall
1 No Partner				
2 Harmony Extra SG Premix	50 SG		0.0	31.7
2 Nonionic Surfactant	100 L			Spring
1 Metribuzin.....metribuzin	75 DF			Spring
1 No Partner				
1 Harmony Extra SG Premix	50 SG		0.0	43.3
1 Nonionic Surfactant	100 L			Fall
2 Starane Ultra...fluroxypyr	2.8 EC			Fall
1 No Partner				
2 Harmony Extra SG Premix	50 SG		0.0	36.7
2 Nonionic Surfactant	100 L			Spring
2 Starane Ultra...fluroxypyr	2.8 EC			Spring
1 No Partner				

Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	TRZAW	STEME	VERPG
					Winter Wheat Stunting %	Common Chickwd Control %	Speedwll Control %
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg	
1	Harmony Extra SG Premix	50 SG			Fall		0.0
1	Nonionic Surfactant	100 L			Fall		
1	Metribuzin.....metribuzin	75 DF			Fall		
2	Low Rate						
2	Harmony Extra SG Premix	50 SG			Spring		0.0
2	Nonionic Surfactant	100 L			Spring		
1	Metribuzin.....metribuzin	75 DF			Spring		
2	Low Rate						
1	Harmony Extra SG Premix	50 SG			Fall		0.0
1	Nonionic Surfactant	100 L			Fall		
2	Starane Ultra...fluroxypyrr	2.8 EC			Fall		
2	Low Rate						
2	Harmony Extra SG Premix	50 SG			Spring		0.0
2	Nonionic Surfactant	100 L			Spring		
2	Starane Ultra...fluroxypyrr	2.8 EC			Spring		
2	Low Rate						
1	Harmony Extra SG Premix	50 SG			Fall		0.0
1	Nonionic Surfactant	100 L			Fall		
1	Metribuzin.....metribuzin	75 DF			Fall		
3	Mid Rate						
2	Harmony Extra SG Premix	50 SG			Spring		0.0
2	Nonionic Surfactant	100 L			Spring		
1	Metribuzin.....metribuzin	75 DF			Spring		
3	Mid Rate						
1	Harmony Extra SG Premix	50 SG			Fall		0.0
1	Nonionic Surfactant	100 L			Fall		
2	Starane Ultra...fluroxypyrr	2.8 EC			Fall		
3	Mid Rate						
2	Harmony Extra SG Premix	50 SG			Spring		0.0
2	Nonionic Surfactant	100 L			Spring		
2	Starane Ultra...fluroxypyrr	2.8 EC			Spring		
3	Mid Rate						
1	Harmony Extra SG Premix	50 SG			Fall		0.0
1	Nonionic Surfactant	100 L			Fall		
1	Metribuzin.....metribuzin	75 DF			Fall		
4	High Rate						
2	Harmony Extra SG Premix	50 SG			Spring		0.0
2	Nonionic Surfactant	100 L			Spring		
1	Metribuzin.....metribuzin	75 DF			Spring		
4	High Rate						
1	Harmony Extra SG Premix	50 SG			Fall		0.0
1	Nonionic Surfactant	100 L			Fall		
2	Starane Ultra...fluroxypyrr	2.8 EC			Fall		
4	High Rate						
2	Harmony Extra SG Premix	50 SG			Spring		0.0
2	Nonionic Surfactant	100 L			Spring		
2	Starane Ultra...fluroxypyrr	2.8 EC			Spring		
4	High Rate						

ALS-Resistant Common Chickweed Control in Winter Wheat w/ Metribuzin or Starane

Trial ID: SG11-12 Cooperator: DuPont
 Location: Ridgely, MD Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For TRZAW Winter Wheat Stunting % 03/20/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	0.000000				
R	2	0.000000	0.000000	0.000	1.0000	0.0
A	1	0.000000	0.000000	0.000	1.0000	0.0
B	1	0.000000	0.000000	0.000	1.0000	0.0
AB	1	0.000000	0.000000	0.000	0.0000	0.0
C	3	0.000000	0.000000	0.000	1.0000	0.0
AC	3	0.000000	0.000000	0.000	0.0000	0.0
BC	3	0.000000	0.000000	0.000	0.0000	0.0
ABC	3	0.000000	0.000000	0.000	0.0000	0.0
ERROR	30	0.000000	0.000000			

FACTORIAL/POOLED ERROR AOV For STEME Common Chickwd Control % 03/20/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	33738.198652				
R	2	145.033531	72.516765	0.792	0.4620	6.9
A	1	12225.876569	12225.876569	133.608	0.0001	5.6
B	1	575.370164	575.370164	6.288	0.0178	5.6
AB	1	1415.037575	1415.037575	15.464	0.0005	8.0
C	3	13293.145735	4431.048578	48.424	0.0001	8.0
AC	3	2142.770246	714.256749	7.806	0.0005	11.3
BC	3	1048.493457	349.497819	3.819	0.0198	11.3
ABC	3	147.297300	49.099100	0.537	0.6608	15.9
ERROR	30	2745.174075	91.505803			

FACTORIAL/POOLED ERROR AOV For VERPG Purslane Speedwil Control % 03/20/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	42665.242321				
R	2	3805.860622	1902.930311	8.753	0.0010	10.6
A	1	5628.134084	5628.134084	25.888	0.0001	8.7
B	1	2.917160	2.917160	0.013	0.9086	8.7
AB	1	3252.627437	3252.627437	14.961	0.0005	12.3
C	3	8064.719507	2688.239836	12.365	0.0001	12.3
AC	3	1371.751523	457.250508	2.103	0.1207	17.4
BC	3	8745.983782	2915.327927	13.410	0.0001	17.4
ABC	3	5271.137401	1757.045800	8.082	0.0004	24.6
ERROR	30	6522.110805	217.403693			

Barley Weed Control for Vegetable Rotation

Trial ID: SG12-12 Cooperator:
 Location: Field #36 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Horseweed	ERICA	Erigeron canadensis L.
3.	Hairy Bittercress	CARHI	Cardamine hirsuta L.
4.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
5.	Ivyleaf Speedwell	VERHE	Veronica hederifolia L.

Crop 1: Barley	HORVW	Variety: Thoroughbred	
Planting Date:	10/11/11	Planting Method: Drilled	Depth: 1 in
Rate:	2 Bu/A	Row Spacing: 7 in	Seed Bed: Medium
Soil Temperature:	64 F	Soil Moisture: Moist	Emergence Date: 10/18/11

SITE AND DESIGN

Plot Width, Unit: 23 FT Plot Length, Unit: 240 FT Reps: 3
 Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
 Tillage Type: No Tillage/Corn Stubble

SOIL DESCRIPTION

% Sand: 77 % OM: 2.1 Texture: sandy loam
 % Silt: 12 pH: 5.7
 % Clay: 11 CEC: 7.2 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:	11/09/11
Time of Day:	1:30 pm
Application Method:	Spray
Application Timing:	Fall
Appli. Placement:	Brdcst
Air Temp., Unit:	66 F
% Relative Humidity:	60
Wind Velocity, Unit:	1 mph
Wind Direction:	Southeast
Dew Presence (Y/N):	Y
Soil Temp., Unit:	64 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Moist
% Cloud Cover:	10

CROP STAGE AT EACH APPLICATION	
	A
Crop 1 Code:	HORVW
Growth Stage:	1-3 tiller
Height, Unit:	6 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	LAMAM
Growth Stage:	cot-20 lf
Height, Unit:	2 in
Density,Unit:	0-160 m ²
Weed 2 Code:	ERICA
Growth Stage:	rosette
Height, Unit:	3 in
Density,Unit:	0-40 m ²
Weed 3 Code:	CARHI
Growth Stage:	rosette
Height, Unit:	3 in
Density,Unit:	0-40 m ²
Weed 4 Code:	HLOUM
Growth Stage:	cot-8 leaf
Height, Unit:	1 in
Density,Unit:	0-40 m ²
Weed 5 Code:	VERHE
Growth Stage:	cot-8 leaf
Height, Unit:	1.5 in
Density,Unit:	0-40 m ²

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	7 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments	
12-19-11:	No treatment injury observed.
03-15-12:	Looks fine. Fair to good weed control with the treatments.
04-10-12:	No treatment effect on heading.
Note: No plot data was taken, only comments	

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Product Rate	Product Rate Unit	Grow Stg
1	Axial XL.....pinoxaden Harmony Extra SG Premix	0.42 50	L SG	0.054 0.0219	lb ai/A lb ai/A	16.4 0.7	fl oz/A oz wt/A	Fall Fall
2	Axial Star Premix	1.15	L	0.147	lb ai/A	16.4	fl oz/A	Fall
3	Axial Star Premix Metribuzin.....metribuzin	1.15 75	L DF	0.147 0.187	lb ai/A lb ai/A	16.4 4	fl oz/A oz wt/A	Fall Fall

(SG13-12)

University of Delaware

Brome Control in Winter Wheat - Fall

Trial ID: SG13-12 Cooperator: Dow AgroSciences, Richard Carmine
 Location: Asbury Crossroads 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Downy Brome	BROTE	Bromus tectorum L.
3.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
4.	Field Pansy	VIORA	Viola rafinesquii Greene

Crop 1: Winter Wheat	TRZAW	Planting Method:	Broadcast
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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 broadcast and incorporated with a turbo till.

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

	A
Application Date:	11/26/11
Time of Day:	1:00 pm
Application Method:	Spray
Application Timing:	Fall
Applic. Placement:	Brdcst
Air Temp., Unit:	62 F
% Relative Humidity:	46
Wind Velocity, Unit:	1 mph
Wind Direction:	Southwest
Dew Presence (Y/N):	N
Soil Temp., Unit:	60 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:	4 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	LAMAM
Growth Stage:	2-8 leaf
Height, Unit:	1.5 in
Density, Unit:	30 m ²
Weed 2 Code:	BROTE
Growth Stage:	2-3 leaf
Height, Unit:	1.5 in
Density, Unit:	50-70 m ²
Weed 3 Code:	STEME
Growth Stage:	8-10 leaf
Height, Unit:	1 in
Density, Unit:	10 m ²
Weed 4 Code:	VIORA
Growth Stage:	2-4 leaf
Height, Unit:	1 in
Density, Unit:	5-10 m ²

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIR MIX
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:	CO ₂

Trial Comments	
<p>12-06-11: Border appears to have about 7% chlorosis compared to the rest of the field (a slight chlorotic look). No apparent injury from treatments. Wheat starting to show nitrogen deficiency, making ratings hard to evaluate chlorosis. Weed control has not started to show up well yet. Weeds look suppressed in some plots but very difficult to rate.</p> <p>12-20-11: No treatments look outstanding for weed control on brome; all look similar~ 40-60%.</p> <p>03-14-12: Wheat stand is variable at 1 to 4 tillers. Wheat is 3-5" tall and looks to have Nitrogen deficiency.</p> <p>05-24-12: Corn 20-22" tall. Corn is at the V-6 stage.</p>	

Brome Control in Winter Wheat - Fall

Trial ID: SG13-12 Cooperator: Dow AgroSciences, Richard Carmine
 Location: Asbury Crossroads Investigator: Mark VanGessel

Weed Code	Crop Code	TRZAW	LAMAM	POAAN	ZEAMX
Weed or Crop Name	Winter Wheat	Henbit	Annual Bluegrss	Field Corn	Stunting %
Rating Data Type	Stunting %	Control %	Control %		
Rating Unit					
Rating Date					
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1 PowerFlex HL....pyroxsulam	13.1 WG	0.0164	1lb ai/A	Fall	A
Nonionic Surfactant	100L	0.5	% v/v	Fall	A
Liquid Ammonium Sulfate 34%	100L	2.2	% v/v	Fall	A
2 Olympus Flex Premix	11.25 DF	0.0246	1lb ai/A	Fall	A
Nonionic Surfactant	100L	0.5	% v/v	Fall	A
Liquid Ammonium Sulfate 34%	100L	2.2	% v/v	Fall	A
3 Olympus.....propoxycarbazone	70WG	0.0394	1lb ai/A	Fall	A
Nonionic Surfactant	100L	0.5	% v/v	Fall	A
Liquid Ammonium Sulfate 34%	100L	2.2	% v/v	Fall	A
4 Maverick.....sulfosulfuron	75 WG	0.0314	1lb ai/A	Fall	A
Nonionic Surfactant	100L	0.5	% v/v	Fall	A
5 Untreated Check				0.0c	0.0c
6 Axial XL.....pinoxaden	0.42 L	0.054	1lb ai/A	Fall	A
Harmony Extra SG Premix	50 SG	0.028	1lb ai/A	Fall	A
7 Osprey.....mesosulfuron	4.5 WG	0.0134	1lb ai/A	Fall	A
Nonionic Surfactant	100L	0.5	% v/v	Fall	A
Liquid Ammonium Sulfate 34%	100L	2.2	% v/v	Fall	A
8 Everest.....flucarbazone	70WG	0.0262	1lb ai/A	Fall	A
Nonionic Surfactant	100L	0.5	% v/v	Fall	A
Liquid Ammonium Sulfate 34%	100L	2.2	% v/v	Fall	A
LSD (P=.05)				2.98	15.99
Standard Deviation				1.70	9.13
CV				75.67	39.12
Replicate F				1.854	0.200
Replicate Prob(F)				0.1930	0.8210
Treatment F				15.926	23.886
Treatment Prob(F)				0.0001	0.0001
					5.609
					0.0163
					100.815
					64.393
					0.1335
					0.0001
					0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Brome Control in Winter Wheat - Spring

Trial ID: SG14-12 Cooperator: Dow AgroSciences, Richard Carmine
 Location: Asbury Crossroads 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Downy Brome	BROTE	Bromus tectorum L.
2.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
3.	Henbit	LAMAM	Lamium amplexicaule L.
4.	Field Pansy	VIORA	Viola rafinesquii Greene

Crop 1: Winter Wheat **TRZAW** **Planting Method:** Broadcast

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 and incorporated with a a turbo till.

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

APPLICATION DESCRIPTION

	A
Application Date:	02/21/12
Time of Day:	10:20 am
Application Method:	Spray
Application Timing:	Spring
Applic. Placement:	Brdcst
Air Temp., Unit:	47 F
% Relative Humidity:	46
Wind Velocity, Unit:	5 mph
Wind Direction:	South
Dew Presence (Y/N):	N
Soil Temp., Unit:	44 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	20

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:	BROTE
Growth Stage:	3-4 leaf
Height, Unit:	1 in
Density,Unit:	200 m ²
Weed 2 Code:	STEME
Growth Stage:	vegetative
Height, Unit:	4 in
Density,Unit:	20 m ²
Weed 3 Code:	LAMAM
Growth Stage:	vegetative
Height, Unit:	2 in
Density,Unit:	30 m ²
Weed 4 Code:	VIORA
Growth Stage:	vegetativ
Height, Unit:	2 in
Density,Unit:	10 m ²

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIR MIX
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:	CO ₂

Trial Comments

03-14-12: No crop injury observed. Little herbicide activity now. Trial is too early to rate.

05-31-12: Corn 20-22" tall. Corn is at the V-6 stage.

Brome Control in Winter Wheat - Spring

Trial ID: SG14-12 Cooperator: Dow AgroSciences, Richard Carmine
 Location: Asbury Crossroads Investigator: Mark VanGessel

Crop Code	ZEAMX							
Weed or Crop Name	Field							
Weed or Crop Name	Corn							
Rating Data Type	Stunting							
Rating Unit	%							
Rating Date	05/31/12							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code	
1	PowerFlex HL....pyroxslam	13.1	WG	0.0164	lb ai/A	Spring	A	0.0b
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	A	
	Liquid Ammonium Sulfate 34%	100	L	2.2	% v/v	Spring	A	
2	Olympus Flex Premix	11.25	DF	0.0246	lb ai/A	Spring	A	2.3b
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	A	
	Liquid Ammonium Sulfate 34%	100	L	2.2	% v/v	Spring	A	
3	Olympus.....propoxycarbazone	70	WG	0.0394	lb ai/A	Spring	A	4.0b
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	A	
	Liquid Ammonium Sulfate 34%	100	L	2.2	% v/v	Spring	A	
4	Maverick.....sulfosulfuron	75	WG	0.0314	lb ai/A	Spring	A	31.7a
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	A	
5	Untreated Check							0.0b
6	Axial XL.....pinoxaden	0.42	L	0.054	lb ai/A	Spring	A	0.0b
	Harmony Extra SG Premix	50	SG	0.028	lb ai/A	Spring	A	
7	Osprey.....mesosulfuron	4.5	WG	0.0134	lb ai/A	Spring	A	5.7b
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	A	
	Liquid Ammonium Sulfate 34%	100	L	2.2	% v/v	Spring	A	
8	Everest.....flucarbazone	70	WG	0.0262	lb ai/A	Spring	A	5.7b
	Nonionic Surfactant	100	L	0.5	% v/v	Spring	A	
	Liquid Ammonium Sulfate 34%	100	L	2.2	% v/v	Spring	A	
LSD (P=.05)								9.44
Standard Deviation								5.39
CV								87.44
Replicate F								4.189
Replicate Prob(F)								0.0375
Treatment F								11.559
Treatment Prob(F)								0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

ALS-Resistant Horseweed Control in Winter Wheat

Control of Large Horseweed Plants

Trial ID: SG15-12 Cooperator:

Location: Field #7 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

CROP AND WEED DESCRIPTION

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

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/Soybean Stubble

SOIL DESCRIPTION

% Sand: 78 % OM: 2.3 Texture: sandy loam

% Silt: 13 pH: 5.9

% Clay: 9 CEC: 7.8 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	B
Application Date:	11/15/11	03/15/12
Time of Day:	9:00 am	4:00 pm
Application Method:	Spray	Spray
Application Timing:	Fall	Spring
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	66 F	56 F
% Relative Humidity:	67	80
Wind Velocity, Unit:	2 mph	4 mph
Wind Direction:	Southwest	Northeast
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	65 F	54 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	20	80

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	SCRAN	SCRAN
Growth Stage:	2-8 leaf	vegetative
Height, Unit:	1.8 in	2 in
Density,Unit:	0-200 m ²	0-50 m ²
Weed 2 Code:	CERVU	CERVU
Growth Stage:	rosette	flower
Height, Unit:	2 in	2 in
Density,Unit:	0-50 m ²	100 m ²
Weed 3 Code:	OEOLA	OEOLA
Growth Stage:	rosette	rosette
Height, Unit:	3 in	6 in
Density,Unit:	0-20 m ²	10-40 m ²
Weed 4 Code:	ERICA	ERICA
Growth Stage:	rosette	rosette
Height, Unit:	3.5 in	4 in
Density,Unit:	0-50 m ²	50-500 m ²
Weed 5 Code:	LAMAM	LAMAM
Growth Stage:	vegetative	eaFlower
Height, Unit:	2 in	2 in
Density,Unit:	0-40 m ²	0-50 m ²
Weed 6 Code:	VIORA	VIORA
Growth Stage:	2-8 leaf	flower
Height, Unit:	2 in	3 in
Density,Unit:	0-30 m ²	0-50 m ²

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

12/21/11: Starane plus metribuzin in the fall (trt.4) was poor (<30%) on henbit and field pansy.

03/14/12: Starane and metribuzin treatments were weak for Lamium species (deadnettle and henbit).

05/07/12: Starane Ultra was weak on Carolina geranium and field pansy; only fair on primrose, and when applied in the spring was good on vetch. Banvel in the spring was excellent on primrose, good on vetch, and poor on Carolina geranium. 2,4-D amine and Unison were both weak on vetch.

Horseweed control demo in Field 35:

Starane (8)	May 7
Banvel (9)	20
2,4-D amine (10)	100
all applied in the spring	80

ALS-Resistant Horseweed Control in Winter Wheat

Control of Large Horseweed Plants

Trial ID: SG15-12 Cooperator:

Location: Field #7 Investigator: Mark VanGessel

Weed Code	ERICA	CERVU	OEOLA	STEME	VIORA	CERVU
Weed or Crop Name	Horseweed	Mouseear	Cutleaf	Common	Field	Mouseear
Rating Data Type	Control %	Chickwd	EPrimrse	Chickwd	Pansy	Chickwd
Rating Unit						
Rating Date	12/21/11	12/21/11	12/21/11	03/14/12	03/14/12	03/14/12
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1 Untreated Check				0.0 b	0.0 b	3.3 d
2 Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.187 lb ai/A 0.25% v/v	lb ai/A Fall	A	35.0 ab	40.0 ab
3 Starane Ultra...fluroxypyrr	2.8 EC	0.14 lb ae/A	Fall	A	68.3 a	60.0 a
4 Starane Ultra...fluroxypyrr Metribuzin.....metribuzin	2.8 EC 75 DF	0.14 lb ae/A 0.187 lb ai/A	Fall	A	76.7 a	76.7 a
5 Banvel.....dicamba Nonionic Surfactant	4 EC 100 L	0.125 lb ai/A 0.25% v/v	Fall	A	70.0 a	61.7 a
6 2,4-D amine	3.8 L	0.25 lb ae/A	Fall	A	76.7 a	70.0 a
7 Unison.....2,4-D acid	1.74 L	0.25 lb ae/A	Fall	A	73.3 a	70.0 a
LSD (P=.05)				46.27	43.74	27.48
Standard Deviation				26.01	24.58	15.29
CV				45.51	45.49	37.77
Replicate F				1.331	2.259	1.380
Replicate Prob(F)				0.3007	0.1470	0.2919
Treatment F				3.748	3.502	9.289
Treatment Prob(F)				0.0246	0.0308	0.0009
				0.1041	0.1041	0.0147
				0.0003		

Weed Code	ERICA	ERICA				
Weed or Crop Name	Horseweed	Horseweed				
Rating Data Type	Control %	Control %				
Rating Unit						
Rating Date	03/14/12	05/07/12				
Trt Treatment No. Name	Form Conc	Form Type				
1 Untreated Check			0.0 c	0.0 d		
2 Metribuzin.....metribuzin Nonionic Surfactant	75 DF 100 L	0.187 lb ai/A 0.25% v/v	Fall	A	0.0 c	10.0 d
3 Starane Ultra...fluroxypyrr	2.8 EC	0.14 lb ae/A	Fall	A	80.0 b	61.0 c
4 Starane Ultra...fluroxypyrr Metribuzin.....metribuzin	2.8 EC 75 DF	0.14 lb ae/A 0.187 lb ai/A	Fall	A	76.7 b	73.3 bc
5 Banvel.....dicamba Nonionic Surfactant	4 EC 100 L	0.125 lb ai/A 0.25% v/v	Fall	A	100.0 a	100.0 a
6 2,4-D amine	3.8 L	0.25 lb ae/A	Fall	A	100.0 a	100.0 a
7 Unison.....2,4-D acid	1.74 L	0.25 lb ae/A	Fall	A	100.0 a	86.7 ab
8 Starane Ultra...fluroxypyrr	2.8 EC	0.14 lb ae/A	Spring	B		100.0 a
9 Banvel.....dicamba Nonionic Surfactant	4 EC 100 L	0.187 lb ai/A 0.25% v/v	Spring	B		100.0 a
10 2,4-D amine	3.8 L	0.375 lb ae/A	Spring	B		100.0 a
LSD (P=.05)			18.77	19.57		
Standard Deviation			10.44	11.30		
CV			16.01	15.46		
Replicate F			1.222	2.989		
Replicate Prob(F)			0.3316	0.0789		
Treatment F			57.226	34.626		
Treatment Prob(F)			0.0001	0.0001		

Comparison of Herbicide-Resistant Soybeans for No-Till Weed Management

Trial ID: DSB1a-12 Cooperator: Delaware Soybean Board
 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

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.	Annual Grasses	GGGAN	

Crop 1: Soybean	GLXMA	Variety: RT4996N-STS and LL499N,
Planting Date: 05/23/12	Planting Method: Drilled	Depth: 1 in
Rate: 4 Sd/row-ft	Row Spacing: 14 in	Seed Bed: Firm
Soil Temperature: 78 F	Soil Moisture: Moist	Emergence Date: 05/29/12

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: The study area was sprayed with glyphosate for burndown approximately 2 weeks prior to planting.

SOIL DESCRIPTION

% Sand: 79 % OM: 2.4 Texture: loamy sand
 % Silt: 12 pH: 6.2
 % Clay: 9 CEC: 6.7 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: 0.6 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	05/24/12	06/19/12	07/03/12
Time of Day:	11:00 am	12:15 pm	10:00 am
Application Method:	Spray	Spray	Spray
Application Timing:	PRE	4WAP	6WAP
Applic. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	74 F	78 F	88 F
% Relative Humidity:	66	63	40
Wind Velocity, Unit:	2 mph	1 mph	1 mph
Wind Direction:	Southeast	South	Southwest
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	73 F	77 F	85 F
Soil Surf. Moisture:	Moist	Moist	Dry
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry
% Cloud Cover:	80	80	45

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:		V4-5	V6-7
Height, Unit:		7 in	14 in
Crop Health:		Good	Good

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:		vegetative	vegetative
Height, Unit:		10 in	14 in
Density,Unit:		0-30 m2	0-5 m2
Weed 2 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:		vegetative	veg-run
Height, Unit:		4 in	10 in
Density,Unit:		5-8 m2	2-8
Weed 3 Code:	GGGAN	GGGAN	GGGAN
Growth Stage:		vegetative	vegetative
Height, Unit:		4 in	7 in
Density,Unit:		30-80 m2	0-30 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:	18 in	24 in	30 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

Comparison of Herbicide-Resistant Soybeans for No-Till Weed Management

Trial ID: DSB1a-12 Cooperator: Delaware Soybean Board
 Location: Field #14 Investigator: Mark VanGessel

Weed Code	AMASS	AMBEL	CHEAL	IPOSS	GGGAN
Crop Code	Pigweed Species	Common Ragweed PREcntrl %	Common Lambqtrs PREcntrl %	Mornlry Species PREcntrl %	Annual Grasses PREcntrl %
Weed or Crop Name	PREcntrl %	06/21/12	06/21/12	06/21/12	06/21/12
Weed or Crop Name					
Rating Data Type					
Rating Unit					
Rating Date					
Trt Treatment	Form	Form	Rate	Grow	Appl
No. Name	Conc	Type	Rate	Unit	Stg
9 PRE fb LPOST (42 DAP) Conventional Soys					
Dual Magnum.....s-metolachlor	7.62 E	1.24 lb ai/A	PRE	A	
Prowl.....pendimethalin	3.3 EC	0.72 lb ai/A	PRE	A	
Sencor.....metribuzin	75 DF	0.14 lb ai/A	PRE	A	
Reflex.....fomesafen	2 L	0.25 lb ai/A	6 WAP	C	
Basagran.....bentazon	4 L	0.75 lb ai/A	6 WAP	C	
Select Max.....clethodim	1 EC	0.125 lb ai/A	ifNeeded	C	
Nonionic Surfactant	100 L	0.25 % v/v	6 WAP	C	
10 PRE fb LPOST (42 DAP) Roundup Ready Soys					
Valor XLT Premix	40.3 WG	0.0756 lb ai/A	PRE	A	
Glyphosate	3 L	0.75 lb ae/A	6 WAP	C	
11 PRE fb LPOST (42 DAP) Liberty-Link Soys					
Prefix Premix	5.3 E	1.33 lb ai/A	PRE	A	
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	
12 PRE fb LPOST (42 DAP) STS Soys					
Prefix Premix	5.3 E	1.33 lb ai/A	PRE	A	
Synchrony STS Premix	42 DF	0.0197 lb ai/A	6 WAP	C	
Select Max.....clethodim	1 EC	0.125 lb ai/A	ifNeeded	C	
Crop Oil Concentrate	100 L	1 % v/v	6 WAP	C	
13 Reduced PRE fb POST (28 DAP) Conventional Soys					
Dual Magnum.....s-metolachlor	7.62 E	0.83 lb ai/A	PRE	A	
Prowl.....pendimethalin	3.3 EC	0.483 lb ai/A	PRE	A	
Sencor.....metribuzin	75 DF	0.094 lb ai/A	PRE	A	
Reflex.....fomesafen	2 L	0.25 lb ai/A	4 WAP	B	
Basagran.....bentazon	4 L	0.75 lb ai/A	4 WAP	B	
Nonionic Surfactant	100 L	0.25 % v/v	4 WAP	B	
14 Reduced PRE fb POST (28 DAP) Roundup Ready Soys					
Valor XLT Premix	40.3 WG	0.0504 lb ai/A	PRE	A	
Glyphosate	3 L	0.75 lb ae/A	4 WAP	B	
15 Reduced PRE fb POST (28 DAP) Liberty-Link Soys					
Prefix Premix	5.3 E	0.86 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	

Weed Code	AMASS	AMBEL	CHEAL	IPOSS	GGGAN
Crop Code	Pigweed Species PREcntrl	Common Ragweed PREcntrl	Common Lambqtrs PREcntrl	Mornlgy Species PREcntrl	Annual Grasses PREcntrl
Weed or Crop Name	%	%	%	%	%
Rating Data Type	06/21/12	06/21/12	06/21/12	06/21/12	06/21/12
Rating Unit					
Rating Date					
Trt Treatment No. Name	Form Conc Form Type Rate	Rate Unit Stg	Grow Stg	Appl Code	
16 Reduced PRE fb POST (28 DAP) STS Soys Prefix Premix Synchrony STS Premix Crop Oil Concentrate	5.3 E 42 DF 100 L	0.86 lb ai/A 0.0197 lb ai/A 1% v/v	PRE 4 WAP A B	100.0 a	100.0 a 100.0 a 56.7 bc 100.0 a
17 Untreated Check Liberty-Link Soys				0.0 c	0.0 b 0.0 c 0.0 e 0.0 b
18 Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Select Max.....clethodim Dry Ammonium Sulfate	5.3 E 2.34 SL 1 EC 100 D	1.33 lb ai/A 0.62 lb ai/A 0.125 lb ai/A 1.2 % w/v	PRE 6 WAP A C if Needed C 6WAP C	96.7 ab	100.0 a 93.3 a 56.7 bc 100.0 a
LSD (P=.05)				10.66	14.22
Standard Deviation				6.21	8.25
CV				7.21	4.92 5.74 10.67 3.47 3.89
Replicate F				0.281	0.480
Replicate Prob(F)				0.7586	0.6264
Treatment F				72.856	0.5530
Treatment Prob(F)				0.0001	0.612 0.6247 43.550 244.980 0.0001 0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	GLXMA	GLXMA	GLXMA	AMAPA	IPOSS
Weed or Crop Name		Soybean	Soybean	Soybean	Palmer	Morngly
Weed or Crop Name		PRE	POST	POST	Amaranth	Species
Rating Data Type		Stunting %	Leafburn %	Chloross %	Control %	Control %
Rating Unit		06/21/12	06/21/12	06/21/12	08/06/12	08/06/12
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1	Total POST (28 DAP)					
	Conventional Soys					
	Reflex.....fomesafen	2 L	0.25 lb ai/A	4 WAP	B	
	Basagran.....bentazon	4 L	0.75 lb ai/A	4 WAP	B	
	Select Max.....clethodim	1 EC	0.125 lb ai/A	4 WAP	B	
	Nonionic Surfactant	100 L	0.25 % v/v	4 WAP	B	
2	Total POST (28 DAP)					
	Roundup Ready Soys					
	Glyphosate	3 L	0.75 lb ae/A	4 WAP	B	
3	Total POST (28 DAP)					
	Liberty-Link Soys					
	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	Total POST (28 DAP)					
	STS Soys					
	Synchrony STS Premix	42 DF	0.0197 lb ai/A	4 WAP	B	
	Select Max.....clethodim	1 EC	0.125 lb ai/A	4 WAP	B	
	Crop Oil Concentrate	100 L	1 % v/v	4 WAP	B	
5	PRE fb POST (28 DAP)					
	Conventional Soys					
	Dual Magnum.....s-metolachlor	7.62 E	1.24 lb ai/A	PRE	A	
	Prowl.....pendimethalin	3.3 EC	0.72 lb ai/A	PRE	A	
	Sencor.....metribuzin	75 DF	0.14 lb ai/A	PRE	A	
	Reflex.....fomesafen	2 L	0.25 lb ai/A	4 WAP	B	
	Basagran.....bentazon	4 L	0.75 lb ai/A	4 WAP	B	
	Nonionic Surfactant	100 L	0.25 % v/v	4 WAP	B	
6	PRE fb POST (28 DAP)					
	Roundup Ready Soys					
	Valor XLT Premix	40.3 WG	0.0756 lb ai/A	PRE	A	
	Glyphosate	3 L	0.75 lb ae/A	4 WAP	B	
7	PRE fb POST (28 DAP)					
	Liberty-Link Soys					
	Prefix Premix	5.3 E	1.33 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	
8	PRE fb POST (28 DAP)					
	STS Soys					
	Prefix Premix	5.3 E	1.33 lb ai/A	PRE	A	
	Synchrony STS Premix	42 DF	0.0197 lb ai/A	4 WAP	B	
	Crop Oil Concentrate	100 L	1 % v/v	4 WAP	B	
9	PRE fb LPOST (42 DAP)					
	Conventional Soys					
	Dual Magnum.....s-metolachlor	7.62 E	1.24 lb ai/A	PRE	A	
	Prowl.....pendimethalin	3.3 EC	0.72 lb ai/A	PRE	A	
	Sencor.....metribuzin	75 DF	0.14 lb ai/A	PRE	A	
	Reflex.....fomesafen	2 L	0.25 lb ai/A	6 WAP	C	
	Basagran.....bentazon	4 L	0.75 lb ai/A	6 WAP	C	
	Select Max.....clethodim	1 EC	0.125 lb ai/A	ifNeeded	C	
	Nonionic Surfactant	100 L	0.25 % v/v	6 WAP	C	

Weed Code	GLXMA	GLXMA	GLXMA	AMAPA	IPOSS						
Crop Code	Soybean	Soybean	Soybean	Palmer	Mornglry						
Weed or Crop Name	PRE	POST	POST	Amaranth	Species						
Weed or Crop Name	Stunting %	Leafburn %	Chloross %	Control %	Control %						
Rating Data Type	06/21/12	06/21/12	06/21/12	08/06/12	08/06/12						
Rating Unit											
Rating Date											
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code						
10 PRE fb LPOST (42 DAP) Roundup Ready Soys Valor XLT Premix Glyphosate	40.3 WG 3 L	0.0756 lb 0.75 lb	ai/A ae/A	PRE 6 WAP	A C	4.0 bc			100.0 a	91.7 a	
11 PRE fb LPOST (42 DAP) Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D	1.33 lb 0.53 lb 1.2 % w/v	ai/A ai/A w/v	PRE 6 WAP 6 WAP	A C C	0.0 c			86.7 abc	66.7 def	
12 PRE fb LPOST (42 DAP) STS Soys Prefix Premix Synchrony STS Premix Select Max.....clethodim Crop Oil Concentrate	5.3 E 42 DF 1 EC 100 L	1.33 lb 0.0197 lb 0.125 lb 1 % v/v	ai/A ai/A ai/A w/v	PRE 6 WAP ifNeeded 6 WAP	A C C C	0.0 c			83.3 cd	73.3 c-f	
13 Reduced PRE fb POST (28 DAP) Conventional Soys Dual Magnum.....s-metolachlor Prowl.....pendimethalin Sencor.....metribuzin Reflex.....fomesafen Basagran.....bentazon Nonionic Surfactant	7.62 E 3.3 EC 75 DF 2 L 4 L 100 L	0.83 lb 0.483 lb 0.094 lb 0.25 lb 0.75 lb 0.25 %	ai/A ai/A ai/A ai/A ai/A v/v	PRE PRE PRE 4 WAP 4 WAP 4 WAP	A A A B B B	0.0 c	16.3 ab	0.0 c	95.0 abc	63.3 fg	
14 Reduced PRE fb POST (28 DAP) Roundup Ready Soys Valor XLT Premix Glyphosate	40.3 WG 3 L	0.0504 lb 0.75 lb	ai/A ae/A	PRE 4 WAP	A B	6.3 ab	10.7 b	0.2 c	97.7 ab	81.7 abc	
15 Reduced PRE fb POST (28 DAP) Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D	0.86 lb 0.53 lb 1.2 % w/v	ai/A ai/A w/v	PRE 4 WAP 4 WAP	A B B	11.2 a	0.0 c	13.0 a	100.0 a	65.0 ef	
16 Reduced PRE fb POST (28 DAP) STS Soys Prefix Premix Synchrony STS Premix Crop Oil Concentrate	5.3 E 42 DF 100 L	0.86 lb 0.0197 lb 1 % v/v	ai/A ai/A w/v	PRE 4 WAP 4 WAP	A B B	0.0 c	0.0 c	9.7 b	100.0 a	65.0 ef	
17 Untreated Check Liberty-Link Soys						0.0 c	0.0 c	0.0 c	0.0 f	0.0 i	
18 Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Select Max.....clethodim Dry Ammonium Sulfate	5.3 E 2.34 SL 1 EC 100 D	1.33 lb 0.62 lb 0.125 lb 1.2 % w/v	ai/A ai/A ai/A w/v	PRE 6 WAP ifNeeded 6 WAP	A C C C	8.0 ab			95.0 abc	71.7 c-f	
LSD (P=.05)						5.44	7.82	2.70	13.46	10.52	
Standard Deviation						3.25	4.63	1.59	8.07	6.31	
CV						100.46	64.04	28.47	9.53	9.57	
Replicate F						4.906	0.875	0.624	2.323	3.498	
Replicate Prob(F)						0.0149	0.4301	0.5453	0.1133	0.0416	
Treatment F						4.714	10.161	47.167	26.532	30.518	
Treatment Prob(F)						0.0002	0.0001	0.0001	0.0001	0.0001	

Weed Code						GGGAN	SIDSP	AMASS	IPOSS	GLXMA
Crop Code						Annual Grasses Control %	Prickly Sida Control %	Pigweed Species Control %	Mornlgy Species Control %	Soybean
Weed or Crop Name						08/06/12	08/06/12	10/03/12	10/03/12	11/05/12
Rating Data Type										
Rating Unit										
Rating Date										
Trt Treatment No.	Form No.	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code			
1 Total POST (28 DAP)										
Conventional Soys										
Reflex.....fomesafen	2 L	0.25 lb	ai/A	4 WAP	B					
Basagran.....bentazon	4 L	0.75 lb	ai/A	4 WAP	B					
Select Max.....clethodim	1 EC	0.125 lb	ai/A	4 WAP	B					
Nonionic Surfactant	100 L	0.25 %	v/v	4 WAP	B					
2 Total POST (28 DAP)										
Roundup Ready Soys										
Glyphosate	3 L	0.75 lb	ae/A	4 WAP	B					
3 Total POST (28 DAP)										
Liberty-Link Soys										
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 Total POST (28 DAP)										
STS Soys										
Synchrony STS Premix	42 DF	0.0197 lb	ai/A	4 WAP	B					
Select Max.....clethodim	1 EC	0.125 lb	ai/A	4 WAP	B					
Crop Oil Concentrate	100 L	1 %	v/v	4 WAP	B					
5 PRE fb POST (28 DAP)										
Conventional Soys										
Dual Magnum.....s-metolachlor	7.62 E	1.24 lb	ai/A	PRE	A					
Prowl.....pendimethalin	3.3 EC	0.72 lb	ai/A	PRE	A					
Sencor.....metribuzin	75 DF	0.14 lb	ai/A	PRE	A					
Reflex.....fomesafen	2 L	0.25 lb	ai/A	4 WAP	B					
Basagran.....bentazon	4 L	0.75 lb	ai/A	4 WAP	B					
Nonionic Surfactant	100 L	0.25 %	v/v	4 WAP	B					
6 PRE fb POST (28 DAP)										
Roundup Ready Soys										
Valor XLT Premix	40.3 WG	0.0756 lb	ai/A	PRE	A					
Glyphosate	3 L	0.75 lb	ae/A	4 WAP	B					
7 PRE fb POST (28 DAP)										
Liberty-Link Soys										
Prefix Premix	5.3 E	1.33 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					
8 PRE fb POST (28 DAP)										
STS Soys										
Prefix Premix	5.3 E	1.33 lb	ai/A	PRE	A					
Synchrony STS Premix	42 DF	0.0197 lb	ai/A	4 WAP	B					
Crop Oil Concentrate	100 L	1 %	v/v	4 WAP	B					
9 PRE fb LPOST (42 DAP)										
Conventional Soys										
Dual Magnum.....s-metolachlor	7.62 E	1.24 lb	ai/A	PRE	A					
Prowl.....pendimethalin	3.3 EC	0.72 lb	ai/A	PRE	A					
Sencor.....metribuzin	75 DF	0.14 lb	ai/A	PRE	A					
Reflex.....fomesafen	2 L	0.25 lb	ai/A	6 WAP	C					
Basagran.....bentazon	4 L	0.75 lb	ai/A	6 WAP	C					
Select Max.....clethodim	1 EC	0.125 lb	ai/A	ifNeeded	C					
Nonionic Surfactant	100 L	0.25 %	v/v	6 WAP	C					

Weed Code		GGGAN	SIDSP	AMASS	IPOSS	GLXMA
Crop Code		Annual Grasses Control %	Prickly Sida Control %	Pigweed Species Control %	Mornlry Species Control %	Soybean Yield Bu/A
Weed or Crop Name		08/06/12	08/06/12	10/03/12	10/03/12	11/05/12
Weed or Crop Name						
Rating Data Type						
Rating Unit						
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
10	PRE fb LPOST (42 DAP) Roundup Ready Soys Valor XLT Premix Glyphosate	40.3 WG 3 L	0.0756 lb ai/A 0.75 lb ae/A	PRE 6 WAP	A C	100.0 a
11	PRE fb LPOST (42 DAP) Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D	1.33 lb ai/A 0.53 lb ai/A 1.2 % w/v	PRE 6 WAP	A C	100.0 a
12	PRE fb LPOST (42 DAP) STS Soys Prefix Premix Synchrony STS Premix Select Max.....clethodim Crop Oil Concentrate	5.3 E 42 DF 1 EC 100 L	1.33 lb ai/A 0.0197 lb ai/A 0.125 lb ai/A 1 % v/v	PRE 6 WAP	A C	100.0 a
13	Reduced PRE fb POST (28 DAP) Conventional Soys Dual Magnum.....s-metolachlor Prowl.....pendimethalin Sencor.....metribuzin Reflex.....fomesafen Basagran.....bentazon Nonionic Surfactant	7.62 E 3.3 EC 75 DF 2 L 4 L 100 L	0.83 lb ai/A 0.483 lb ai/A 0.094 lb ai/A 0.25 lb ai/A 0.75 lb ai/A 0.25 % v/v	PRE 4 WAP	A B	100.0 a
14	Reduced PRE fb POST (28 DAP) Roundup Ready Soys Valor XLT Premix Glyphosate	40.3 WG 3 L	0.0504 lb ai/A 0.75 lb ae/A	PRE 4 WAP	A B	96.7 ab
15	Reduced PRE fb POST (28 DAP) Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D	0.86 lb ai/A 0.53 lb ai/A 1.2 % w/v	PRE 4 WAP	A B	100.0 a
16	Reduced PRE fb POST (28 DAP) STS Soys Prefix Premix Synchrony STS Premix Crop Oil Concentrate	5.3 E 42 DF 100 L	0.86 lb ai/A 0.0197 lb ai/A 1 % v/v	PRE 4 WAP	A B	95.0 ab
17	Untreated Check Liberty-Link Soys			0.0 c	0.0 c	0.0 d
18	Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Select Max.....clethodim Dry Ammonium Sulfate	5.3 E 2.34 SL 1 EC 100 D	1.33 lb ai/A 0.62 lb ai/A 0.125 lb ai/A 1.2 % w/v	PRE 6 WAP	A C	100.0 a
LSD (P=.05)				8.49	35.14	17.97
Standard Deviation				5.09	21.01	10.78
CV				5.5	26.79	12.69
Replicate F				0.660	1.328	3.233
Replicate Prob(F)				0.5233	0.2813	0.0522
Treatment F				62.829	4.758	15.672
Treatment Prob(F)				0.0001	0.0001	0.0001

Comparison of Herbicide-Resistant Soybeans for No-Till Weed Management

Trial ID: DSB1a-12 Cooperator: Delaware Soybean Board

Location: Field #14 Investigator: Mark VanGessel

University of Delaware

Weed Code Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date	GLXMA Soybean POST Leafburn % 06/21/12	GLXMA Soybean POST Chloross % 06/21/12	AMAPA Palmer Amaranth Control % 08/06/12	IPOSS Mornlry Species Control % 08/06/12	GGGAN Annual Grasses Control % 08/06/12	SIDSP Prickly Sida Control % 08/06/12	AMASS Pigweed Species Control % 10/03/12	IPOSS Mornlry Species Control % 10/03/12	GLXMA Soybean Yield Bu/A 11/05/12
Trt Treatment No. Name									
3 PRE fb LP 42DAP 1 Convent. Soys 1 Reflex 1 Basagran 1 Select Max 1 Nonionic Surf.	.	.	93.3	40.0	100.0	97.7	90.0	46.7	47.5
4 RedPRfb PO28DAP 1 Convent. Soys 1 Reflex 1 Basagran 1 Select Max 1 Nonionic Surf.	16.3	0.0	95.0	63.3	100.0	70.0	100.0	70.7	61.1
1 Ttl POST 28DAP 2 Roundup Soys 2 Glyphosate	13.0	0.0	84.3	76.7	100.0	100.0	95.0	76.7	63.5
2 PRE fb PO 28DAP 2 Roundup Soys 2 Glyphosate	14.0	0.2	96.7	85.0	98.3	92.8	93.3	68.3	65.3
3 PRE fb LP 42DAP 2 Roundup Soys 2 Glyphosate	.	.	100.0	91.7	100.0	100.0	100.0	100.0	62.5
4 RedPRfb PO28DAP 2 Roundup Soys 2 Glyphosate	10.7	0.2	97.7	81.7	96.7	91.7	100.0	66.7	54.5
1 Ttl POST 28DAP 3 Liberty Soys 3 Liberty 280 3 Ammonium Sulf.	0.0	13.0	70.0	70.0	93.3	95.3	78.3	60.0	59.0
2 PRE fb PO 28DAP 3 Liberty Soys 3 Liberty 280 3 Ammonium Sulf.	0.0	14.0	93.3	68.3	100.0	99.0	83.3	75.0	57.9
3 PRE fb LP 42DAP 3 Liberty Soys 3 Liberty 280 3 Ammonium Sulf.	.	.	86.7	66.7	100.0	66.7	95.0	70.0	66.3
4 RedPRfb PO28DAP 3 Liberty Soys 3 Liberty 280 3 Ammonium Sulf.	0.0	13.0	100.0	65.0	100.0	100.0	100.0	60.0	55.4
1 Ttl POST 28DAP 4 STS Soys 4 Synchrony STS 4 Select Max 4 Crop Oil Conc.	0.0	11.3	66.7	75.0	100.0	33.3	60.0	56.7	57.5

University of Delaware

Weed Code Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date	GLXMA Soybean POST Leafburn % 06/21/12	GLXMA Soybean POST Chloross % 06/21/12	AMAPA Palmer Amaranth Control % 08/06/12	IPOSS Morngrly Species Control % 08/06/12	GGGAN Annual Grasses Control % 08/06/12	SIDSP Prickly Sida Control % 08/06/12	AMASS Pigweed Species Control % 10/03/12	IPOSS Morngrly Species Control % 10/03/12	GLXMA Soybean Yield Bu/A 11/05/12
Trt Treatment No. Name									
2 PRE fb PO 28DAP 4 STS Soys 4 Synchrony STS 4 Select Max 4 Crop Oil Conc.	0.0	11.3	96.7	76.7	90.0	81.7	95.0	63.3	61.0
3 PRE fb LP 42DAP 4 STS Soys 4 Synchrony STS 4 Select Max 4 Crop Oil Conc.	.	.	83.3	73.3	100.0	66.7	91.7	70.0	59.7
4 RedPRfb PO28DAP 4 STS Soys 4 Synchrony STS 4 Select Max 4 Crop Oil Conc.	0.0	9.7	100.0	65.0	95.0	93.3	100.0	70.0	57.6

Comparison of Herbicide-Resistant Soybeans for No-Till Weed Management

Trial ID: DSB1a-12 Cooperator: Delaware Soybean Board
 Location: Field #14 Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean POST Leafburn % 06/21/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	3527.250000				
R	2	30.500000	15.250000	0.915	0.4115	2.9
A	3	575.416667	191.805556	11.504	0.0001	3.4
B	3	1787.416667	595.805556	35.736	0.0001	3.4
AB	9	633.750000	70.416667	4.224	0.0013	6.8
ERROR	30	500.166667	16.672222			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean POST Chlorross % 06/21/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1718.988861				
R	2	2.570542	1.285271	0.717	0.4965	1.0
A	3	332.867633	110.955878	61.872	0.0001	1.1
B	3	993.610097	331.203366	184.689	0.0001	1.1
AB	9	336.141464	37.349052	20.827	0.0001	2.2
ERROR	30	53.799125	1.793304			

FACTORIAL/POOLED ERROR AOV For AMAPA Palmer Amaranth Control % 08/06/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	8865.479167				
R	2	257.541667	128.770833	1.830	0.1779	6.1
A	3	5248.562500	1749.520833	24.861	0.0001	7.0
B	3	470.895833	156.965278	2.231	0.1051	7.0
AB	9	777.354167	86.372685	1.227	0.3158	14.0
ERROR	30	2111.125000	70.370833			

FACTORIAL/POOLED ERROR AOV For IPOSS Mornlgy Species Control % 08/06/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	8470.312500				
R	2	290.625000	145.312500	3.288	0.0512	4.8
A	3	93.229167	31.076389	0.703	0.5577	5.5
B	3	5114.062500	1704.687500	38.566	0.0001	5.5
AB	9	1646.354167	182.928241	4.139	0.0015	11.1
ERROR	30	1326.041667	44.201389			

FACTORIAL/POOLED ERROR AOV For GGGAN Annual Grasses Control % 08/06/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	1391.666667				
R	2	38.541667	19.270833	0.658	0.5250	3.9
A	3	129.166667	43.055556	1.471	0.2423	4.5
B	3	45.833333	15.277778	0.522	0.6705	4.5
AB	9	300.000000	33.333333	1.139	0.3676	9.0
ERROR	30	878.125000	29.270833			

FACTORIAL/POOLED ERROR AOV For SIDSP Prickly Sida Control % 08/06/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	26584.513206				
R	2	740.414873	370.207436	1.102	0.3453	13.2
A	3	2051.751176	683.917059	2.036	0.1300	15.3
B	3	5212.689513	1737.563171	5.172	0.0053	15.3
AB	9	8501.491581	944.610176	2.812	0.0160	30.6
ERROR	30	10078.166062	335.938869			

FACTORIAL/POOLED ERROR AOV For AMASS Pigweed Species Control % 10/03/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	11524.479167				
R	2	444.791667	222.395833	2.172	0.1315	7.3
A	3	4843.229167	1614.409722	15.766	0.0001	8.4
B	3	818.229167	272.743056	2.664	0.0658	8.4
AB	9	2346.354167	260.706019	2.546	0.0264	16.9
ERROR	30	3071.875000	102.395833			

FACTORIAL/POOLED ERROR AOV For IPOSS Morngly Species Control % 10/03/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	8418.306121				
R	2	57.218669	28.609334	0.538	0.5896	5.3
A	3	707.473230	235.824410	4.433	0.0108	6.1
B	3	2709.189132	903.063044	16.975	0.0001	6.1
AB	9	3348.399813	372.044424	6.993	0.0001	12.2
ERROR	30	1596.025278	53.200843			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 11/05/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	47	2404.884037				
R	2	53.013362	26.506681	0.575	0.5687	4.9
A	3	83.136773	27.712258	0.601	0.6192	5.7
B	3	211.906225	70.635408	1.533	0.2263	5.7
AB	9	674.203003	74.911445	1.625	0.1528	11.3
ERROR	30	1382.624673	46.087489			

Benefits of Residual Herbicides for Burndown

Trial ID: DSB2-12 Cooperator: Delaware Soybean Board
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
3.	Henbit	LAMAM	Lamium amplexicaule L.

Crop 1: Soybean GLXMA Variety: H4601
 Planting Date: 05/16/12 Planting Method: Row- Unit Planter Depth: 1 in
 Rate: 190000 Sd/A Row Spacing: 15 in Seed Bed: Firm/Trashy
 Soil Temperature: 82 F Soil Moisture: Dry Emergence Date: 05/23/12

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.	07/02/12	Roundup WeatherMax	4.5	AS	28	fl oz/A

SOIL DESCRIPTION

% Sand: 79 % OM: 2.1 Texture: sandy loam
 % Silt: 10 pH: 5.8
 % Clay: 11 CEC: 7.8 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: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	04/30/12
Time of Day:	12:00 pm
Application Method:	Spray
Application Timing:	14EPP
Applic. Placement:	Brdcst
Air Temp., Unit:	58 F
% Relative Humidity:	46
Wind Velocity, Unit:	4 mph
Wind Direction:	Southeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	58 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	100

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	ERICA
Growth Stage:	bolting
Height, Unit:	4 in
Density, Unit:	40-80 m ²
Weed 2 Code:	OEOLA
Growth Stage:	flower
Height, Unit:	14 in
Density, Unit:	0-4 m ²
Weed 3 Code:	LAMAM
Growth Stage:	flower
Height, Unit:	6 in
Density, Unit:	0-20 m ²

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:	22 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments
<p>05-28-12: Over 95% control of broadleaf weeds (AMASS, AMBEL, IPOSS) in all treatments containing residual herbicides. Control of all other winter annual weeds was excellent. Weak to no control of yellow woodsorrel with treatments 5, 8, 11, and 12. Venus looking-glass control was poor with treatments 8 and 4.</p> <p>06-18-12: If field pansy was present it was rated as 0. Little differences in vigor of field pansy plants. Soybeans 6-8" tall at 3rd to 4th trifoliolate. Common lambsquarters were in the two check plots (trt. 1 and 8) but in no other treatments. Ratings for summer annual weeds was quite variable due to drought, incomplete control of winter annuals in some treatments, and heavy density of large crabgrass in other treatments.</p>

Benefits of Residual Herbicides for Burndown										
Trial ID: DSB2-12		Cooperator: Delaware Soybean Board								
Location: Field #10		Investigator: Mark VanGessel								
Weed Code					ERICA	OEOLA	GLXMA	ERICA	OEOLA	VIORA
Crop Code					Horse-weed Control %	Cutleaf EPrimse Control %	Soybean Stunting %	Horse-weed Control %	Cutleaf EPrimse Control %	Field Pansy Control %
Weed or Crop Name					05/16/12	05/16/12	05/28/12	05/28/12	05/28/12	05/28/12
Weed or Crop Name										
Rating Data Type										
Rating Unit										
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code			
1	Touchdown Total...k glyphosate	4.17 SL		0.65lb ae/A	14	EPP A		60.0 d	50.0 e	0.0 a
	2,4-D ester	3.8 L		0.475lb ae/A	14	EPP A				
	Dry Ammonium Sulfate	100 D		1.68% w/v	14	EPP A				
	No residual									
2	Touchdown Total...k glyphosate	4.17 SL		0.65lb ae/A	14	EPP A		56.7 d	85.0 bc	0.0 a
	2,4-D ester	3.8 L		0.475lb ae/A	14	EPP A				
	Dry Ammonium Sulfate	100 D		1.68% w/v	14	EPP A				
	Valor XLT Premix	40.3 WG		0.091lb ai/A	14	EPP A				
3	Touchdown Total...k glyphosate	4.17 SL		0.65lb ae/A	14	EPP A		71.7 bc	83.3 c	0.0 a
	2,4-D ester	3.8 L		0.475lb ae/A	14	EPP A				
	Dry Ammonium Sulfate	100 D		1.68% w/v	14	EPP A				
	Canopy Premix	75 DF		0.164lb ai/A	14	EPP A				
4	Touchdown Total...k glyphosate	4.17 SL		0.65lb ae/A	14	EPP A		53.3 d	53.3 e	0.0 a
	2,4-D ester	3.8 L		0.475lb ae/A	14	EPP A				
	Dry Ammonium Sulfate	100 D		1.68% w/v	14	EPP A				
	Canopy EX Premix	29.5 WG		0.0304lb ai/A	14	EPP A				
5	Touchdown Total...k glyphosate	4.17 SL		0.65lb ae/A	14	EPP A		60.0 d	70.0 d	0.0 a
	2,4-D ester	3.8 L		0.475lb ae/A	14	EPP A				
	Dry Ammonium Sulfate	100 D		1.68% w/v	14	EPP A				
	Authority XL Premix	70 DG		0.211lb ai/A	14	EPP A				
6	Touchdown Total...k glyphosate	4.17 SL		0.65lb ae/A	14	EPP A		74.3 bc	86.0 abc	6.7 a
	2,4-D ester	3.8 L		0.475lb ae/A	14	EPP A				
	Dry Ammonium Sulfate	100 D		1.68% w/v	14	EPP A				
	---Gangster Co-Pack									
	_Firstrate.....cloransulam	84 WG		0.0262lb ai/A	14	EPP A				
	_Valor SX.....flumioxazin	51 WG		0.08lb ai/A	14	EPP A				
7	Touchdown Total...k glyphosate	4.17 SL		0.65lb ae/A	14	EPP A		70.0 c	83.3 c	2.3 a
	2,4-D ester	3.8 L		0.475lb ae/A	14	EPP A				
	Dry Ammonium Sulfate	100 D		1.68% w/v	14	EPP A				
	Authority First Premix	70 DF		0.232lb ai/A	14	EPP A				
8	Liberty 280.....glufosinate	2.34 SL		0.402lb ai/A	14	EPP A		73.3 bc	93.3 a	0.0 a
	2,4-D ester	3.8 L		0.475lb ae/A	14	EPP A				
	Dry Ammonium Sulfate	100 D		1.68% w/v	14	EPP A				
	No residual									
9	Liberty 280.....glufosinate	2.34 SL		0.402lb ai/A	14	EPP A		77.7 bc	91.7 ab	2.3 a
	2,4-D ester	3.8 L		0.475lb ae/A	14	EPP A				
	Dry Ammonium Sulfate	100 D		1.68% w/v	14	EPP A				
	Valor XLT Premix	40.3 WG		0.091lb ai/A	14	EPP A				
10	Liberty 280.....glufosinate	2.34 SL		0.402lb ai/A	14	EPP A		91.7 a	92.3 ab	2.3 a
	2,4-D ester	3.8 L		0.475lb ae/A	14	EPP A				
	Dry Ammonium Sulfate	100 D		1.68% w/v	14	EPP A				
	Canopy Premix	75 DF		0.164lb ai/A	14	EPP A				

Weed Code		ERIC A	OEOL A	GLXMA	ERIC A	OEOL A	VIORA
Crop Code		Horse-weed Control %	Cutleaf EPrimrse Control %	Soybean Stunting %	Horse-weed Control %	Cutleaf EPrimrse Control %	Field Pansy Control %
Weed or Crop Name		05/16/12	05/16/12	05/28/12	05/28/12	05/28/12	05/28/12
Weed or Crop Name							
Rating Data Type							
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
11	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	14 EPP A	79.3 b	90.0 abc	3.3 a
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	Canopy EX Premix	29.5 WG	0.0304 lb ai/A	14 EPP A			
12	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	14 EPP A	76.0 bc	89.3 abc	0.0 a
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	Authority XL Premix	70 DG	0.211 lb ai/A	14 EPP A			
13	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	14 EPP A	80.3 b	92.7 ab	2.3 a
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	---Gangster Co-Pack						
	_Firstrate.....cloransulam	84 WG	0.0262 lb ai/A	14 EPP A			
	_Valor SX.....flumioxazin	51 WG	0.08 lb ai/A	14 EPP A			
14	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	14 EPP A	76.0 bc	92.3 ab	2.3 a
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	Authority First Premix	70 DF	0.232 lb ai/A	14 EPP A			
LSD (P=.05)				9.00	8.23	5.16	12.93
Standard Deviation				5.36	4.90	3.08	7.70
CV				7.51	5.96	198.77	10.04
Replicate F				0.142	0.726	2.674	0.334
Replicate Prob(F)				0.8680	0.4934	0.0879	0.7193
Treatment F				11.656	25.760	1.201	6.239
Treatment Prob(F)				0.0001	0.0001	0.3324	0.0001
							0.0245

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	DIGSA	ERICA	VIORA	AMASS	AMBEL	IPOSS
Weed or Crop Name		Large Crabgras Control %	Horse- weed Control %	Field Pansy Control %	Pigweed Species Control %	Common Ragweed Control %	Mornlgy Species Control %
Rating Data Type		05/28/12	06/18/12	06/18/12	06/18/12	06/18/12	06/18/12
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code	
1	Touchdown Total..k glyphosate	4.17 SL		0.65 lb ae/A	14 EPP	A	
	2,4-D ester	3.8 L		0.475 lb ae/A	14 EPP	A	
	Dry Ammonium Sulfate	100 D		1.68% w/v	14 EPP	A	
	No residual						
2	Touchdown Total..k glyphosate	4.17 SL		0.65 lb ae/A	14 EPP	A	
	2,4-D ester	3.8 L		0.475 lb ae/A	14 EPP	A	
	Dry Ammonium Sulfate	100 D		1.68% w/v	14 EPP	A	
	Valor XLT Premix	40.3 WG		0.091 lb ai/A	14 EPP	A	
3	Touchdown Total..k glyphosate	4.17 SL		0.65 lb ae/A	14 EPP	A	
	2,4-D ester	3.8 L		0.475 lb ae/A	14 EPP	A	
	Dry Ammonium Sulfate	100 D		1.68% w/v	14 EPP	A	
	Canopy Premix	75 DF		0.164 lb ai/A	14 EPP	A	
4	Touchdown Total..k glyphosate	4.17 SL		0.65 lb ae/A	14 EPP	A	
	2,4-D ester	3.8 L		0.475 lb ae/A	14 EPP	A	
	Dry Ammonium Sulfate	100 D		1.68% w/v	14 EPP	A	
	Canopy EX Premix	29.5 WG		0.0304 lb ai/A	14 EPP	A	
5	Touchdown Total..k glyphosate	4.17 SL		0.65 lb ae/A	14 EPP	A	
	2,4-D ester	3.8 L		0.475 lb ae/A	14 EPP	A	
	Dry Ammonium Sulfate	100 D		1.68% w/v	14 EPP	A	
	Authority XL Premix	70 DG		0.211 lb ai/A	14 EPP	A	
6	Touchdown Total..k glyphosate	4.17 SL		0.65 lb ae/A	14 EPP	A	
	2,4-D ester	3.8 L		0.475 lb ae/A	14 EPP	A	
	Dry Ammonium Sulfate	100 D		1.68% w/v	14 EPP	A	
	--Gangster Co-Pack						
	_Firstrate.....cloransulam	84 WG		0.0262 lb ai/A	14 EPP	A	
	_Valor SX.....flumioxazin	51 WG		0.08 lb ai/A	14 EPP	A	
7	Touchdown Total..k glyphosate	4.17 SL		0.65 lb ae/A	14 EPP	A	
	2,4-D ester	3.8 L		0.475 lb ae/A	14 EPP	A	
	Dry Ammonium Sulfate	100 D		1.68% w/v	14 EPP	A	
	Authority First Premix	70 DF		0.232 lb ai/A	14 EPP	A	
8	Liberty 280.....glufosinate	2.34 SL		0.402 lb ai/A	14 EPP	A	
	2,4-D ester	3.8 L		0.475 lb ae/A	14 EPP	A	
	Dry Ammonium Sulfate	100 D		1.68% w/v	14 EPP	A	
	No residual						
9	Liberty 280.....glufosinate	2.34 SL		0.402 lb ai/A	14 EPP	A	
	2,4-D ester	3.8 L		0.475 lb ae/A	14 EPP	A	
	Dry Ammonium Sulfate	100 D		1.68% w/v	14 EPP	A	
	Valor XLT Premix	40.3 WG		0.091 lb ai/A	14 EPP	A	
10	Liberty 280.....glufosinate	2.34 SL		0.402 lb ai/A	14 EPP	A	
	2,4-D ester	3.8 L		0.475 lb ae/A	14 EPP	A	
	Dry Ammonium Sulfate	100 D		1.68% w/v	14 EPP	A	
	Canopy Premix	75 DF		0.164 lb ai/A	14 EPP	A	

Weed Code		DIGSA	ERICA	VIORA	AMASS	AMBEL	IPOSS			
Crop Code		Large Crabgras Control %	Horse- weed Control %	Field Pansy Control %	Pigweed Species Control %	Common Ragweed Control %	Morngrly Species Control %			
Weed or Crop Name		05/28/12	06/18/12	06/18/12	06/18/12	06/18/12	06/18/12			
Weed or Crop Name										
Rating Data Type										
Rating Unit										
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code				
11	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	14 EPP A						
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A						
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A						
	Canopy EX Premix	29.5 WG	0.0304 lb ai/A	14 EPP A						
12	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	14 EPP A	85.0 a	66.7 b-e	89.0 b	86.7 bc	89.3 ab	
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A						
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A						
	Authority XL Premix	70 DG	0.211 lb ai/A	14 EPP A						
13	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	14 EPP A	98.3 a	65.0 b-e	66.7 a	78.3 c	100.0 a	75.0 c
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A						
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A						
	---Gangster Co-Pack									
	_Firstrate.....cloransulam	84 WG	0.0262 lb ai/A	14 EPP A						
	_Valor SX.....flumioxazin	51 WG	0.08 lb ai/A	14 EPP A						
14	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	14 EPP A	95.0 a	66.7 b-e	66.7 a	94.0 ab	97.3 ab	86.0 abc
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A						
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A						
	Authority First Premix	70 DF	0.232 lb ai/A	14 EPP A						
LSD (P=.05)					38.22	13.38	78.98	10.38	12.61	12.33
Standard Deviation					22.77	7.90	46.95	6.18	7.51	7.26
CV					27.66	11.33	69.2	7.71	9.27	9.67
Replicate F					0.172	3.148	0.729	1.099	3.326	3.496
Replicate Prob(F)					0.8431	0.0628	0.4924	0.3481	0.0517	0.0489
Treatment F					5.271	4.485	1.074	93.004	64.011	59.140
Treatment Prob(F)					0.0002	0.0013	0.4220	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	Prickly Sida Control %	DIGSA Large Crabgras Control %	GLXMA Soybean Yield Bu/A			
Weed or Crop Name		06/18/12		06/18/12		11/05/12	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1	Touchdown Total...k glyphosate	4.17 SL	0.65 lb ae/A	14 EPP A			
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	No residual						
2	Touchdown Total...k glyphosate	4.17 SL	0.65 lb ae/A	14 EPP A	83.4 ab	68.3 ab	16.1 cd
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14 EPP A			
3	Touchdown Total...k glyphosate	4.17 SL	0.65 lb ae/A	14 EPP A	84.0 ab	68.3 ab	25.2 ab
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	Canopy Premix	75 DF	0.164 lb ai/A	14 EPP A			
4	Touchdown Total...k glyphosate	4.17 SL	0.65 lb ae/A	14 EPP A	83.3 ab	72.7 ab	27.5 ab
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	Canopy EX Premix	29.5 WG	0.0304 lb ai/A	14 EPP A			
5	Touchdown Total...k glyphosate	4.17 SL	0.65 lb ae/A	14 EPP A		73.3 ab	20.5 bc
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	Authority XL Premix	70 DG	0.211 lb ai/A	14 EPP A			
6	Touchdown Total...k glyphosate	4.17 SL	0.65 lb ae/A	14 EPP A	95.9 a	77.7 ab	26.5 ab
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	--Gangster Co-Pack						
	_Firstrate.....cloransulam	84 WG	0.0262 lb ai/A	14 EPP A			
	_Valor SX.....flumioxazin	51 WG	0.08 lb ai/A	14 EPP A			
7	Touchdown Total...k glyphosate	4.17 SL	0.65 lb ae/A	14 EPP A	88.1 ab	78.3 a	29.3 a
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	Authority First Premix	70 DF	0.232 lb ai/A	14 EPP A			
8	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	14 EPP A	0.0 d	0.0 c	11.9 d
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	No residual						
9	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	14 EPP A	86.1 ab	80.0 a	16.9 cd
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14 EPP A			
10	Liberty 280.....glufosinate	2.34 SL	0.402 lb ai/A	14 EPP A	78.3 bc	70.0 ab	23.7 abc
	2,4-D ester	3.8 L	0.475 lb ae/A	14 EPP A			
	Dry Ammonium Sulfate	100 D	1.68% w/v	14 EPP A			
	Canopy Premix	75 DF	0.164 lb ai/A	14 EPP A			

Weed Code Crop Code Weed or Crop Name Weed or Crop Name Rating Data Type Rating Unit Rating Date	SIDSP Prickly Sida Control % 06/18/12	DIGSA Large Crabgras Control % 06/18/12	GLXMA Soybean Yield Bu/A 11/05/12			
Trt Treatment No. Name	Form Conc Form Type Rate Rate	Grow Unit Stg	Appl Code			
11 Liberty 280.....glufosinate 2,4-D ester Dry Ammonium Sulfate Canopy EX Premix	2.34 SL 3.8 L 100 D 29.5 WG	0.402 lb ai/A 0.475 lb ae/A 1.68 % w/v 0.0304 lb ai/A	14 EPP A 14 EPP A 14 EPP A 14 EPP A	81.0 bc	60.0 b	22.2 abc
12 Liberty 280.....glufosinate 2,4-D ester Dry Ammonium Sulfate Authority XL Premix	2.34 SL 3.8 L 100 D 70 DG	0.402 lb ai/A 0.475 lb ae/A 1.68 % w/v 0.211 lb ai/A	14 EPP A 14 EPP A 14 EPP A 14 EPP A	68.3 c	78.3 a	22.3 abc
13 Liberty 280.....glufosinate 2,4-D ester Dry Ammonium Sulfate ---Gangster Co-Pack _Firstrate.....cloransulam _Valor SX.....flumioxazin	2.34 SL 3.8 L 100 D 84 WG 51 WG	0.402 lb ai/A 0.475 lb ae/A 1.68 % w/v 0.0262 lb ai/A 0.08 lb ai/A	14 EPP A 14 EPP A 14 EPP A 14 EPP A 14 EPP A		71.7 ab	25.7 ab
14 Liberty 280.....glufosinate 2,4-D ester Dry Ammonium Sulfate Authority First Premix	2.34 SL 3.8 L 100 D 70 DF	0.402 lb ai/A 0.475 lb ae/A 1.68 % w/v 0.232 lb ai/A	14 EPP A 14 EPP A 14 EPP A 14 EPP A		78.3 a	21.3 bc
LSD (P=.05) Standard Deviation CV		13.43 7.62 11.19		17.67 10.53 16.8	7.83 4.67 21.9	
Replicate F Replicate Prob(F) Treatment F Treatment Prob(F)		1.625 0.2344 60.852 0.0001		0.681 0.5147 19.860 0.0001	9.012 0.0011 4.805 0.0003	

Means followed by same letter 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	ERIC	OEOA	GLXMA	ERIC	OEOA	VIORA	DIGSA	ERIC
Crop Code	Horse-weed Control %	Cutleaf EPrimse Control %	Soybean Stunting %	Horse-weed Control %	Cutleaf EPrimse Control %	Field Pansy Control %	Large Crabgras Control %	Horse-weed Control %
Weed or Crop Name	05/16/12	05/16/12	05/28/12	05/28/12	05/28/12	05/28/12	05/28/12	06/18/12
Rating Data Type								
Rating Unit								
Rating Date								
Trt Treatment No. Name								
1 Touchdown Total 1 2,4-D ester 1 Ammonium Sulf. 3 Canopy	71.7	83.3	0.0	90.3	99.0	83.3	98.3	78.3
2 Liberty 280 2 2,4-D ester 2 Ammonium Sulf. 3 Canopy	91.7	92.3	2.3	92.0	99.0	80.0	95.0	76.7
1 Touchdown Total 1 2,4-D ester 1 Ammonium Sulf. 4 Canopy EX	53.3	53.3	0.0	81.7	94.0	100.0	95.0	76.7
2 Liberty 280 2 2,4-D ester 2 Ammonium Sulf. 4 Canopy EX	79.3	90.0	3.3	75.7	99.7	85.0	85.0	66.7
1 Touchdown Total 1 2,4-D ester 1 Ammonium Sulf. 5 Authority XL	60.0	70.0	0.0	75.3	100.0	100.0	100.0	70.0
2 Liberty 280 2 2,4-D ester 2 Ammonium Sulf. 5 Authority XL	76.0	89.3	0.0	69.3	99.0	78.3	100.0	63.3
1 Touchdown Total 1 2,4-D ester 1 Ammonium Sulf. 6---Gangster 6_Firstrate 6_Valor	74.3	86.0	6.7	84.3	99.7	90.0	62.3	76.7
2 Liberty 280 2 2,4-D ester 2 Ammonium Sulf. 6---Gangster 6_Firstrate 6_Valor	80.3	92.7	2.3	84.3	99.0	53.3	98.3	65.0
1 Touchdown Total 1 2,4-D ester 1 Ammonium Sulf. 7 Authority First	70.0	83.3	2.3	87.7	97.3	100.0	95.0	86.7
2 Liberty 280 2 2,4-D ester 2 Ammonium Sulf. 7 Authority First	76.0	92.3	2.3	78.3	100.0	75.0	95.0	66.7

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Weed Code Crop Code	VIORA	AMASS	AMBEL	IPOSS	SIDSP	DIGSA	GLXMA Soybean
Weed or Crop Name	Field	Pigweed	Common	Morngrly	Prickly	Large	
Weed or Crop Name	Pansy	Species	Ragweed	Species	Sida	Crabgras	Yield
Rating Data Type	Control	%	Control	%	Control	%	Bu/A
Rating Unit	06/18/12	06/18/12	06/18/12	06/18/12	06/18/12	06/18/12	11/05/12
Rating Date							
Trt Treatment No. Name							
TABLE OF R MEANS							
Replicate 1	57.1	80.5	81.4	78.5	64.7	65.0	25.3
Replicate 2	67.9	78.4	84.4	75.4	70.3	62.6	20.7
Replicate 3	78.6	81.8	77.1	71.3	69.0	60.4	17.9
TABLE OF A (Non-selective) MEANS							
1 Touchdown Total	83.3	81.0	82.9	74.9	72.5	62.7	22.0
1 2,4-D ester							
1 Ammonium Sulf.							
2 Liberty 280	52.4	79.4	79.1	75.2	62.7	62.6	20.6
2 2,4-D ester							
2 Ammonium Sulf.							
TABLE OF B (Residual) MEANS							
1 No Residual	25.0	0.0	0.0	0.0	0.0	0.0	10.6
2 Valor XLT	66.7	95.5	95.0	94.7	84.8	74.2	16.5
3 Canopy	83.3	92.5	88.3	90.1	81.2	69.2	24.5
4 Canopy EX	83.3	93.2	93.3	89.5	82.2	66.3	24.8
5 Authority XL	83.3	98.3	91.7	87.3	68.3	75.8	21.4
6 ---Gangster	66.7	87.5	100.0	77.5	95.9	74.7	26.1
6 _Firstrate							
6 _Valor							
7 Authority First	66.7	94.5	98.7	86.5	88.1	78.3	25.3
TABLE OF A (Non-selective) B (Residual) MEANS							
1 Touchdown Total	50.0	0.0	0.0	0.0	0.0	0.0	9.2
1 2,4-D ester							
1 Ammonium Sulf.							
1 No Residual							
2 Liberty 280	0.0	0.0	0.0	0.0	0.0	0.0	11.9
2 2,4-D ester							
2 Ammonium Sulf.							
1 No Residual							
1 Touchdown Total	100.0	93.3	96.7	95.2	83.4	68.3	16.1
1 2,4-D ester							
1 Ammonium Sulf.							
2 Valor XLT							
2 Liberty 280	33.3	97.7	93.3	94.2	86.1	80.0	16.9
2 2,4-D ester							
2 Ammonium Sulf.							
2 Valor XLT							

University of Delaware

Weed Code Crop Code	VIORA	AMASS	AMBEL	IPOSS	SIDSP	DIGSA	GLXMA Soybean
Weed or Crop Name	Field	Pigweed	Common	Mornlry	Prickly	Large	
Weed or Crop Name	Pansy	Species	Ragweed	Species	Sida	Crabgras	
Rating Data Type	Control	Control	Control	Control	Control	Control	
Rating Unit	%	%	%	%	%	%	
Rating Date	06/18/12	06/18/12	06/18/12	06/18/12	06/18/12	06/18/12	11/05/12
Trt Treatment No. Name							
1 Touchdown Total 1 2,4-D ester 1 Ammonium Sulf. 3 Canopy	100.0	88.3	93.3	88.2	84.0	68.3	25.2
2 Liberty 280 2 2,4-D ester 2 Ammonium Sulf. 3 Canopy	66.7	96.7	83.3	92.0	78.3	70.0	23.7
1 Touchdown Total 1 2,4-D ester 1 Ammonium Sulf. 4 Canopy EX	100.0	97.3	100.0	89.7	83.3	72.7	27.5
2 Liberty 280 2 2,4-D ester 2 Ammonium Sulf. 4 Canopy EX	66.7	89.0	86.7	89.3	81.0	60.0	22.2
1 Touchdown Total 1 2,4-D ester 1 Ammonium Sulf. 5 Authority XL	100.0	96.7	90.0	84.3	.	73.3	20.5
2 Liberty 280 2 2,4-D ester 2 Ammonium Sulf. 5 Authority XL	66.7	100.0	93.3	90.2	68.3	78.3	22.3
1 Touchdown Total 1 2,4-D ester 1 Ammonium Sulf. 6---Gangster 6_Firstrate 6_Valor	66.7	96.7	100.0	80.0	95.9	77.7	26.5
2 Liberty 280 2 2,4-D ester 2 Ammonium Sulf. 6---Gangster 6_Firstrate 6_Valor	66.7	78.3	100.0	75.0	.	71.7	25.7
1 Touchdown Total 1 2,4-D ester 1 Ammonium Sulf. 7 Authority First	66.7	95.0	100.0	87.0	88.1	78.3	29.3
2 Liberty 280 2 2,4-D ester 2 Ammonium Sulf. 7 Authority First	66.7	94.0	97.3	86.0	.	78.3	21.3

Benefits of Residual Herbicides for Burndown

Trial ID: DSB2-12 Cooperator: Delaware Soybean Board
 Location: Field #10 Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For ERICA Horse-weed Control % 05/16/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	5114.404762				
R	2	8.190476	4.095238	0.142	0.8680	4.2
A	1	2514.880952	2514.880952	87.438	0.0001	3.4
B	6	1324.238095	220.706349	7.674	0.0001	6.4
AB	6	519.285714	86.547619	3.009	0.0228	9.0
ERROR	26	747.809524	28.761905			

FACTORIAL/POOLED ERROR AOV For OEOLA Cutleaf EPrimrse Control % 05/16/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	8711.333333				
R	2	34.904762	17.452381	0.726	0.4934	3.8
A	1	3658.666667	3658.666667	152.177	0.0001	3.1
B	6	2281.000000	380.166667	15.813	0.0001	5.8
AB	6	2111.666667	351.944444	14.639	0.0001	8.2
ERROR	26	625.095238	24.042125			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Stunting % 05/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	444.404762				
R	2	50.619048	25.309524	2.674	0.0879	2.4
A	1	2.880952	2.880952	0.304	0.5858	2.0
B	6	86.571429	14.428571	1.525	0.2095	3.7
AB	6	58.285714	9.714286	1.027	0.4305	5.2
ERROR	26	246.047619	9.463370			

FACTORIAL/POOLED ERROR AOV For ERICA Horse-weed Control % 05/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	6390.571429				
R	2	39.571429	19.785714	0.334	0.7193	6.0
A	1	27.523810	27.523810	0.464	0.5017	4.9
B	6	4162.238095	693.706349	11.699	0.0001	9.1
AB	6	619.476190	103.246032	1.741	0.1512	12.9
ERROR	26	1541.761905	59.298535			

FACTORIAL/POOLED ERROR AOV For OEOLA Cutleaf EPrimrse Control % 05/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	1321.642857				
R	2	0.142857	0.071429	0.007	0.9929	2.5
A	1	141.166667	141.166667	14.161	0.0009	2.0
B	6	459.809524	76.634921	7.687	0.0001	3.7
AB	6	461.333333	76.888889	7.713	0.0001	5.3
ERROR	26	259.190476	9.968864			

FACTORIAL/POOLED ERROR AOV For VIORA Field Pansy Control % 05/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	23949.226820				
R	2	153.999363	76.999682	0.193	0.8258	15.5
A	1	4414.201992	4414.201992	11.057	0.0026	12.7
B	6	7160.167581	1193.361264	2.989	0.0234	23.7
AB	6	1841.302064	306.883677	0.769	0.6013	33.5
ERROR	26	10379.555820	399.213685			

FACTORIAL/POOLED ERROR AOV For DIGSA Large Crabgras Control % 05/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	49164.976190				
R	2	178.047619	89.023810	0.172	0.8431	17.7
A	1	797.357143	797.357143	1.539	0.2259	14.4
B	6	31697.476190	5282.912698	10.194	0.0001	27.0
AB	6	3017.476190	502.912698	0.970	0.4645	38.2
ERROR	26	13474.619048	518.254579			

FACTORIAL/POOLED ERROR AOV For ERICA Horse- weed Control % 06/18/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	29847.619048				
R	2	336.904762	168.452381	3.063	0.0639	5.8
A	1	466.666667	466.666667	8.486	0.0073	4.7
B	6	27039.285714	4506.547619	81.951	0.0001	8.8
AB	6	575.000000	95.833333	1.743	0.1508	12.4
ERROR	26	1429.761905	54.990842			

FACTORIAL/POOLED ERROR AOV For VIORA Field Pansy Control % 06/18/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	89107.142857				
R	2	3214.285714	1607.142857	0.758	0.4786	35.8
A	1	10059.523810	10059.523810	4.745	0.0386	29.2
B	6	15357.142857	2559.523810	1.207	0.3340	54.7
AB	6	5357.142857	892.857143	0.421	0.8581	77.3
ERROR	26	55119.047619	2119.963370			

FACTORIAL/POOLED ERROR AOV For AMASS Pigweed Species Control % 06/18/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	47269.071429				
R	2	84.000000	42.000000	1.099	0.3481	4.8
A	1	29.166667	29.166667	0.763	0.3903	3.9
B	6	45432.904762	7572.150794	198.197	0.0001	7.3
AB	6	729.666667	121.611111	3.183	0.0177	10.4
ERROR	26	993.333333	38.205128			

FACTORIAL/POOLED ERROR AOV For AMBEL Common Ragweed Control % 06/18/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	48802.000000				
R	2	375.428571	187.714286	3.326	0.0517	5.8
A	1	144.857143	144.857143	2.567	0.1212	4.8
B	6	46498.666667	7749.777778	137.329	0.0001	8.9
AB	6	315.809524	52.634921	0.933	0.4884	12.6
ERROR	26	1467.238095	56.432234			

FACTORIAL/POOLED ERROR AOV For IPOSS Morngly Species Control % 06/18/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	42029.020208				
R	2	368.809446	184.404723	4.328	0.0238	5.1
A	1	1.185275	1.185275	0.028	0.8688	4.1
B	6	40439.278680	6739.879780	158.201	0.0001	7.7
AB	6	112.062814	18.677136	0.438	0.8464	11.0
ERROR	26	1107.683994	42.603231			

FACTORIAL/POOLED ERROR AOV For SIDSP Prickly Sida Control % 06/18/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	68978.622541				
R	2	148.151574	74.075787	2.424	0.1083	4.3
A	1	3140.693527	3140.693527	102.791	0.0001	3.5
B	6	35533.162832	5922.193805	193.826	0.0001	6.6
AB	6	29362.204606	4893.700768	160.164	0.0001	9.3
ERROR	26	794.410003	30.554231			

FACTORIAL/POOLED ERROR AOV For DIGSA Large Crabgras Control % 06/18/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	31639.642857				
R	2	151.000000	75.500000	0.681	0.5147	8.2
A	1	0.023810	0.023810	0.000	0.9884	6.7
B	6	28067.142857	4677.857143	42.216	0.0001	12.5
AB	6	540.476190	90.079365	0.813	0.5696	17.7
ERROR	26	2881.000000	110.807692			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 11/05/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	41	2319.483821				
R	2	392.609283	196.304642	9.012	0.0011	3.6
A	1	21.965518	21.965518	1.008	0.3245	3.0
B	6	1201.314083	200.219014	9.192	0.0001	5.5
AB	6	137.257739	22.876290	1.050	0.4167	7.8
ERROR	26	566.337198	21.782200			

Residual Control with Burndown Herbicide Rates

Trial ID: DSB3-12 Cooperator: Delaware Soybean Board
 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

Crop 1: Soybean	GLXMA	Variety: H4601
Planting Date: 05/16/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 190000 Sd/A	Row Spacing: 15 in	Seed Bed: Firm/Trashy
Soil Temperature: 82 F	Soil Moisture: Dry	Emergence Date: 05/23/12

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/Rye Cover

Trial Initiation Comments: The study area was sprayed with glyphosate for burndown approximately 2 weeks prior to planting.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/02/12	Roundup WeatherMax	4.5	AS	28	fl oz/A

SOIL DESCRIPTION

% Sand: 79 % OM: 2.4 Texture: loamy sand
 % Silt: 12 pH: 6.2
 % Clay: 9 CEC: 6.7 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: 0.6 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	04/30/12
Time of Day:	1:00 pm
Application Method:	Spray
Application Timing:	14EPP
Applic. Placement:	Brdcst
Air Temp., Unit:	58 F
% Relative Humidity:	46
Wind Velocity, Unit:	4 mph
Wind Direction:	Southeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	58 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	100

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

Residual Control with Burndown Herbicide Rates							
Trial ID: DSB3-12		Cooperator: Delaware Soybean Board					
Location: Field #14		Investigator: Mark VanGessel					
Weed Code		GLXMA	AMASS	CHEAL	IPOSS	GLXMA	
Crop Code		Soybean	Pigweed	Common	Mornglry	Soybean	
Weed or Crop Name		Stunting	Species	Lambqtrs	Species	Yield	
Weed or Crop Name		%	Control	%	Control	Bu/A	
Rating Data Type		06/22/12	06/22/12	06/22/12	06/22/12	11/05/12	
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg	
1	No residual						
	Gramoxone Inteon..paraquat	2 SL	0.75 lb ai/A	14EPP	0.0 b	0.0 d	0.0 b
	2,4-D ester	3.8 L	0.475 lb ae/A	14EPP			
	Nonionic Surfactant	100 L	0.25% v/v	14EPP			
2	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14 EPP	8.7 a	90.0 a	71.0 a
	Gramoxone Inteon..paraquat	2 SL	0.75 lb ai/A	14EPP			
	2,4-D ester	3.8 L	0.475 lb ae/A	14EPP			
	Nonionic Surfactant	100 L	0.25% v/v	14EPP			
3	Canopy Premix	75 DF	0.164 lb ai/A	14 EPP	0.0 b	70.0 bc	100.0 a
	Gramoxone Inteon..paraquat	2 SL	0.75 lb ai/A	14EPP			
	2,4-D ester	3.8 L	0.475 lb ae/A	14EPP			
	Nonionic Surfactant	100 L	0.25% v/v	14EPP			
4	Canopy EX Premix	29.5 WG	0.0304 lb ai/A	14 EPP	0.0 b	63.3 c	90.0 a
	Gramoxone Inteon..paraquat	2 SL	0.75 lb ai/A	14EPP			
	2,4-D ester	3.8 L	0.475 lb ae/A	14EPP			
	Nonionic Surfactant	100 L	0.25% v/v	14EPP			
5	Authority XL Premix	70 DG	0.211 lb ai/A	14 EPP	6.3 ab	91.7 a	100.0 a
	Gramoxone Inteon..paraquat	2 SL	0.75 lb ai/A	14EPP			
	2,4-D ester	3.8 L	0.475 lb ae/A	14EPP			
	Nonionic Surfactant	100 L	0.25% v/v	14EPP			
6	---Gangster Co-Pack				0.0 b	80.0 abc	100.0 a
	_Firstrate.....cloransulam	84 WG	0.0262 lb ai/A	14 EPP			
	_Valor SX.....flumioxazin	51 WG	0.08 lb ai/A	14 EPP			
	Gramoxone Inteon..paraquat	2 SL	0.75 lb ai/A	14EPP			
	2,4-D ester	3.8 L	0.475 lb ae/A	14EPP			
	Nonionic Surfactant	100 L	0.25% v/v	14EPP			
7	Authority First Premix	70 DF	0.232 lb ai/A	14 EPP	0.0 b	75.0 abc	100.0 a
	Gramoxone Inteon..paraquat	2 SL	0.75 lb ai/A	14EPP			
	2,4-D ester	3.8 L	0.475 lb ae/A	14EPP			
	Nonionic Surfactant	100 L	0.25% v/v	14EPP			
8	OpTill Premix	68 WG	0.085 lb ai/A	14 EPP	8.3 a	84.0 ab	100.0 a
	Gramoxone Inteon..paraquat	2 SL	0.75 lb ai/A	14EPP			
	2,4-D ester	3.8 L	0.475 lb ae/A	14EPP			
	Nonionic Surfactant	100 L	0.25% v/v	14EPP			
LSD (P=.05)				6.57	18.14	10.73	19.43
Standard Deviation				3.75	10.36	6.12	11.09
CV				128.59	14.96	7.1	22.08
Replicate F				0.323	0.685	1.000	0.186
Replicate Prob(F)				0.7293	0.5202	0.3927	0.8324
Treatment F				3.553	24.483	98.143	13.730
Treatment Prob(F)				0.0208	0.0001	0.0001	0.7129

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Texas Panicum Control in Soybeans

Trial ID: DSB4-12 Cooperator: Delaware Soybean Board
 Location: Horsey Farm 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Texas Panicum	PANTE	Panicum texanum Buckl.

Crop 1: Soybean	GLXMA	Variety: SS4370
Planting Date: 05/21/12	Planting Method: Drilled	Depth: 1 in
Rate: 200000 Sd/A	Row Spacing: 7 in	Seed Bed: Firm/Trashy
Soil Temperature: 72 F	Soil Moisture: Moist	Emergence Date: 05/27/12

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

Trial Initiation Comments: The study area was treated with glyphosate plus glufosinate for burndown on 5-23.

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

APPLICATION DESCRIPTION

	A	B
Application Date:	05/23/12	06/19/12
Time of Day:	2:30 pm	
Application Method:	Spray	Spray
Application Timing:	PRE	
Applic. Placement:	Brdcst	
Air Temp., Unit:	78 F	
% Relative Humidity:	63	
Wind Velocity, Unit:	4 mph	
Wind Direction:	Southeast	
Dew Presence (Y/N):	N	
Soil Temp., Unit:	78 F	
Soil Surf. Moisture:	Dry	
Root Zone Moisture:	Moist	
Leaf Surf. Moisture:	Dry	
% Cloud Cover:	70	

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

Texas Panicum Control in Soybeans

Trial ID: DSB4-12 Cooperator: Delaware Soybean Board
 Location: Horsey Farm Investigator: Mark VanGessel

Weed Code	Crop Code	GLXMA	PANTE	PANTE						
Crop Code	Weed or Crop Name	Soybean	Texas	Texas						
Weed or Crop Name	Rating Data Type	Stunting %	Panicum Control %	Panicum Control %						
Rating Unit			06/19/12	07/19/12						
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code			
1	Untreated Check							0.0b	0.0c	0.0c
	No residual									
2	Command.....clomazone	3 ME	0.75 lb ai/A	PRE	A		0.0b	83.3 ab	60.0 b	
3	Prowl.....pendimethalin	3.3 EC	0.74 lb ai/A	PRE	A		0.0b	68.3 b	55.0 b	
4	Dual Magnum....s-metolachlor	7.62 E	1.43 lb ai/A	PRE	A		0.0b	73.8 b	60.0 b	
5	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	PRE	A		30.0 a	93.3 a	55.0 b	
6	Roundup PowerMax..glyphosate	4.5 AS	1 lb ae/A	28 DAP	B		0.0b		100.0 a	
7	Roundup PowerMax..glyphosate	4.5 AS	1 lb ae/A	28 DAP	B				100.0 a	
8	Roundup PowerMax..glyphosate	4.5 AS	1 lb ae/A	28 DAP	B				100.0 a	
	Select Max.....clethodim	1 EC	0.094 lb ai/A	28 DAP	B					
9	Select Max.....clethodim	1 EC	0.094 lb ai/A	28 DAP	B				100.0 a	
	Crop Oil Concentrate	100 L	1.25 % v/v	28 DAP	B					
	Liquid Ammonium Sulfate 34%	100 L	5.5 % v/v	28 DAP	B					
10	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	28 DAP	B				100.0 a	
	Roundup PowerMax..glyphosate	4.5 AS	1 lb ae/A	28 DAP	B					
	LSD (P=.05)					7.43	17.46	12.62		
	Standard Deviation					4.08	9.04	5.58		
	CV					81.65	14.19	7.64		
	Replicate F					1.000	0.837	0.643		
	Replicate Prob(F)					0.4019	0.4722	0.4433		
	Treatment F					27.000	49.921	71.143		
	Treatment Prob(F)					0.0001	0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Palmer Amaranth Control in No-Till Soybeans

Trial ID: DSB5-12 Cooperator: DE Soybean Board, BASF
 Location: Mardella 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

Crop 1: Soybean GLXMA **Depth:** 1 in **Row Spacing:** 15 in

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: Synchrony STS was applied on 6-29 12 to clean up the palmer amaranth in the plots.

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Unit
1.	06/29/12	Synchrony STS	42	DF	0.75	oz wt/A
2.	06/29/12	Crop Oil Concentrate			1	% v/v
3.	06/29/12	30% UAN			2.5	% v/v

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

APPLICATION DESCRIPTION

	A	B	C
Application Date:	05/12/12	06/07/12	06/20/12
Time of Day:	10:45 am	10:30 am	10:00 am
Application Method:	Spray	Spray	Spray
Application Timing:	14EPP	3 WAP	4 WAP
Applic. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	73 F	70 F	85 F
% Relative Humidity:	37	40	63
Wind Velocity, Unit:	2.5 mph	2 mph	2 mph
Wind Direction:	Southwest	West	Southwest
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	71 F	69 F	82 F
Soil Surf. Moisture:	Dry	Dry	Dry
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry
% Cloud Cover:	0	10	20

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:		unifoliate	V3
Height, Unit:		2 in	7 in
Crop Health:		Good	Good

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:		vegetative	vegetative
Height, Unit:		7 in	18 in
Density, Unit:		30 m ²	30 m ²

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	24 in	32 in
Ground Speed, Unit:	3 mph	3 mph	3 mph
Carrier:	water	water	water
Spray Volume, Unit:	20 gpa	20 gpa	20 gpa
Propellant:	CO ₂	CO ₂	CO ₂

Trial Comments
06-20-12: Treatments applied at POST provided little to no Palmer Amaranth control.
For 4 WAP application, palmer amaranth was 3-4 inches tall if a PRE herbicide was used, and 16-20 inches tall if no PRE or only glyphosate was used.

Palmer Amaranth Control in No-Till Soybeans

Trial ID: DSB5-12 Cooperator: DE Soybean Board, BASF
 Location: Mardella Investigator: Mark VanGessel

Weed Code		AMAPA	AMAPA						
Weed or Crop Name		Palmer	Palmer						
Weed or Crop Name		Amaranth	Amaranth						
Rating Data Type		Control	Control						
Rating Unit	%	06/05/12	06/20/12						
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
1	Untreated Check							0.0e	0.0h
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	14EPP	A				
2	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A			0.0e	34.6g
	Dry Ammonium Sulfate	100 D	2.04 % w/v	14EPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	3	WAP B				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	3	WAP B				
3	Zidua.....pyroxasulfone	85 WG	0.08 lb ai/A	14EPP	A			75.0 bc	63.3e
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	14EPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	4	WAP C				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	4	WAP C				
4	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	14EPP	A			72.7 cd	70.0de
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	14EPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	4	WAP C				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	4	WAP C				
5	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A			0.0e	31.7g
	Dry Ammonium Sulfate	100 D	2.04 % w/v	14EPP	A				
	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	3	WAP B				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	3	WAP B				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	3	WAP B				
6	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	14EPP	A			88.3 ab	78.3cd
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	14EPP	A				
	Zidua.....pyroxasulfone	85 WG	0.053 lb ai/A	4	WAP C				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	4	WAP C				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	4	WAP C				
7	Dual Magnum....s-metolachlor	7.62 E	1.43 lb ai/A	14EPP	A			60.0 d	50.0f
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	14EPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	4	WAP C				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	4	WAP C				
8	Prefix Premix	5.3 E	1.33 lb ai/A	14EPP	A			96.7 a	76.7 cd
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	14EPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	4	WAP C				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	4	WAP C				
9	Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	14EPP	A			100.0 a	86.7bc
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	14EPP	A				
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	4	WAP C				
	Dry Ammonium Sulfate	100 D	2.04 % w/v	4	WAP C				

Weed Code		AMAPA	AMAPA						
Weed or Crop Name		Palmer	Palmer						
Weed or Crop Name		Amaranth	Amaranth						
Rating Data Type		Control	Control						
Rating Unit	%	%	%						
Rating Date	06/05/12	06/20/12							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
10	Fierce Premix	76 WG		0.178 lb ai/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	14EPP	A			
	Dry Ammonium Sulfate	100 D		2.04 % w/v	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	4 WAP	C			
	Dry Ammonium Sulfate	100 D		2.04 % w/v	4 WAP	C			
11	Authority MTZ Premix	45 DF		0.394 lb ai/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	14EPP	A			
	Dry Ammonium Sulfate	100 D		2.04 % w/v	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	4 WAP	C			
	Dry Ammonium Sulfate	100 D		2.04 % w/v	4 WAP	C			
12	Valor XLT Premix	40.3 WG		0.0756 lb ai/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	14EPP	A			
	Dry Ammonium Sulfate	100 D		2.04 % w/v	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	4 WAP	C			
	Dry Ammonium Sulfate	100 D		2.04 % w/v	4 WAP	C			
LSD (P=.05)					13.39		12.43		
Standard Deviation					7.91		7.30		
CV					11.97		11.33		
Replicate F					2.081		1.752		
Replicate Prob(F)					0.1487		0.1989		
Treatment F					84.138		50.836		
Treatment Prob(F)					0.0001		0.0001		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Herbicide-Resistant Soybeans for Palmer Amaranth Control

Trial ID: DSB6-12 Cooperator: Delaware Soybean Board
 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

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.

Crop 1: Soybean	GLXMA	Variety: RT4996N-STS and LL499N,
Planting Date: 05/23/12	Planting Method: Drilled	Depth: 1 in
Rate: 4 Sd/row-ft	Row Spacing: 14 in	Seed Bed: Firm
Soil Temperature: 78 F	Soil Moisture: Moist	Emergence Date: 05/29/12

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

Trial Initiation Comments: The study area was sprayed with glyphosate for burndown approximately 2 weeks prior to planting.

SOIL DESCRIPTION

% Sand: 83 % OM: 1.2 Texture: loamy sand
 % Silt: 10 pH: 6.1
 % Clay: 7 CEC: 5.1 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: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	05/24/12	06/19/12	07/03/12
Time of Day:	11:00 am	12:15 pm	10:00 am
Application Method:	Spray	Spray	Spray
Application Timing:	PRE	4WAP	6WAP
Applic. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	74 F	78 F	88 F
% Relative Humidity:	66	63	40
Wind Velocity, Unit:	2 mph	1 mph	1 mph
Wind Direction:	Southeast	South	Southwest
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	73 F	77 F	85 F
Soil Surf. Moisture:	Moist	Moist	Dry
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry	Dry
% Cloud Cover:	80	80	45

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:	V4-5	V6-7	
Height, Unit:	7 in	14 in	
Crop Health:	Good	Good	

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:		vegetative	vegetative
Height, Unit:	10 in	14 in	
Density, Unit:	0-30 m ²	0-5 m ²	
Weed 2 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:		vegetative	veg-run
Height, Unit:	4 in	10 in	
Density, Unit:	5-8 m ²	2-8	
Weed 3 Code:	DIGSS	DIGSS	DIGSS
Growth Stage:		vegetative	vegetative
Height, Unit:	4 in	7 in	
Density, Unit:	30-80 m ²	0-30 m ²	

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:	18 in	24 in	30 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
06-29-12: Treatment 12 is weak on lambsquarters.
10-03-12: Palmer amaranth control was >90% for all treatments except trt 3 (Liberty alone at 29 fl oz; rated Poor [50 to 70%]). Treatments 2, 11, and 12 had one plot (seen in only on rep) with 70 to 80% control.

Herbicide-Resistant Soybeans for Palmer Amaranth Control

Trial ID: DSB6-12 Cooperator: Delaware Soybean Board
 Location: Field #18 Investigator: Mark VanGessel

Weed Code	Crop Code	GLXMA	AMASS	IPOSS	DIGSA	GLXMA	GLXMA
Crop Code	Weed or Crop Name	Soybean	Pigweed Species	Mornlry Species	Large Crabgras	Soybean	Soybean
Weed or Crop Name	Rating Data Type	Stunting %	Control %	Control %	Control %	LeafBrn %	Chloross %
Rating Unit	Rating Date	06/21/12	06/21/12	06/21/12	06/21/12	06/21/12	06/21/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1	Roundup Ready Soys Untreated Check					0.0c	0.0b
2	Roundup Ready Soys Glyphosate	3 L		0.75 lb ae/A	4 WAP B		0.0c 0.0b
3	Liberty-Link Soys Liberty 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D		0.53 lb ai/A 1.2% w/v	4 WAP B		0.0c 9.0a
4	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3 L		0.08 lb ai/A 0.75 lb ae/A	PRE A 4 WAP B	2.3c	0.0c 0.0b
5	Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D		1.33 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE A 4 WAP B	11.3b	0.0c 2.3b
6	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3 L		0.08 lb ai/A 0.75 lb ae/A	PRE A 6 WAP C	2.3c 93.3 b	88.3 a 85.0 a
7	Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D		1.33 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE A 6 WAP C	15.0a 98.3 ab	90.0 a 81.7 a
8	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3 L		0.064 lb ai/A 0.75 lb ae/A	PRE A 4 WAP B	0.0c 100.0 a	80.7 a 85.0 a
9	Liberty-Link Soys Prefix Premix Liberty 280.....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D		0.86 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE A 4 WAP B	10.7 b 100.0 a	73.3 a 95.0 a
10	Liberty-Link Soys Valor SX.....flumioxazin Liberty 280.....glufosinate Dry Ammonium Sulfate	51 WG 2.34 SL 100 D		0.08 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE A 4 WAP B	15.0a	0.0c 3.3b
11	Roundup Ready Soys Dual II Magnum..s-metolachlor Reflex.....fomesafen Select Max.....clethodim Nonionic Surfactant	7.64 E 2 L 1 EC 100 L		0.477 lb ai/A 0.375 lb ai/A 0.0625 lb ai/A 0.25 % v/v	PRE A 4 WAP B	0.0c	12.3 b 0.0b

Weed Code			GLXMA	AMASS	IPOSS	DIGSA	GLXMA	GLXMA
Crop Code			Soybean	Pigweed Species Control	Morngrly Species Control	Large Crabgras Control	Soybean	Soybean
Weed or Crop Name			Stunting %	%	%	%		
Weed or Crop Name			06/21/12	06/21/12	06/21/12	06/21/12	06/21/12	06/21/12
Rating Data Type								
Rating Unit								
Rating Date								
Trt	Treatment	Form	Form	Rate	Grow	Appl		
No.	Name	Conc	Type	Rate	Unit	Stg	Code	
12	Roundup Ready Soys							
	Dual II Magnum..s-metolachlor	7.64 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)				3.19	5.16	17.09	17.53	2.10
Standard Deviation				1.86	2.74	9.08	9.31	1.21
CV				32.86	3.5	13.66	13.43	26.81
Replicate F				1.192	1.556	0.100	2.154	1.994
Replicate Prob(F)				0.3264	0.2687	0.9057	0.1785	0.1686
Treatment F				36.731	770.000	51.847	52.865	197.041
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0066

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	GLXMA	AMASS	IPOSS	DIGSA	GLXMA
Rating Data Type	Rating Unit	Pigweed Species Control %	Mornglry Species Control %	Large Crabgras Control %	Yield Bu/A	Soybean
Rating Date		06/29/12	06/29/12	06/29/12	06/29/12	11/05/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg Code
1	Roundup Ready Soys Untreated Check					0.2 c
2	Roundup Ready Soys Glyphosate	3 L		0.75 lb ae/A	4 WAP B	0.0 e
3	Liberty-Link Soys Liberty 280....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D		0.53 lb ai/A 1.2% w/v	4 WAP B	0.0 e
4	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3 L		0.08 lb ai/A 0.75 lb ae/A	PRE A 4 WAP B	0.0 e
5	Liberty-Link Soys Prefix Premix Liberty 280....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D		1.33 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE A 4 WAP B	8.3 bcd
6	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3 L		0.08 lb ai/A 0.75 lb ae/A	PRE A 6 WAP C	2.3 de
7	Liberty-Link Soys Prefix Premix Liberty 280....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D		1.33 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE A 6 WAP C	5.7 b-e
8	Roundup Ready Soys Valor SX.....flumioxazin Glyphosate	51 WG 3 L		0.064 lb ai/A 0.75 lb ae/A	PRE A 4 WAP B	5.7 b-e
9	Liberty-Link Soys Prefix Premix Liberty 280....glufosinate Dry Ammonium Sulfate	5.3 E 2.34 SL 100 D		0.86 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE A 4 WAP B	4.0 cde
10	Liberty-Link Soys Valor SX.....flumioxazin Liberty 280....glufosinate Dry Ammonium Sulfate	51 WG 2.34 SL 100 D		0.08 lb ai/A 0.53 lb ai/A 1.2% w/v	PRE A 4 WAP B	8.7 bc
11	Roundup Ready Soys Dual II Magnum..s-metolachlor Reflex.....fomesafen Select Max.....clethodim Nonionic Surfactant	7.64 E 2 L 1 EC 100 L		0.477 lb ai/A 0.375 lb ai/A 0.0625 lb ai/A 0.25 % v/v	PRE A 4 WAP B	10.7 b

Weed Code	Crop Code	GLXMA	AMASS	IPOSS	DIGSA	GLXMA						
Weed or Crop Name		Soybean	Pigweed	Morngly	Large	Soybean						
Weed or Crop Name			Species	Species	Crabgras							
Rating Data Type		Stunting	Control	Control	Control	Yield						
Rating Unit		%	%	%	%	Bu/A						
Rating Date		06/29/12	06/29/12	06/29/12	06/29/12	11/05/12						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code					
12	Roundup Ready Soys							25.0 a	99.0 a	73.3 cd	89.0 abc	61.0 a
	Dual II Magnum..s-metolachlor	7.64	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)								6.31	6.59	15.45	13.17	9.99
Standard Deviation								3.70	3.88	9.07	7.75	5.90
CV								57.9	4.37	11.45	9.67	9.5
Replicate F				0.944		1.558		0.018		0.200		0.839
Replicate Prob(F)				0.4057		0.2340		0.9824		0.8203		0.4453
Treatment F				11.366		164.163		31.283		39.045		2.379
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0001		0.0402

Means followed by same letter do not significantly differ ($P=.05$, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

DuPont Fall Burndown Programs in Small Grain Cover Crop

Trial ID: Soy1-12 Cooperator: DuPont
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Morningglory Species	IP POSS	Ipomoea sp.

Crop 1: Rye SECCE	Planting Method:	Drilled	Depth: 1.25 in
	Row Spacing:	7 in	Seed Bed: Medium

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: 1.0 Texture: sandy loam
 % Silt: 10 pH: 6.2
 % Clay: 10 CEC: 4.4 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: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	11/26/11	05/11/12
Time of Day:	11:30 am	9:00 am
Application Method:	Spray	Spray
Application Timing:	Fall	PRE
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	56 F	55 F
% Relative Humidity:	54	55
Wind Velocity, Unit:	4 mph	3 mph
Wind Direction:	Southwest	Northwest
Dew Presence (Y/N):	N	Y
Soil Temp., Unit:	54 F	52 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist
% Cloud Cover:	5	0

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	SECCE	SECCE
Growth Stage:	2lf-1tillr	flower
Height, Unit:	3 in	55 in
Crop Health:	Good	Fair

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	LAMAM	LAMAM
Growth Stage:	cot-2 leaf	
Height, Unit:	1 in	
Density, Unit:	50-200 m ²	
Weed 2 Code:	IPOSS	IPOSS
Growth Stage:		cotyledon
Height, Unit:		1 in
Density, Unit:		0-1 m ²

APPLICATION EQUIPMENT		
	A	B
Appl. Equipment:	Backpack	Tractor
Operating Pressure:	31 psi	40 psi
Nozzle Type:	AIRMIX	AIRMIX
Nozzle Size:	11002	11002
Nozzle Spacing, Unit:	18 in	20 in
Boom Length, Unit:	6 nozl	6 nozl
Boom Height, Unit:	20 in	72 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	CO ₂	Comp. Air

Trial Comments
12-05-11: Injury is stunting and leaf burn.
03-14-12: BiomsRdx = Biomass reduction is a combination of stand loss and stunting.
05-07-12: BiomsRdx = Biomass reduction is a combination of stand loss and stunting. Due to lack of nitrogen and possible leaf disease, rye growth is quite variable and made it difficult to rate. Excellent weed control. Occasional cotyledons of summer annual weeds seen. Most of them are IPOSS.
06-18-12: Evaluated for soybean response. There was moderate to severe deer damage in all plots. No differences in treatments could be seen at this time. Deer damage was heavier in plots that had reductions of rye cover crop biomass.

DuPont Fall Burndown Programs in Small Grain Cover Crop

Trial ID: Soy1-12 Cooperator: DuPont
Location: Field #22 Investigator: Mark VanGessel

Weed Code	Crop Code	SECCE	LAMAM	SECCE	CARHI	LAMAM	SECCE	GLXMA
Rating Data Type	Rating Unit	Winter	Henbit	Winter	Hairy	Henbit	Winter	Soybean
Rating Date		Rye		Rye	Bitrcrs		Rye	Stunting
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code	
1	Canopy EX	29.5 WG	0.0406 lb ai/A	Fall	A			
	2,4-D ester	3.8 L	0.95 lb ae/A	Fall	A			
	Crop Oil Conc.	100 L	1% v/v	Fall	A			
	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B			
2	Canopy EX	29.5 WG	0.0406 lb ai/A	Fall	A			
	Clarity	4 L	0.187 lb ai/A	Fall	A			
	Crop Oil Conc.	100 L	1% v/v	Fall	A			
	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B			
3	Canopy EX	29.5 WG	0.0406 lb ai/A	Fall	A			
	Sharpen	2.85 SC	0.0223 lb ai/A	Fall	A			
	MSO	100 L	1% v/v	Fall	A			
	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B			
4	Canopy	75 DF	0.187 lb ai/A	Fall	A			
	2,4-D ester	3.8 L	0.95 lb ae/A	Fall	A			
	Crop Oil Conc.	100 L	1% v/v	Fall	A			
	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B			
5	Canopy	75 DF	0.187 lb ai/A	Fall	A			
	Clarity	4 L	0.187 lb ai/A	Fall	A			
	Crop Oil Conc.	100 L	1% v/v	Fall	A			
	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B			
6	Canopy	75 DF	0.187 lb ai/A	Fall	A			
	Sharpen	2.85 SC	0.0223 lb ai/A	Fall	A			
	MSO	100 L	1% v/v	Fall	A			
	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B			
7	Basis Blend	30 SG	0.0155 lb ai/A	Fall	A			
	2,4-D ester	3.8 L	0.95 lb ae/A	Fall	A			
	Crop Oil Conc.	100 L	1% v/v	Fall	A			
	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B			
8	Basis Blend	30 SG	0.0155 lb ai/A	Fall	A			
	Clarity	4 L	0.187 lb ai/A	Fall	A			
	Crop Oil Conc.	100 L	1% v/v	Fall	A			
	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B			
9	Basis Blend	30 SG	0.0155 lb ai/A	Fall	A			
	Sharpen	2.85 SC	0.0223 lb ai/A	Fall	A			
	MSO	100 L	1% v/v	Fall	A			
	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B			
10	Basis Blend	30 SG	0.0234 lb ai/A	Fall	A			
	2,4-D ester	3.8 L	0.95 lb ae/A	Fall	A			
	Crop Oil Conc.	100 L	1% v/v	Fall	A			
	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B			
11	Basis Blend	30 SG	0.0234 lb ai/A	Fall	A			
	Clarity	4 L	0.187 lb ai/A	Fall	A			
	Crop Oil Conc.	100 L	1% v/v	Fall	A			
	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B			

Weed Code	Crop Code	SECCE	LAMAM	SECCE	CARHI	LAMAM	SECCE	GLXMA
Weed or Crop Name		Winter	Henbit	Winter	Hairy	Henbit	Winter	Soybean
Weed or Crop Name		Rye		Rye	Bittrcs		Rye	
Rating Data Type		Injury	Control	BiomsRdx	Control	Control	BiomsRdx	
Rating Unit		%	%	%	%	%	%	
Rating Date		12/05/11	12/05/11	03/14/12	03/14/12	03/14/12	05/07/12	09/26/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code		
12	Basis Blend Sharpen MSO Roundup PowrMax	30 SG 2.85 SC 100 L 4.5 AS	0.0234 lb ai/A 0.0223 lb ai/A 1% v/v 0.77 lb ae/A	lb ai/A PRE	Fall A	A	50.0 b	99.0 a
13	Envive 2,4-D ester Crop Oil Conc. Roundup PowrMax	41.3 WG 3.8 L 100 L 4.5 AS	0.103 lb ai/A 0.95 lb ae/A 1% v/v 0.77 lb ae/A	lb ai/A PRE	Fall A	A	60.0 a	98.3 a
14	Envive Clarity Crop Oil Conc. Roundup PowrMax	41.3 WG 4 L 100 L 4.5 AS	0.103 lb ai/A 0.187 lb ai/A 1% v/v 0.77 lb ae/A	lb ai/A PRE	Fall A	A	53.3 ab	98.3 a
15	Roundup PowrMax	4.5 AS	0.77 lb ae/A	PRE	B		0.0 e	0.0 e
16	Untreated Check						0.0 e	0.0 e
LSD (P=.05)				8.84	8.26	15.93	0.00	0.00
Standard Deviation				5.30	4.95	9.55	0.00	0.00
CV				20.41	6.56	23.82	0.0	0.0
Replicate F				2.004	2.050	4.901	0.000	0.000
Replicate Prob(F)				0.1524	0.1464	0.0144	1.0000	1.0000
Treatment F				36.847	122.969	18.617	0.000	0.000
Treatment Prob(F)				0.0001	0.0001	0.0001	1.0000	1.0000
							0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(Soy2-12)

University of Delaware

Tricor, Ultra Blazer, and Storm in Roundup-Ready Soybeans

Trial ID: Soy2-12 Cooperator: 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
3.	Morningglory Species	IPOSS	Ipomoea sp.
4.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
5.	Common Lambsquarters	CHEAL	Chenopodium album L.

Crop 1: Soybean **GLXMA** **Variety:** H4601
Planting Date: 05/16/12 **Planting Method:** Row- Unit Planter **Depth:** 1 in
Rate: 190000 Sd/A **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy
Soil Temperature: 82 F **Soil Moisture:** Dry **Emergence Date:** 05/23/12

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

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/05/12	Roundup WeatherMax	4.5	AS	32	fl oz/A
2.	07/05/12	Raptor	1	AS	5	fl oz/A
3.	07/05/12	Dry Ammonium Sulfate			1.2	% w/v

SOIL DESCRIPTION

% Sand: 79 **% OM:** 2.1 **Texture:** sandy loam
% Silt: 10 **pH:** 5.8
% Clay: 11 **CEC:** 7.8 **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: 0.4 **Unit:** mi

APPLICATION DESCRIPTION

	A	B
Application Date:	04/30/12	06/15/12
Time of Day:	12:00 pm	8:30 am
Application Method:	Spray	Spray
Application Timing:	14EPP	POST
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	58 F	70 F
% Relative Humidity:	46	54
Wind Velocity, Unit:	4 mph	5 mph
Wind Direction:	Southeast	Northeast
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	58 F	68 F
Soil Surf. Moisture:	Moist	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	100	0

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		4-trifol
Height, Unit:	9	in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	ERICA	ERICA
Growth Stage:	bolting	
Height, Unit:	4	in
Density,Unit:	40-80	m2
Weed 2 Code:	OEOLA	OEOLA
Growth Stage:	flower	
Height, Unit:	14	in
Density,Unit:	0-5	m2
Weed 3 Code:	IPOSS	IPOSS
Growth Stage:		veg-run
Height, Unit:		5 in
Density,Unit:		10-50 m2
Weed 4 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:		7 in
Density,Unit:		10-100 m2
Weed 5 Code:	CHEAL	CHEAL
Growth Stage:		vegetative
Height, Unit:		10 in
Density,Unit:		0-15 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:	24 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
05-16-12: All treatments (2 through 8) had the same burndown program so no ratings were taken by individual plots. Overall, horseweed control was 85%; evening primrose was 95%. Venus lookingglass and jagged chickweed control was over 98%.
05-28-12: No injury or stunting observed on the soybeans. Ratings for treatment 2 represent all treatments (2 through 8) since all plots had received the same herbicides up till this date.
06-15-12: Treatments are extremely variable from PRE applications. Soybeans look good, no stunting or injury observed.
06-18-12: Injury in treatment 7 is mostly due to leaf crinkling. Less than 3% leaf burn observed.
07-03-12: Weed competition from poor weed control resulted in variability for rating stunted soybean plots.

Tricor, Ultra Blazer, and Storm in Roundup-Ready Soybeans

Trial ID: Soy2-12 Cooperator: UPI
 Location: Field #10 Investigator: Mark VanGessel

Weed Code	ERICA	OEOLA	VIORA	AMASS	IPOSS	SIDSP	DIGSA
Weed or Crop Name	Horseweed Control %	Cutleaf EPrimrse Control %	Field Pansy Control %	Pigweed Species Control %	Morngly Species Control %	Prickly Sida Control %	Large Crabgras Control %
Rating Data Type	05/28/12	05/28/12	05/28/12	05/28/12	05/28/12	05/28/12	05/28/12
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Appl Code	
1 Untreated Check			0.0 b	0.0 b	0.0 b	0.0 b	0.0 b
2 Roundup PowrMax	4.5 AS	0.77 lb ae/A	14EPP	A	90.7 a	100.0 a	61.7 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A			
Tricor DF	75 DF	0.187 lb ai/A	14EPP	A			
Dual II Magnum	7.64 E	1.19 lb ai/A	14EPP	A			
Liquid AMS 34%	100 L	2.5 % v/v	14EPP	A			
Ultra Blazer	2 L	0.375 lb ai/A	POST	B			
Nonionic Surf.	100 L	0.25 % v/v	POST	B			
LSD (P=.05)		5.74	0.00	56.01	8.72	2.87	6.57
Standard Deviation		1.63	0.00	15.94	2.48	0.82	1.87
CV		3.6	0.0	51.71	5.62	1.84	4.25
Replicate F		1.000	0.000	1.000	1.000	1.000	1.000
Replicate Prob(F)		0.5000	1.0000	0.5000	0.5000	0.5000	0.5000
Treatment F		4624.000	0.000	22.443	1897.973	17689.002	3318.858
Treatment Prob(F)		0.0002	1.0000	0.0418	0.0005	0.0001	0.0003
							89401.009
							0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Tricor, Ultra Blazer, and Storm in Roundup-Ready Soybeans

Trial ID: Soy2-12 Cooperator: UPI
 Location: Field #10 Investigator: Mark VanGessel

Weed Code		AMASS	IPOSS	DIGSA	GLXMA	GLXMA	AMASS
Crop Code		Pigweed	Morngrly	Large	Soybean	Soybean	Pigweed
Weed or Crop Name		Species	Species	Crabgras		Stunting	Species
Weed or Crop Name		Control	Control	Control		%	Control
Rating Data Type		%	%	%		%	%
Rating Unit		06/15/12	06/15/12	06/15/12	06/18/12	07/03/12	07/03/12
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1	Untreated Check						
2	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A		0.0 c	0.0 b
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A		66.7 ab	58.3 a
	Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A			
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A			
	Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A			
	Ultra Blazer....acifluorfen	2 L	0.375 lb ai/A	POST B			
	Nonionic Surfactant	100 L	0.25% v/v	POST B			
3	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A		53.3 ab	58.3 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
	Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A			
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A			
	Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A			
	Storm Premix	4 EC	0.75 lb ai/A	POST B			
	Nonionic Surfactant	100 L	0.25% v/v	POST B			
4	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A		28.3 bc	10.0 b
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
	Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A			
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A			
	Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A			
	Ultra Blazer....acifluorfen	2 L	0.375 lb ai/A	POST B			
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	POST B			
	Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	POST B			
5	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A		68.3 ab	36.7 ab
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
	Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A			
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A			
	Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A			
	Ultra Blazer....acifluorfen	2 L	0.25 lb ai/A	POST B			
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	POST B			
	Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	POST B			
6	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A		48.3 ab	31.7 ab
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
	Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A			
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A			
	Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A			
	Storm Premix	4 EC	0.75 lb ai/A	POST B			
	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	POST B			
	Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	POST B			

Weed Code	Crop Code	Pigweed Species Control %	Morngrly Species Control %	Large Crabgras Control %	Leafburn %	GLXMA Soybean	GLXMA Soybean	AMASS Pigweed Species Control %
Weed or Crop Name	Rating Data Type	06/15/12	06/15/12	06/15/12	06/18/12	07/03/12	07/03/12	07/03/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code		
7	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A				
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A				
	Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A				
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A				
	Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A				
	Flexstar GT Premix	3.3 L	1.44 lb ai/A	POST B				
	Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	POST B				
8	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A				
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A				
	Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A				
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A				
	Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A				
LSD (P=.05)					41.41	36.74	13.17	5.18
Standard Deviation					23.64	20.98	7.52	2.96
CV					46.32	54.43	9.6	16.24
Replicate F					2.048	0.215	2.284	2.035
Replicate Prob(F)					0.1659	0.8088	0.1385	0.1676
Treatment F					3.624	3.693	57.432	73.257
Treatment Prob(F)					0.0193	0.0180	0.0001	0.0001
								0.0344
								0.0008

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Tricor, Ultra Blazer, and Storm in Roundup-Ready Soybeans

Trial ID: Soy2-12 Cooperator: UPI
 Location: Field #10 Investigator: Mark VanGessel

Weed Code	CHEAL	IPOSS						
Crop Code	Common Lambqtrs	Mornlry Species Control %						
Weed or Crop Name	Control %							
Weed or Crop Name								
Rating Data Type								
Rating Unit								
Rating Date	07/03/12	07/03/12						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
1 Untreated Check								
2 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A				68.3 b	100.0 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A					
Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A					
Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A					
Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A					
Ultra Blazer....acifluorfen	2 L	0.375 lb ai/A	POST B					
Nonionic Surfactant	100 L	0.25% v/v	POST B					
3 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A				73.3 b	100.0 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A					
Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A					
Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A					
Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A					
Storm Premix	4 EC	0.75 lb ai/A	POST B					
Nonionic Surfactant	100 L	0.25% v/v	POST B					
4 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A				100.0 a	100.0 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A					
Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A					
Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A					
Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A					
Ultra Blazer....acifluorfen	2 L	0.375 lb ai/A	POST B					
Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	POST B					
Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	POST B					
5 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A				100.0 a	100.0 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A					
Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A					
Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A					
Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A					
Ultra Blazer....acifluorfen	2 L	0.25 lb ai/A	POST B					
Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	POST B					
Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	POST B					
6 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP A				100.0 a	100.0 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A					
Tricor DF.....metribuzin	75 DF	0.187 lb ai/A	14EPP A					
Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	14EPP A					
Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	14EPP A					
Storm Premix	4 EC	0.75 lb ai/A	POST B					
Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	POST B					
Liquid Ammonium Sulfate 34%	100 L	2.5% v/v	POST B					

Weed Code		CHEAL	IPOSS					
Crop Code								
Weed or Crop Name		Common	Mornlry					
Weed or Crop Name		Lambqtrs	Species					
Rating Data Type		Control	Control					
Rating Unit		%	%					
Rating Date		07/03/12	07/03/12					
Trt	Treatment	Form	Form	Rate	Grow	Appl		
No.	Name	Conc	Type	Rate	Unit	Stg	Code	
7	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	14EPP	A		
	2,4-D ester	3.8 L		0.95 lb ae/A	14EPP	A		
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	14EPP	A		
	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/A	14EPP	A		
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	14EPP	A		
	Flexstar GT Premix	3.3 L		1.44 lb ai/A	POST	B		
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	POST	B		
8	Roundup PowerMax..glyphosate	4.5 AS		0.77 lb ae/A	14EPP	A		
	2,4-D ester	3.8 L		0.95 lb ae/A	14EPP	A		
	Tricor DF.....metribuzin	75 DF		0.187 lb ai/A	14EPP	A		
	Dual II Magnum..s-metolachlor	7.64 E		1.19 lb ai/A	14EPP	A		
	Liquid Ammonium Sulfate 34%	100 L		2.5 % v/v	14EPP	A		
LSD (P=.05)					17.11	0.00		
Standard Deviation					9.62	0.00		
CV					12.43	0.0		
Replicate F					0.399	0.000		
Replicate Prob(F)					0.6795	1.0000		
Treatment F					43.979	0.000		
Treatment Prob(F)					0.0001	1.0000		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

POST Liberty 280 Programs in No-Till Soybeans

Trial ID: Soy3-12 Cooperator: Bayer
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Cutleaf Evening Primrose	OEOLA	Oenothera lacinata Hill
3.	Morningglory Species	IPOSS	Ipomoea sp.
4.	Crabgrass Species	DIGSS	Digitaria sp.

Crop 1: Soybean	GLXMA	Variety: LL499N
Planting Date:	05/16/12	Planting Method: Row- Unit Planter
Rate:	190000 Sd/A	Row Spacing: 15 in Seed Bed: Firm/Trashy
Soil Temperature:	82 F	Soil Moisture: Moist Emergence Date: 05/23/12

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/Soybean Stubble

SOIL DESCRIPTION

% Sand: 79 % OM: 2.1 Texture: sandy loam
 % Silt: 10 pH: 5.8
 % Clay: 11 CEC: 7.8 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: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	04/30/12	06/15/12	07/03/12
Time of Day:	10:00 am	8:45 am	9:00 am
Application Method:	Spray	Spray	Spray
Application Timing:	14EPP	2-3" wds	2-3" wds
Appli. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	59 F	70 F	85 F
% Relative Humidity:	42	54	49
Wind Velocity, Unit:	3 mph	5 mph	1 mph
Wind Direction:	East	Northeast	Southwest
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	57 F	68 F	81 F
Soil Surf. Moisture:	Moist	Dry	Dry
Root Zone Moisture:	Moist	Moist	Dry
Leaf Surf. Moisture:	Dry	Dry	Dry
% Cloud Cover:	90	0	40

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:		4-trifol	4-5 trifol
Height, Unit:		7 in	8.5 in
Crop Health:		Good	Fair

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	ERICA	ERICA	ERICA
Growth Stage:	bolting	bolting	bolting
Height, Unit:	4 in	10 in	14 in
Density, Unit:	40-80 m ²	0-50 m ²	0-30 m ²
Weed 2 Code:	OEOLA	OEOLA	OEOLA
Growth Stage:	flower		
Height, Unit:	14 in		
Density, Unit:	0-4 m ²		
Weed 3 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:		cot-6 leaf	vegetative
Height, Unit:		3 in	5 in
Density, Unit:		5-15 m ²	2-12 m ²
Weed 4 Code:	DIGSS	DIGSS	DIGSS
Growth Stage:		3-5 tiller	3-5 tiller
Height, Unit:		6 in	8 in
Density, Unit:		5-50 m ²	0-30 m ²

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:	22 in	26 in	30 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

Trt No	Treatment Application Comment
7	Plot #205 sprayed with trt. 8 at 14EPP timing.

Trial Comments	
06-18-12:	Treatments 2 - 6 and treatment 8 showing chlorotic patches on leaves. Treatment 7 has injury due to leaf speckling from Reflex.
07-17-12:	Postemergence control was 100% for all broadleaf species and ratings reflect new emergence (except horseweed). Grasses mostly reflect plants present at POST timing but not controlled. Soybeans are drought stressed but all treatments looked similar for canopy development.

POST Liberty 280 Programs in No-Till Soybeans

Trial ID: Soy3-12 Cooperator: Bayer
 Location: Field #10 Investigator: Mark VanGessel

Weed Code	ERICA	ERICA	OEOLA	VIORA	AMASS	IPOSS
Crop Code	Horse-weed Control %	Horse-weed Control %	Cutleaf EPrimrse Control %	Field Pansy Control %	Pigweed Species Control %	Morngrly Species Control %
Weed or Crop Name	05/16/12	05/28/12	05/28/12	05/28/12	05/28/12	05/28/12
Weed or Crop Name						
Rating Data Type						
Rating Unit						
Rating Date						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	56.7 c	75.0 b
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
Untreated Check						
2 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	70.0 b	77.7 b
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A		
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
3 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	75.0 ab	80.3 b
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A		
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C		
Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	C		
4 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	70.0 b	83.7 b
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
5 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	65.0 bc	77.7 b
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C		
Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	C		
6 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	66.7 bc	75.0 b
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
Zidua.....pyroxasulfone	85 WG	0.053 lb ai/A	2-3'wds	B		
Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
7 Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	73.4 ab	81.8 b
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A		
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
Reflex.....fomesafen	2 L	0.25 lb ai/A	2-3'wds	B		
Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		

Weed Code			ERICA	ERICA	OEOLA	VIORA	AMASS	IPOSS
Crop Code			Horse-weed Control %	Horse-weed Control %	Cutleaf EPrimrse Control %	Field Pansy Control %	Pigweed Species Control %	Morngrly Species Control %
Weed or Crop Name			05/16/12	05/28/12	05/28/12	05/28/12	05/28/12	05/28/12
Weed or Crop Name								
Rating Data Type								
Rating Unit								
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code		
8	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	82.0 a	96.0 a	99.0 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A			
	Boundary Premix	6.5 EC	1.62 lb ai/A	14EPP	A			
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	2-3'wds	B			
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	2-3'wds	C			
LSD (P=.05)				10.22	10.56	1.12	31.53	5.09
Standard Deviation				5.80	5.99	0.64	17.72	2.88
CV				8.3	7.4	0.64	20.76	3.33
Replicate F				0.593	1.153	0.929	4.180	1.225
Replicate Prob(F)				0.5669	0.3459	0.4198	0.0419	0.3254
Treatment F				5.028	3.912	0.929	3.388	444.009
Treatment Prob(F)				0.0060	0.0163	0.5165	0.0309	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	DIGSA	ERICA	AMASS	AMBEL	CHEAL	IPOSS
Weed or Crop Name		Large Crabgras Control %	Horse- weed Control %	Pigweed Species Control %	Common Ragweed Control %	Common Lambqtrs Control %	Mornlgy Species Control %
Rating Data Type		05/28/12	06/14/12	06/14/12	06/14/12	06/14/12	06/14/12
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code	
1	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	0.0d	78.3 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Untreated Check						
2	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	96.7 ab	73.3 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
3	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	100.0 a	75.0 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	C		
4	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	90.2 bc	78.3 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
5	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	100.0 a	70.0 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	C		
6	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	88.8 c	71.7 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Zidua.....pyroxasulfone	85 WG	0.053 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
7	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	92.8 bc	74.7 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Reflex.....fomesafen	2 L	0.25 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		

Weed Code	Crop Code		DIGSA	ERICA	AMASS	AMBEL	CHEAL	IPOSS
Weed or Crop Name	Weed or Crop Name		Large Crabgras Control %	Horse- weed Control %	Pigweed Species Control %	Common Ragweed Control %	Common Lambqtrs Control %	Mornlry Species Control %
Rating Data Type	Rating Unit	Rating Date	05/28/12	06/14/12	06/14/12	06/14/12	06/14/12	06/14/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code		
8	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A			
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A			
	Boundary Premix	6.5 EC	1.62 lb ai/A	14EPP	A			
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	2-3'wds	B			
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C			
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	2-3'wds	C			
LSD (P=.05)				6.72	14.34	8.03	12.29	11.21
Standard Deviation				3.69	7.98	4.55	6.97	6.35
CV				4.42	10.55	5.5	9.02	7.37
Replicate F				2.517	0.163	0.012	2.033	0.929
Replicate Prob(F)				0.1302	0.8515	0.9879	0.1705	0.4198
Treatment F				255.202	0.866	171.317	84.852	91.133
Treatment Prob(F)				0.0001	0.5605	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	DIGSA	GLXMA	ERICA	AMASS	AMBEL	CHEAL
Weed or Crop Name		Large Crabgras Control %	Soybean Injury %	Horse- weed Control %	Pigweed Species Control %	Common Ragweed Control %	Common Lambqtrs Control %
Rating Data Type		06/14/12	06/18/12	07/17/12	07/17/12	07/17/12	07/17/12
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code	
1	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A		
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Untreated Check						
2	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	75.0 ab	16.3 b
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
3	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	80.0 a	16.7 b
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	C		
4	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	75.0 ab	15.7 b
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
5	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	75.0 ab	14.7 b
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	C		
6	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	71.7 abc	15.7 b
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Zidua.....pyroxasulfone	85 WG	0.053 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		
7	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	66.8 bc	24.0 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A		
	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Reflex.....fomesafen	2 L	0.25 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B		

Weed Code		DIGSA	GLXMA	ERICA	AMASS	AMBEL	CHEAL
Crop Code		Large Crabgras Control %	Soybean Injury %	Horse- weed Control %	Pigweed Species Control %	Common Ragweed Control %	Common Lambqtrs Control %
Weed or Crop Name		06/14/12	06/18/12	07/17/12	07/17/12	07/17/12	07/17/12
Weed or Crop Name							
Rating Data Type							
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code	
8	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A		
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Boundary Premix	6.5 EC	1.62 lb ai/A	14EPP	A		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B		
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	2-3'wds	B		
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C		
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	2-3'wds	C		
LSD (P=.05)				11.05	4.37	5.60	0.00
Standard Deviation				6.27	2.48	3.18	0.00
CV				9.89	16.71	3.66	0.0
Replicate F				4.357	1.320	0.929	0.000
Replicate Prob(F)				0.0356	0.3006	0.4198	1.0000
Treatment F				52.168	21.767	367.051	0.000
Treatment Prob(F)				0.0001	0.0001	0.0001	1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code		IPOSS	SIDSP	DIGSA
Weed or Crop Name	Weed or Crop Name	Morngly Species Control %	Prickly Sida Control %	Large Crabgras Control %	
Rating Data Type	Rating Unit	07/17/12	07/17/12	07/17/12	
Rating Date					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg Appl Code
1	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A
	Untreated Check				
2	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A
	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B
3	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A
	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	C
4	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B
5	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	C
6	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B
	Zidua.....pyroxasulfone	85 WG	0.053 lb ai/A	2-3'wds	B
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B
7	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A
	Valor XLT Premix	40.3 WG	0.091 lb ai/A	14EPP	A
	Dual II Magnum..s-metolachlor	7.64 E	1.43 lb ai/A	14EPP	A
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B
	Reflex.....fomesafen	2 L	0.25 lb ai/A	2-3'wds	B
	Liquid Ammonium Sulfate 34%	100 L	4.5% v/v	2-3'wds	B

Weed Code		IPOSS	SIDSP	DIGSA						
Crop Code		Mornglry Species Control %	Prickly Sida Control %	Large Crabgras Control %						
Weed or Crop Name		07/17/12	07/17/12	07/17/12						
Weed or Crop Name										
Rating Data Type										
Rating Unit										
Rating Date										
Trt	Treatment	Form Conc	Form Type	Rate	Grow Unit	Appl Stg	Code			
8	Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	14EPP	A	99.0 a	100.0 a	96.7 a		
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A					
	Boundary Premix	6.5 EC	1.62 lb ai/A	14EPP	A					
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	B					
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	2-3'wds	B					
	Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	2-3'wds	C					
	Liquid Ammonium Sulfate 34%	100 L	4.5 % v/v	2-3'wds	C					
LSD (P=.05)						2.92	3.74	7.40		
Standard Deviation						1.66	2.12	4.19		
CV						1.91	2.43	5.0		
Replicate F						0.425	0.929	0.117		
Replicate Prob(F)						0.6624	0.4198	0.8905		
Treatment F						1338.905	828.684	200.359		
Treatment Prob(F)						0.0001	0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Burndown in No-Till Soybeans

Trial ID: Soy4-12 Cooperator: DuPont, Gowan
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Cutleaf Evening Primrose	OEOLA	Oenothera lacinata Hill
3.	Morningglory Species	IPOSS	Ipomoea sp.
4.	Crabgrass Species	DIGSS	Digitaria sp.

Crop 1: Soybean	GLXMA	Variety: H4601
Planting Date: 05/16/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 190000 Sd/A	Row Spacing: 15 in	Seed Bed: Firm/Trashy
Soil Temperature: 82 F	Soil Moisture: Dry	Emergence Date: 05/23/12

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/Soybean Stubble

SOIL DESCRIPTION

% Sand: 79 % OM: 2.1 Texture: sandy loam
 % Silt: 10 pH: 5.8
 % Clay: 11 CEC: 7.8 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: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/11/12	06/15/12
Time of Day:	9:20 am	10:00 am
Application Method:	Spray	Spray
Application Timing:	7DPP	28DAP
Appli. Placement:	Brdcst	Brdcst
Air Temp., Unit:	60 F	72 F
% Relative Humidity:	42	51
Wind Velocity, Unit:	4 mph	6 mph
Wind Direction:	Northwest	Northeast
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	55 F	70 F
Soil Surf. Moisture:	Moist	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	0	0

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		4-trifol
Height, Unit:	9	in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	ERICA	ERICA
Growth Stage:	bolting	bolting
Height, Unit:	8	in
Density, Unit:	50-100	m ²
Weed 2 Code:	OEOLA	OEOLA
Growth Stage:	flower	
Height, Unit:	16	in
Density, Unit:	0-5	m ²
Weed 3 Code:	IPOSS	IPOSS
Growth Stage:		2-6 leaf
Height, Unit:		3
Density, Unit:		0-10
Weed 4 Code:	DIGSS	DIGSS
Growth Stage:		2-4 tiller
Height, Unit:		6
Density, Unit:		0-15

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
Boom Length, Unit:	6	nozl
Boom Height, Unit:	24	in
Ground Speed, Unit:	3	mph
Carrier:	water	water
Spray Volume, Unit:	20	gpa
Propellant:	Comp. Air	Comp. Air

Trial Comments
07-17-12: FirstRate applied to untreated checks was rated at 40% & 50% for reps 2 and 3 respectively.
08-15-12: Treatment 5 with FirstRate about 60-70% control. Competition still too severe and will see stand loss & yield reductions. Treatment 1 also saw significant biomass reduction of horseweed, but not acceptable. All other treatments looked similar at 30-50% horseweed control.

Burndown in No-Till Soybeans

Trial ID: Soy4-12 Cooperator: DuPont, Gowan
 Location: Field #10 Investigator: Mark VanGessel

Weed Code	ERIC A	ERIC A	IPOSS	DIGSA	ERIC A	IPOSS
Crop Code	Horse-weed Control %	Horse-weed Control %	Mornglry Species Control %	Large Crabgras Control %	Horse-weed Control %	Mornglry Species Control %
Weed or Crop Name	05/16/12	05/28/12	05/28/12	05/28/12	06/14/12	06/14/12
Weed or Crop Name						
Rating Data Type						
Rating Unit						
Rating Date						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code	
1 Untreated Check						
2 Envive Premix	41.3 WG	0.09 lb ai/A	7DPP	A	60.0 b	71.7 b
Prowl H2O.....pendimethalin	3.8 CS	0.95 lb ai/A	7DPP	A		
2,4-D ester	3.8 L	0.475 lb ae/A	7DPP	A		
Abundit.....glyphosate	3 SC	0.75 lb ae/A	7DPP	A		
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	7DPP	A		
3 Envive Premix	41.3 WG	0.09 lb ai/A	7DPP	A	88.7 a	85.3 a
Prowl H2O.....pendimethalin	3.8 CS	0.95 lb ai/A	7DPP	A		
2,4-D ester	3.8 L	0.475 lb ae/A	7DPP	A		
Abundit.....glyphosate	3 SC	0.75 lb ae/A	7DPP	A		
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	7DPP	A		
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	7DPP	A		
4 Envive Premix	41.3 WG	0.0645 lb ai/A	7DPP	A	63.3 b	70.0 b
2,4-D ester	3.8 L	0.475 lb ae/A	7DPP	A		
Abundit.....glyphosate	3 SC	0.75 lb ae/A	7DPP	A		
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	7DPP	A		
Synchrony STS Premix	42 DF	0.0197 lb ai/A	28DAP	B		
Abundit.....glyphosate	3 SC	0.75 lb ae/A	28DAP	B		
Nonionic Surfactant	100 L	0.25 % v/v	28DAP	B		
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	28DAP	B		
5 Canopy Premix	75 DF	0.187 lb ai/A	7DPP	A	50.0 c	72.7 b
Cinch.....s-metolachlor	7.64 E	1.43 lb ai/A	7DPP	A		
2,4-D ester	3.8 L	0.475 lb ae/A	7DPP	A		
Abundit.....glyphosate	3 SC	0.75 lb ae/A	7DPP	A		
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A		
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	7DPP	A		
6 Vida.....pyraflufen	0.208 EC	.00162 lb ai/A	7DPP	A	88.7 a	66.7 b
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	7DPP	A		
Crop Oil Concentrate	100 L	1 % v/v	7DPP	A		
Liquid Ammonium Sulfate 34%	100 L	5 % v/v	7DPP	A		
Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	28DAP	B		
Liquid Ammonium Sulfate 34%	100 L	5 % v/v	28DAP	B		
7 Valor XLT Premix	40.3 WG	0.091 lb ai/A	7DPP	A	46.7 c	65.0 b
Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	7DPP	A		
Liquid Ammonium Sulfate 34%	100 L	5 % v/v	7DPP	A		
Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	28DAP	B		
Liquid Ammonium Sulfate 34%	100 L	5 % v/v	28DAP	B		

Weed Code			ERIC A	ERIC A	IPOSS	DIGSA	ERIC A	IPOSS
Crop Code			Horse-weed Control %	Horse-weed Control %	Mornlgy Species Control %	Large Crabgras Control %	Horse-weed Control %	Mornlgy Species Control %
			05/16/12	05/28/12	05/28/12	05/28/12	06/14/12	06/14/12
Trt Treatment No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code	
8 Permit Plus Premix	75 WG	0.047	lb ai/A	7DPP	A			
Cinch.....s-metolachlor	7.64 E	1.43	lb ai/A	7DPP	A			
2,4-D ester	3.8 L	0.475	lb ae/A	7DPP	A			
Abundit.....glyphosate	3 SC	0.75	lb ae/A	7DPP	A			
Nonionic Surfactant	100 L	0.25	% v/v	7DPP	A			
Liquid Ammonium Sulfate 34%	100 L	3	% v/v	7DPP	A			
LSD (P=.05)		8.22		7.70	5.98	15.12	13.22	19.18
Standard Deviation		4.69		4.40	3.36	8.50	7.55	10.78
CV		8.39		7.02	4.04	10.64	14.67	17.51
Replicate F		0.689		3.055	3.422	0.002	1.334	0.436
Replicate Prob(F)		0.5185		0.0793	0.0667	0.9980	0.2949	0.6563
Treatment F		107.009		105.348	359.025	52.651	26.379	26.697
Treatment Prob(F)		0.0001		0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Burndown in No-Till Soybeans

Trial ID: Soy4-12 Cooperator: DuPont, Gowan
 Location: Field #10 Investigator: Mark VanGessel

Weed Code		DIGSA	GLXMA	ERICA
Crop Code		Large Crabgras Control %	Soybean	Horse- weed Control %
Weed or Crop Name		06/14/12	06/18/12	07/17/12
Weed or Crop Name				
Rating Data Type				
Rating Unit				
Rating Date				
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg Appl Code
1 Untreated Check				0.0b
2 Envive Premix	41.3 WG	0.09 lb ai/A	7DPP	A
Prowl H2O.....pendimethalin	3.8 CS	0.95 lb ai/A	7DPP	A
2,4-D ester	3.8 L	0.475 lb ae/A	7DPP	A
Abundit.....glyphosate	3 SC	0.75 lb ae/A	7DPP	A
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	7DPP	A
3 Envive Premix	41.3 WG	0.09 lb ai/A	7DPP	A
Prowl H2O.....pendimethalin	3.8 CS	0.95 lb ai/A	7DPP	A
2,4-D ester	3.8 L	0.475 lb ae/A	7DPP	A
Abundit.....glyphosate	3 SC	0.75 lb ae/A	7DPP	A
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	7DPP	A
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	7DPP	A
4 Envive Premix	41.3 WG	0.0645 lb ai/A	7DPP	A
2,4-D ester	3.8 L	0.475 lb ae/A	7DPP	A
Abundit.....glyphosate	3 SC	0.75 lb ae/A	7DPP	A
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	7DPP	A
Synchrony STS Premix	42 DF	0.0197 lb ai/A	28DAP	B
Abundit.....glyphosate	3 SC	0.75 lb ae/A	28DAP	B
Nonionic Surfactant	100 L	0.25 % v/v	28DAP	B
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	28DAP	B
5 Canopy Premix	75 DF	0.187 lb ai/A	7DPP	A
Cinch.....s-metolachlor	7.64 E	1.43 lb ai/A	7DPP	A
2,4-D ester	3.8 L	0.475 lb ae/A	7DPP	A
Abundit.....glyphosate	3 SC	0.75 lb ae/A	7DPP	A
Nonionic Surfactant	100 L	0.25 % v/v	7DPP	A
Liquid Ammonium Sulfate 34%	100 L	3 % v/v	7DPP	A
6 Vida.....pyraflufen	0.208 EC	.00162 lb ai/A	7DPP	A
Liberty 280.....glufosinate	2.34 SL	0.53 lb ai/A	7DPP	A
Crop Oil Concentrate	100 L	1 % v/v	7DPP	A
Liquid Ammonium Sulfate 34%	100 L	5 % v/v	7DPP	A
Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	28DAP	B
Liquid Ammonium Sulfate 34%	100 L	5 % v/v	28DAP	B
7 Valor XLT Premix	40.3 WG	0.091 lb ai/A	7DPP	A
Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	7DPP	A
Liquid Ammonium Sulfate 34%	100 L	5 % v/v	7DPP	A
Roundup PowerMax..glyphosate	4.5 AS	0.77 lb ae/A	28DAP	B
Liquid Ammonium Sulfate 34%	100 L	5 % v/v	28DAP	B

Weed Code		DIGSA	GLXMA	ERICA							
Crop Code		Large Crabgras Control	Soybean	Horse- weed Control							
Weed or Crop Name		%	Injury %	%							
Rating Data Type		06/14/12	06/18/12	07/17/12							
Rating Unit											
Rating Date											
Trt	Treatment	Form Conc	Form Type	Rate	Grow Unit	Appl Stg	Code				
8 Permit Plus Premix		75 WG		0.047 lb	ai/A	7DPP	A	75.0 a		75.0 a	
Cinch.....s-metolachlor		7.64 E		1.43 lb	ai/A	7DPP	A				
2,4-D ester		3.8 L		0.475 lb	ae/A	7DPP	A				
Abundit.....glyphosate		3 SC		0.75 lb	ae/A	7DPP	A				
Nonionic Surfactant		100 L		0.25 %	v/v	7DPP	A				
Liquid Ammonium Sulfate 34%		100 L		3 %	v/v	7DPP	A				
LSD (P=.05)				17.76		1.73		10.00			
Standard Deviation				10.14		0.87		5.71			
CV				19.12		24.74		11.42			
Replicate F				0.616		1.000		0.671			
Replicate Prob(F)				0.5543		0.4219		0.5268			
Treatment F				31.848		196.000		46.685			
Treatment Prob(F)				0.0001		0.0001		0.0001			

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Residual Herbicides for Soybeans

Trial ID: Soy5-12 Cooperator: FMC, Syngenta, Dow
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Crabgrass Species	DIGSS	Digitaria sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
3.	Common Lambsquarters	CHEAL	Chenopodium album L.
4.	Morningglory Species	IPOSS	Ipomoea sp.
5.	Common Ragweed	AMBEL	Ambrosia artemisifolia L.

Crop 1: Soybean	GLXMA	Variety: H4601
Planting Date:	05/08/12	Planting Method: Row- Unit Planter
Rate:	180000 Sd/A	Row Spacing: 15 in Seed Bed: Smooth
Soil Temperature:	75 F	Soil Moisture: Moist Emergence Date: 05/16/12

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 and Field Cultivated

SOIL DESCRIPTION

% Sand: 81 % OM: 1.3 Texture: loamy sand
 % Silt: 12 pH: 6.0
 % Clay: 7 CEC: 5.3 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:	05/08/12	05/31/12	06/15/12
Time of Day:	3:30 pm	10:30 am	7:30 am
Application Method:	Spray	Spray	Spray
Application Timing:	PRE	21DAP	35DAP
Appli. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	76 F	76 F	66 F
% Relative Humidity:	46	71	70
Wind Velocity, Unit:	7 mph	2 mph	2 mph
Wind Direction:	South	Northeast	Northeast
Dew Presence (Y/N):	N	Y	Y
Soil Temp., Unit:	75 F	74 F	63 F
Soil Surf. Moisture:	Dry	Moist	Dry
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	N/A	Moist	Moist
% Cloud Cover:	65	30	0

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:		1-2 Trifol	4 Trifol
Height, Unit:		4 in	8 in
Crop Health:		Good	Good

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	DIGSS	DIGSS	DIGSS
Growth Stage:		3 lf-1 til	
Height, Unit:		2 in	
Density, Unit:		70 m ²	
Weed 2 Code:	AMAPA	AMAPA	AMAPA
Growth Stage:		vegetative	
Height, Unit:		2 in	
Density, Unit:		5-50 m ²	
Weed 3 Code:	CHEAL	CHEAL	CHEAL
Growth Stage:		vegetative	
Height, Unit:		2.5 in	
Density, Unit:		2-5 m ²	
Weed 4 Code:	IPOSS	IPOSS	IPOSS
Growth Stage:		cot-4 leaf	veg-run
Height, Unit:		3 in	12 in
Density, Unit:		1-6 m ²	0-6 m ²
Weed 5 Code:	AMBEL	AMBEL	AMBEL
Growth Stage:		vegetative	vegetative
Height, Unit:		2 in	7 in
Density, Unit:		0-4 m ²	0-4 m ²

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:	18 in	20 in	24 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
06-01-12: Pigweed and lambsquarters control was over 95% for all treatments.
06-14-12: Treatments 7,9,11,12 were weak on jimsonweed.
06-19-12: Leaf Injury is a combination of puckering and leaf burn.
07-03-12: Common ragweed control was poor in treatments 4, 5, and 7; jimsonweed control was poor in treatments 2 and 4.
08-28-12: Only treatment 12 provided consistent control for all species. Authority MTZ seemed to provide better control of morningglory compared to other sulfentrazone treatments, Sonic and Prefix. Grass control was poor with treatments 6, 7, 8.

Residual Herbicides for Soybeans									
Trial ID: Soy5-12		Cooperator: FMC, Syngenta, Dow							
Location: Field #14		Investigator: Mark VanGessel							
Weed Code				GLXMA	IPOSS	DIGSA	GLXMA	AMASS	AMBEL
Crop Code				Soybean	Morngrly	Large	Soybean	Pigweed	Common
Weed or Crop Name				Stunting	Species	Crabgras	BiomsRdx	Species	Ragweed
Weed or Crop Name				%	Control	%	%	Control	Control
Rating Data Type				06/01/12	06/01/12	06/01/12	06/14/12	06/14/12	06/14/12
Rating Unit									
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
1	Untreated Check								
2	Authority First Premix Select Max.....clethodim Crop Oil Concentrate	70 DF 1 EC 100 L	0.28lb ai/A 0.125lb ai/A 1% v/v	ai/A 35DAP C 35DAP C	A	7.3 abc	100.0 a	93.3 b	14.7 ab
3	Authority XL Premix Select Max.....clethodim Crop Oil Concentrate	70 DG 1 EC 100 L	0.284lb ai/A 0.125lb ai/A 1% v/v	ai/A 35DAP C 35DAP C	A	10.3 a	97.3 a	95.0 ab	20.0 a
4	Authority MTZ Premix Select Max.....clethodim Crop Oil Concentrate	45 DF 1 EC 100 L	0.45lb ai/A 0.125lb ai/A 1% v/v	ai/A 35DAP C 35DAP C	A	2.3 cd	92.3 a	95.7 ab	8.3 b-e
5	Authority MTZ Premix Command.....clomazone Select Max.....clethodim Crop Oil Concentrate	45 DF 3 ME 1 EC 100 L	0.45lb ai/A 0.49lb ai/A 0.125lb ai/A 1% v/v	ai/A PRE 35DAP C 35DAP C	A	0.0 d	92.3 a	95.7 ab	5.0 def
6	Authority MTZ Premix Cadet.....fluthiacet Flexstar.....fomesafen Nonionic Surfactant	45 DF 0.91 EC 1.88 ME 100 L	0.45lb ai/A .00355lb ai/A 0.117lb ai/A 0.25% v/v	ai/A 35DAP C 35DAP C 35DAP C	A	2.3 cd	92.3 a	95.7 ab	0.0 f
7	Authority MTZ Premix Cadet.....fluthiacet Classic.....chlorimuron Nonionic Surfactant	45 DF 0.91 EC 25 WG 100 L	0.45lb ai/A .00355lb ai/A 0.0117lb ai/A 0.25% v/v	ai/A 35DAP C 35DAP C 35DAP C	A	8.0 ab	92.3 a	95.7 ab	13.7 abc
8	Authority MTZ Premix Cadet.....fluthiacet Firstrate.....cloransulam Nonionic Surfactant	45 DF 0.91 EC 84 WG 100 L	0.45lb ai/A .00355lb ai/A 0.0157lb ai/A 0.25% v/v	ai/A 35DAP C 35DAP C 35DAP C	A	4.0 bcd	92.3 a	95.7 ab	0.0 f
9	Prefix Premix Touchdown Total..k glyphosate	5.3 E 4.17 SL	1.33lb ai/A 0.75lb ai/A	ai/A 35DAP C	A	3.3 bcd	63.3 b	100.0 a	0.0 f
10	Flexstar GT Premix	3.3 L	1.44lb ai/A	21DAP B	B	0.0 d	0.0 c	0.0 d	6.7 c-f
11	Boundary Premix Flexstar GT Premix	6.5 EC 3.3 L	1.22lb ai/A 1.44lb ai/A	PRE 35DAP C	A	3.3 bcd	66.7 b	100.0 a	2.3 ef
12	Boundary Premix Sequence Premix	6.5 EC 5.25 EW	1.22lb ai/A 1.97lb ai/A	PRE 35DAP C	A	0.0 d	63.3 b	97.3 ab	0.0 f
13	Sonic Premix Durango DMA....glyphosate	70 DF 4 SL	0.175lb ai/A 0.75lb ai/A	PRE 35DAP C	A	0.0 d	97.3 a	78.3 c	2.3 ef
14	Durango DMA....glyphosate Firstrate.....cloransulam	4 SL 84 WG	0.75lb ai/A 0.0262lb ai/A	21DAP B 21DAP B	B	0.0 d	0.0 c	0.0 d	100.0 a
LSD (P=.05)						5.12	8.04	5.83	7.21
Standard Deviation						3.05	4.79	3.47	4.30
CV						104.14	7.06	4.67	71.88
Replicate F						0.975	5.501	0.979	0.025
Replicate Prob(F)						0.3905	0.0102	0.3892	0.9758
Treatment F						3.810	197.430	411.247	7.071
Treatment Prob(F)						0.0018	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	CHEAL	IPOSS	DIGSA	GLXMA	AMASS	CHEAL
Crop Code	Common Lambqtrs Control %	Mornlgy Species Control %	Large Crabgras Control %	Soybean Lfinjury %	Pigweed Species Control %	Common Lambqtrs Control %
Weed or Crop Name	06/14/12	06/14/12	06/14/12	06/19/12	07/03/12	07/03/12
Rating Data Type						
Rating Unit						
Rating Date						
Trt Treatment No.	Form No.	Form Conc	Rate Type	Grow Unit	Appl Stg	Code
1 Untreated Check				0.0 c	0.0 e	0.0 f
2 Authority First Premix Select Max.....clethodim Crop Oil Concentrate	70 DF 1 EC 100 L	0.28lb ai/A 0.125lb ai/A 1% v/v	PRE 35DAP C	A	100.0 a	97.7 a
3 Authority XL Premix Select Max.....clethodim Crop Oil Concentrate	70 DG 1 EC 100 L	0.284lb ai/A 0.125lb ai/A 1% v/v	PRE 35DAP C	A	100.0 a	100.0 a
4 Authority MTZ Premix Select Max.....clethodim Crop Oil Concentrate	45 DF 1 EC 100 L	0.45lb ai/A 0.125lb ai/A 1% v/v	PRE 35DAP C	A	100.0 a	91.3 abc
5 Authority MTZ Premix Command.....clomazone Select Max.....clethodim Crop Oil Concentrate	45 DF 3 ME 1 EC 100 L	0.45lb ai/A 0.49lb ai/A 0.125lb ai/A 1% v/v	PRE 35DAP C	A	100.0 a	88.7 abc
6 Authority MTZ Premix Cadet.....fluthiacet Flexstar.....fomesafen Nonionic Surfactant	45 DF 0.91 EC 1.88 ME 100 L	0.45lb ai/A .00355lb ai/A 0.117lb ai/A 0.25% v/v	PRE 35DAP C	A	100.0 a	79.3 c
7 Authority MTZ Premix Cadet.....fluthiacet Classic.....chlorimuron Nonionic Surfactant	45 DF 0.91 EC 25 WG 100 L	0.45lb ai/A .00355lb ai/A 0.0117lb ai/A 0.25% v/v	PRE 35DAP C	A	100.0 a	81.0 bc
8 Authority MTZ Premix Cadet.....fluthiacet Firstrate.....cloransulam Nonionic Surfactant	45 DF 0.91 EC 84 WG 100 L	0.45lb ai/A .00355lb ai/A 0.0157lb ai/A 0.25% v/v	PRE 35DAP C	A	100.0 a	80.0 c
9 Prefix Premix Touchdown Total..k glyphosate	5.3 E 4.17 SL	1.33lb ai/A 0.75lb ai/A	PRE 35DAP C	A	100.0 a	60.0 d
10 Flexstar GT Premix	3.3 L	1.44lb ai/A	21DAP B		100.0 a	96.3 ab
11 Boundary Premix Flexstar GT Premix	6.5 EC 3.3 L	1.22lb ai/A 1.44lb ai/A	PRE 35DAP C	A	70.0 b	60.0 d
12 Boundary Premix Sequence Premix	6.5 EC 5.25 EW	1.22lb ai/A 1.97lb ai/A	PRE 35DAP C	A	96.7 a	46.7 d
13 Sonic Premix Durango DMA.....glyphosate	70 DF 4 SL	0.175lb ai/A 0.75lb ai/A	PRE 35DAP C	A	100.0 a	89.7 abc
14 Durango DMA.....glyphosate Firstrate.....cloransulam	4 SL 84 WG	0.75lb ai/A 0.0262lb ai/A	21DAP B		100.0 a	97.0 a
LSD (P=.05)		13.88		15.52	11.95	3.23
Standard Deviation				9.27	7.12	4.46
CV				9.14	8.56	2.64
Replicate F		0.662		0.946	2.223	0.00
Replicate Prob(F)		0.5242		0.4012	0.1285	0.00
Treatment F		32.568		26.133	38.333	0.3470
Treatment Prob(F)		0.0001		0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	IPOSS	GGGAN	GLXMA					
Weed or Crop Name		Mornlry Species Control %	Annual Grasses Control %	Soybean Yield Bu/A					
Rating Data Type		07/03/12	07/03/12	11/05/12					
Rating Unit									
Rating Date									
Trt	Treatment No.	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code			
1	Untreated Check						1.3 d	0.6 d	62.2 a
2	Authority First Premix Select Max.....clethodim Crop Oil Concentrate	70 DF 1 EC 100 L	0.28lb ai/A 0.125lb ai/A 1% v/v	ai/A 35DAP C 35DAP C	PRE A	95.0 ab	100.0 a	54.0 a	
3	Authority XL Premix Select Max.....clethodim Crop Oil Concentrate	70 DG 1 EC 100 L	0.284lb ai/A 0.125lb ai/A 1% v/v	ai/A 35DAP C 35DAP C	PRE A	100.0 a	100.0 a	66.9 a	
4	Authority MTZ Premix Select Max.....clethodim Crop Oil Concentrate	45 DF 1 EC 100 L	0.45lb ai/A 0.125lb ai/A 1% v/v	ai/A 35DAP C 35DAP C	PRE A	86.0 abc	98.3 a	56.9 a	
5	Authority MTZ Premix Command.....clomazone Select Max.....clethodim Crop Oil Concentrate	45 DF 3 ME 1 EC 100 L	0.45lb ai/A 0.49lb ai/A 0.125lb ai/A 1% v/v	ai/A 35DAP C 35DAP C 35DAP C	PRE A	91.7 abc	100.0 a	63.1 a	
6	Authority MTZ Premix Cadet.....fluthiacet Flexstar.....fomesafen Nonionic Surfactant	45 DF 0.91 EC 1.88 ME 100 L	0.45lb ai/A .00355lb ai/A 0.117lb ai/A 0.25% v/v	ai/A 35DAP C 35DAP C 35DAP C	PRE A	81.7 bc	74.3 b	63.4 a	
7	Authority MTZ Premix Cadet.....fluthiacet Classic.....chlormuron Nonionic Surfactant	45 DF 0.91 EC 25 WG 100 L	0.45lb ai/A .00355lb ai/A 0.0117lb ai/A 0.25% v/v	ai/A 35DAP C 35DAP C 35DAP C	PRE A	87.7 abc	68.3 b	53.2 a	
8	Authority MTZ Premix Cadet.....fluthiacet Firstrate.....cloransulam Nonionic Surfactant	45 DF 0.91 EC 84 WG 100 L	0.45lb ai/A .00355lb ai/A 0.0157lb ai/A 0.25% v/v	ai/A 35DAP C 35DAP C 35DAP C	PRE A	78.8 bc	43.3 c	64.9 a	
9	Prefix Premix Touchdown Total..k glyphosate	5.3 E 4.17 SL	1.33lb ai/A 0.75lb ai/A	ai/A 35DAP C	PRE A	78.3 c	100.0 a	59.2 a	
10	Flexstar GT Premix	3.3 L	1.44lb ai/A	21DAP B		80.0 bc	100.0 a	65.5 a	
11	Boundary Premix Flexstar GT Premix	6.5 EC 3.3 L	1.22lb ai/A 1.44lb ai/A	PRE A 35DAP C		92.3 abc	100.0 a	57.9 a	
12	Boundary Premix Sequence Premix	6.5 EC 5.25 EW	1.22lb ai/A 1.97lb ai/A	PRE A 35DAP C		79.3 bc	100.0 a	72.1 a	
13	Sonic Premix Durango DMA.....glyphosate	70 DF 4 SL	0.175lb ai/A 0.75lb ai/A	PRE A 35DAP C		98.7 a	100.0 a	48.6 a	
14	Durango DMA.....glyphosate Firstrate.....cloransulam	4 SL 84 WG	0.75lb ai/A 0.0262lb ai/A	21DAP B 21DAP B		92.3 abc	97.3 a	49.8 a	
LSD (P=.05)						16.39	20.62	17.08	
Standard Deviation						9.72	12.26	10.08	
CV						11.91	14.52	16.85	
Replicate F						0.887	0.496	10.173	
Replicate Prob(F)						0.4250	0.6147	0.0007	
Treatment F						18.731	17.456	1.371	
Treatment Prob(F)						0.0001	0.0001	0.2485	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(Soy7-12)

University of Delaware

Influence of Cultivation on Herbicide Layer

Trial ID: Soy7-12 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

Crop 1: Soybean	GLXMA	Variety: H4601
Planting Date: 05/08/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 180000 Sd/A	Row Spacing: 30 in	Seed Bed: Smooth
Soil Temperature: 75 F	Soil Moisture: Moist	Emergence Date: 05/16/12

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
 Site Type: Field Study Design: SPLIT-PLOT
 Tillage Type: Disked twice and Field Cultivated

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/05/12	Roundup WeatherMax	4.5	AS	32	fl oz/A
2.	07/05/12	Raptor	1	AS	5	fl oz/A
3.	07/05/12	Dry Ammonium Sulfate			1.2	% w/v

SOIL DESCRIPTION

% Sand: 81 % OM: 1.3 Texture: loamy sand
 % Silt: 12 pH: 6.0
 % Clay: 7 CEC: 5.3 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:	05/08/12	06/01/12
Time of Day:	3:15 pm	2:00 pm
Application Method:	Spray	Cultivte
Application Timing:	PRE	21DAP
Applic. Placement:	Brdcst	Soil
Air Temp., Unit:	76 F	80 F
% Relative Humidity:	46	69
Wind Velocity, Unit:	7 mph	8 mph
Wind Direction:	South	Southeast
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	75 F	78 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	N/A	Dry
% Cloud Cover:	65	50

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		1-2 trifol
Height, Unit:		4 in
Crop Health:		Good

Influence of Cultivation on Herbicide Layer							
Trial ID:	Soy7-12	Cooperator:					
Location:	Field #14	Investigator:	Mark VanGessel				
Weed Code		AMASS	AMBEL	IPOSS	GGGAN		
Crop Code		Pigweed Species Control %	Common Ragweed Control %	Mornlry Species Control %	Annual Grasses Control %	GLXMA Soybean Yield Bu/A	
Weed or Crop Name		06/26/12	06/26/12	06/26/12	06/26/12		
Weed or Crop Name							
Rating Data Type							
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code	
1	Standard cultivator			21DAP	B		
	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A		
	Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	PRE	A		
2	Standard cultivator			21DAP	B	85.0 a	73.3 abc
	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A		
	Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	PRE	A		
3	High Residue cultivator			21DAP	B	82.3 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A		
	Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	PRE	A		
4	High Residue cultivator			21DAP	B	82.3 a	80.0 ab
	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A		
	Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	PRE	A		
5	Bezzeride/In-row			21DAP	B	90.0 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A		
	Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	PRE	A		
6	Bezzeride/In-row			21DAP	B	97.3 a	86.7 ab
	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A		
	Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	PRE	A		
7	No Cultivation					100.0 a	71.7 bc
	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A		
	Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	PRE	A		
8	No Cultivation					90.0 a	46.7 c
	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A		
	Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	PRE	A		
LSD (P=.05)				17.28	27.40	13.60	5.71
Standard Deviation				9.86	15.65	7.76	3.26
CV				11.0	19.41	13.12	25.24
Replicate F				0.651	0.013	2.558	2.077
Replicate Prob(F)				0.5368	0.9873	0.1130	0.1622
Treatment F				1.304	3.695	8.272	1.000
Treatment Prob(F)				0.3175	0.0179	0.0005	0.4706
							0.8248

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Influence of Cultivation on Herbicide Layer

Trial ID: Soy7-12 Cooperator:
 Location: Field #14 Investigator: Mark VanGessel

Weed Code	AMASS	AMBEL	IPOSS	GGGAN	GLXMA
Crop Code	Pigweed Species Control %	Common Ragweed Control %	Morngrly Species Control %	Annual Grasses Control %	Soybean Yield Bu/A
Weed or Crop Name	06/26/12	06/26/12	06/26/12	06/26/12	10/26/12
Weed or Crop Name					
Rating Data Type					
Rating Unit					
Rating Date					
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg
					Code
TABLE OF R MEANS					
Replicate 1		86.5	80.0	63.8	100.0
Replicate 2		91.8	80.6	55.0	100.0
Replicate 3		90.9	81.3	58.8	97.1
TABLE OF A (Cultivation) MEANS					
1 Standard cultivator		87.8	80.0	46.7	100.0
2 High Residue cultivator		82.3	90.0	64.2	100.0
3 Bezzeride/In-row		93.7	93.3	75.0	100.0
4 No Cultivation		95.0	59.2	50.8	96.2
TABLE OF B (Herbicide) MEANS					
1 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	
1 Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	PRE	A	90.8
2 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	
2 Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	PRE	A	88.7
TABLE OF A (Herbicide) B (Cultivation) MEANS					
1 Standard cultivator		21DAP	B		
1 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	90.7
1 Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	PRE	A	
2 High Residue cultivator		21DAP	B		
1 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	82.3
1 Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	PRE	A	
3 Bezzeride/In-row		21DAP	B		
1 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	90.0
1 Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	PRE	A	
4 No Cultivation					
1 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	100.0
1 Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	PRE	A	
1 Standard cultivator		21DAP	B		
2 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	85.0
2 Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	PRE	A	
2 High Residue cultivator		21DAP	B		
2 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	82.3
2 Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	PRE	A	
3 Bezzeride/In-row		21DAP	B		
2 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	97.3
2 Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	PRE	A	
4 No Cultivation					
2 Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	90.0
2 Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	PRE	A	

Influence of Cultivation on Herbicide Layer

Trial ID: Soy7-12 Cooperator:
 Location: Field #14 Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For AMASS Pigweed Species Control % 06/26/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	2376.958333				
R	2	126.583333	63.291667	0.651	0.5368	10.6
A	3	609.458333	203.152778	2.088	0.1478	12.2
B	1	26.041667	26.041667	0.268	0.6130	8.6
AB	3	252.791667	84.263889	0.866	0.4817	17.3
ERROR	14	1362.083333	97.291667			

FACTORIAL/POOLED ERROR AOV For AMBEL Common Ragweed Control % 06/26/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	9765.625000				
R	2	6.250000	3.125000	0.013	0.9873	16.8
A	3	4261.458333	1420.486111	5.803	0.0086	19.4
B	1	1926.041667	1926.041667	7.868	0.0140	13.7
AB	3	144.791667	48.263889	0.197	0.8966	27.4
ERROR	14	3427.083333	244.791667			

FACTORIAL/POOLED ERROR AOV For IPOSS Morngly Species Control % 06/26/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	4641.333333				
R	2	308.333333	154.166667	2.558	0.1130	8.3
A	3	3008.333333	1002.777778	16.640	0.0001	9.6
B	1	294.000000	294.000000	4.879	0.0444	6.8
AB	3	187.000000	62.333333	1.034	0.4076	13.6
ERROR	14	843.666667	60.261905			

FACTORIAL/POOLED ERROR AOV For GGGAN Annual Grasses Control % 06/26/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	266.958333				
R	2	44.083333	22.041667	2.077	0.1622	3.5
A	3	66.125000	22.041667	2.077	0.1494	4.0
B	1	2.041667	2.041667	0.192	0.6676	2.9
AB	3	6.125000	2.041667	0.192	0.8998	5.7
ERROR	14	148.583333	10.613095			

FACTORIAL/POOLED ERROR AOV For GLXMA Soybean Yield Bu/A 10/26/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	23	2820.649573				
R	2	314.999148	157.499574	1.113	0.3560	12.8
A	3	461.316808	153.772269	1.086	0.3870	14.7
B	1	22.743811	22.743811	0.161	0.6946	10.4
AB	3	40.100134	13.366711	0.094	0.9619	20.8
ERROR	14	1981.489672	141.534977			

Soybean Weed Control in Conventional Tillage

Without ALS Herbicides

Trial ID: Soy8-12 Cooperator: BASF

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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Crabgrass Species	DIGSS	Digitaria sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
3.	Common Lambsquarters	CHEAL	Chenopodium album L.
4.	Morningglory Species	IPOSS	Ipomoea sp.

Crop 1: Soybean GLXMA Variety: H4601
 Planting Date: 05/08/12 Planting Method: Row- Unit Planter Depth: 1 in
 Rate: 180000 Sd/A Row Spacing: 15 in Seed Bed: Smooth
 Soil Temperature: 75 F Soil Moisture: Moist Emergence Date: 05/16/12

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 and Field Cultivated

SOIL DESCRIPTION

% Sand: 81 % OM: 1.3 Texture: loamy sand
 % Silt: 12 pH: 6.0
 % Clay: 7 CEC: 5.3 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:	05/08/12	06/15/12
Time of Day:	3:30 pm	7:45 am
Application Method:	Spray	Spray
Application Timing:	PRE	5 WAP
Appli. Placement:	Brdcst	Brdcst
Air Temp., Unit:	76 F	66 F
% Relative Humidity:	46	70
Wind Velocity, Unit:	7 mph	2 mph
Wind Direction:	South	Northeast
Dew Presence (Y/N):	N	Y
Soil Temp., Unit:	75 F	63 F
Soil Surf. Moisture:	Dry	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	N/A	Moist
% Cloud Cover:	65	0

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		4-5 trifol
Height, Unit:		8 in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	DIGSS	DIGSS
Growth Stage:		vegetative
Height, Unit:		8 in
Density,Unit:		0-15 m ²
Weed 2 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:		9 in
Density,Unit:		0-10 m ²
Weed 3 Code:	CHEAL	CHEAL
Growth Stage:		vegetative
Height, Unit:		15 in
Density,Unit:		0-8 m ²
Weed 4 Code:	IPOSS	IPOSS
Growth Stage:		vegetative
Height, Unit:		6 in
Density,Unit:		0-6 m ²

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	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
06-01-12: Percent stand loss based on a visual estimate. Pigweed and crabgrass control was excellent with all treatments (>95%).
10-04-12: All treatments looked similar. Few weeds present - none should interfere with harvest.

Soybean Weed Control in Conventional Tillage

Without ALS Herbicides

Trial ID: Soy8-12 Cooperator: BASF

Location: Field #18 Investigator: Mark VanGessel

Weed Code	Crop Code	GLXMA	IPOSS	GLXMA	GLXMA	AMASS	AMBEL
Weed or Crop Name		Soybean	Mornlry	Soybean	Soybean	Pigweed	Common
Rating Data Type		Stand	Species	Stand	Reductn	Species	Ragweed
Rating Unit		%		%		%	
Rating Date		06/01/12	06/01/12	06/15/12	06/15/12	06/15/12	06/15/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1	Untreated Check						
2	Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	4.5 AS 100 L	0.77 lb ae/A 5 % v/v	5 WAP B		0.0 b	0.0 d
3	Zidua.....pyroxasulfone Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 100 L	0.106 lb ai/A 5 % v/v	PRE A	5 WAP B	7.3 a	60.0 c
4	Valor SX.....flumioxazin Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	51 WG 100 L	0.064 lb ai/A 5 % v/v	PRE A	5 WAP B	5.7 a	76.7 b
5	Zidua.....pyroxasulfone Valor SX.....flumioxazin Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 51 WG 100 L	0.08 lb ai/A 0.064 lb ai/A 5 % v/v	PRE A	5 WAP B	9.0 a	80.0 b
6	Prefix Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	5.3 E 100 L	1.33 lb ai/A 5 % v/v	PRE A	5 WAP B	0.0 b	56.7 c
7	Anthem Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	2.15 SE 100 L	0.118 lb ai/A 5 % v/v	PRE A	5 WAP B	5.7 a	60.0 c
8	Authority MTZ Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	45 DF 100 L	0.394 lb ai/A 5 % v/v	PRE A	5 WAP B	0.0 b	94.7 a
9	Zidua.....pyroxasulfone Authority MTZ Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 45 DF 100 L	0.106 lb ai/A 0.394 lb ai/A 5 % v/v	PRE A	5 WAP B	7.3 a	94.7 a
10	Zidua.....pyroxasulfone Metribuzin.....metribuzin Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 75 DF 100 L	0.08 lb ai/A 0.187 lb ai/A 5 % v/v	PRE A	5 WAP B	6.3 a	60.0 c
LSD (P=.05)						4.28	9.10
Standard Deviation						2.50	5.28
CV						60.37	9.07
Replicate F						2.190	0.435
Replicate Prob(F)						0.1409	0.6543
Treatment F						6.534	122.583
Treatment Prob(F)						0.0004	0.0001
						8.994	3.974
						70.66	1587.667
						0.0376	0.0621
						1.000	220.015
						0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	CHEAL	IPOSS	DIGSA	AMASS	IPOSS	CHEAL
Crop Code	Common Lambqtrs Control %	Mornlry Species Control %	Large Crabgras Control %	Pigweed Species Control %	Mornlry Species Control %	Common Lambqtrs Control %
Weed or Crop Name	06/15/12	06/15/12	06/15/12	07/03/12	07/03/12	07/03/12
Weed or Crop Name						
Rating Data Type						
Rating Unit						
Rating Date						
Trt Treatment No.	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1 Untreated Check			0.0c	0.0d	0.0c	0.5b 4.7f 1.3c
2 Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	4.5 AS 100 L	0.77 lb ae/A 5% v/v	WAP B		0.0c	0.0d 97.3 a 72.7 e 83.3 b
3 Zidua.....pyroxasulfone Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 4.5 AS 100 L	0.106 lb ai/A 0.77 lb ae/A 5% v/v	WAP B	100.0 a	71.7 bc	100.0 a 86.7 bcd 100.0 a
4 Valor SX.....flumioxazin Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	51 WG 4.5 AS 100 L	0.064 lb ai/A 0.77 lb ae/A 5% v/v	WAP B	100.0 a	70.0 c	86.0 b 100.0 a 82.7 de 100.0 a
5 Zidua.....pyroxasulfone Valor SX.....flumioxazin Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 51 WG 4.5 AS 100 L	0.08 lb ai/A 0.064 lb ai/A 0.77 lb ae/A 5% v/v	WAP B	100.0 a	82.0 ab	99.7 a 100.0 a 86.7 bcd 100.0 a
6 Prefix Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	5.3 E 4.5 AS 100 L	1.33 lb ai/A 0.77 lb ae/A 5% v/v	WAP B	100.0 a	63.3 c	99.0 a 100.0 a 85.7 cd 100.0 a
7 Anthem Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	2.15 SE 4.5 AS 100 L	0.118 lb ai/A 0.77 lb ae/A 5% v/v	WAP B	95.0 b	71.7 bc	99.0 a 100.0 a 96.0 ab 100.0 a
8 Authority MTZ Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	45 DF 4.5 AS 100 L	0.394 lb ai/A 0.77 lb ae/A 5% v/v	WAP B	100.0 a	91.7 a	87.7 b 100.0 a 99.0 a 100.0 a
9 Zidua.....pyroxasulfone Authority MTZ Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 45 DF 4.5 AS 100 L	0.106 lb ai/A 0.394 lb ai/A 0.77 lb ae/A 5% v/v	WAP B	100.0 a	90.7 a	100.0 a 100.0 a 95.3 abc 100.0 a
10 Zidua.....pyroxasulfone Metribuzin.....metribuzin Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 75 DF 4.5 AS 100 L	0.08 lb ai/A 0.187 lb ai/A 0.77 lb ae/A 5% v/v	WAP B	100.0 a	72.7 bc	98.3 a 100.0 a 90.3 a-d 100.0 a
LSD (P=.05)		4.70	10.74	4.37	2.70	10.24 8.83
Standard Deviation		2.74	6.26	2.55	1.56	5.91 5.10
CV		3.44	10.2	3.31	1.74	7.4 5.76
Replicate F		1.000	0.624	0.869	1.079	3.867 1.157
Replicate Prob(F)		0.3874	0.5471	0.4364	0.3634	0.0427 0.3393
Treatment F		703.222	86.386	773.438	1209.779	64.867 111.503
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0001 0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code						GGGAN
Crop Code						Annual Grasses Control
Weed or Crop Name						%
Weed or Crop Name						07/03/12
Rating Data Type						
Rating Unit						
Rating Date						
Trt	Treatment	Form Conc	Form Type	Rate	Grow Stg	Appl Code
No.	Name			Rate	Unit	
1	Untreated Check					0.8 b
2	Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	4.5 AS 100 L	0.77 lb ae/A 5 % v/v	5 WAP B		100.0 a
3	Zidua.....pyroxasulfone Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 4.5 AS 100 L	0.106 lb ai/A 0.77 lb ae/A 5 % v/v	PRE 5 WAP B		100.0 a
4	Valor SX.....flumioxazin Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	51 WG 4.5 AS 100 L	0.064 lb ai/A 0.77 lb ae/A 5 % v/v	PRE 5 WAP B		100.0 a
5	Zidua.....pyroxasulfone Valor SX.....flumioxazin Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 51 WG 4.5 AS 100 L	0.08 lb ai/A 0.064 lb ai/A 0.77 lb ae/A 5 % v/v	PRE PRE 5 WAP B		100.0 a
6	Prefix Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	5.3 E 4.5 AS 100 L	1.33 lb ai/A 0.77 lb ae/A 5 % v/v	PRE	A	100.0 a
7	Anthem Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	2.15 SE 4.5 AS 100 L	0.118 lb ai/A 0.77 lb ae/A 5 % v/v	PRE	A	100.0 a
8	Authority MTZ Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	45 DF 4.5 AS 100 L	0.394 lb ai/A 0.77 lb ae/A 5 % v/v	PRE	A	100.0 a
9	Zidua.....pyroxasulfone Authority MTZ Premix Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 45 DF 4.5 AS 100 L	0.106 lb ai/A 0.394 lb ai/A 0.77 lb ae/A 5 % v/v	PRE	A	100.0 a
10	Zidua.....pyroxasulfone Metribuzin.....metribuzin Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	85 WG 75 DF 4.5 AS 100 L	0.08 lb ai/A 0.187 lb ai/A 0.77 lb ae/A 5 % v/v	PRE	A	100.0 a
LSD (P=.05)						0.45
Standard Deviation						0.26
CV						0.29
Replicate F						0.889
Replicate Prob(F)						0.4305
Treatment F						43010.672
Treatment Prob(F)						0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Pyroxasulfone for Soybean Weed Control

Trial ID: Soy9-12 Cooperator: Valent
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
3.	Pitted Morningglory	IPOLA	Ipomoea lacunosa L.

Crop 1: Soybean	GLXMA	Variety: H4601
Planting Date: 05/16/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 190000 Sd/A	Row Spacing: 15 in	Seed Bed: Firm/Trashy
Soil Temperature: 82 F	Soil Moisture: Dry	Emergence Date: 05/23/12

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/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/16/12	Liberty 280	2.34	SL	29	oz/A
2.	05/16/12	Roundup WeatherMax	4.5	AS	22	oz/A
3.	05/16/12	Dry Ammonium Sulfate			2	lb/A
4.	07/02/12	Roundup WeatherMax	4.5	AS	22	oz/A

SOIL DESCRIPTION

% Sand: 79 % OM: 2.1 Texture: sandy loam
 % Silt: 10 pH: 5.8
 % Clay: 11 CEC: 7.8 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: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/11/12	06/15/12
Time of Day:	8:10 am	8:30 am
Application Method:	Spray	Spray
Application Timing:	7DPP	4WAP
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	55 F	70 F
% Relative Humidity:	55	54
Wind Velocity, Unit:	3 mph	5 mph
Wind Direction:	Northwest	Northeast
Dew Presence (Y/N):	Y	N
Soil Temp., Unit:	52 F	68 F
Soil Surf. Moisture:	Moist	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Moist	Dry
% Cloud Cover:	0	0

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		3-4 trifol
Height, Unit:	8	in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	ERICA	ERICA
Growth Stage:	bolting	
Height, Unit:	8	in
Density,Unit:	50-100 m2	
Weed 2 Code:	OEOLA	OEOLA
Growth Stage:	flower	
Height, Unit:	16	in
Density,Unit:	0-5 m2	
Weed 3 Code:	IPOLA	IPOLA
Growth Stage:		veg-run
Height, Unit:		8 in
Density,Unit:		30-50 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:	24 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

<p>Trial Comments</p> <p>06-05-12: Soybeans are at 1st trifoliolate stage and are 4-5" tall. No stunting observed but there is some deer feeding. Burndown control was good. Most horseweed plants are dead but some plants survived and are starting to re-grow.</p> <p>06-13-12: Many horseweed plants (>10 plants/plot) are recovering from burndown treatment. Similar regrowth in all treatments. Too much deer feeding to rate crop injury.</p>
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Pyroxasulfone for Soybean Weed Control

Trial ID: Soy9-12 Cooperator: Valent
 Location: Field #10 Investigator: Mark VanGessel

Weed Code	AMASS	IPOSS	DIGSA	AMASS	IPOSS	DIGSA
Crop Code	Pigweed Species Control %	Mornlry Species Control %	Large Crabgras Control %	Pigweed Species Control %	Mornlry Species Control %	Large Crabgras Control %
Weed or Crop Name	06/05/12	06/05/12	06/05/12	06/13/12	06/13/12	06/13/12
Weed or Crop Name						
Rating Data Type						
Rating Unit						
Rating Date						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1 Untreated Check						
2 Fierce Premix	76 WG	0.142 lb ai/A	7 DPP	A	98.3 a	43.3 cd
3 Fierce Premix	76 WG	0.178 lb ai/A	7 DPP	A	100.0 a	43.3 cd
4 Fierce Premix	76 WG	0.214 lb ai/A	7 DPP	A	100.0 a	50.0 bc
5 Classic.....chlormuron	25 WG	0.0195 lb ai/A	7 DPP	A	100.0 a	70.0 a
Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	7 DPP	A		
V-10206	85 WG	0.053 lb ai/A	7 DPP	A		
6 Prefix Premix	5.3 E	1.33 lb ai/A	7 DPP	A	100.0 a	30.0 def
7 Fierce Premix	76 WG	0.178 lb ai/A	7 DPP	A	100.0 a	66.7 ab
Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	7 DPP	A		
8 Dual Magnum.....s-metolachlor	7.62 E	1.1 lb ai/A	7 DPP	A	93.3 ab	13.3 fg
Reflex.....fomesafen	2 L	0.25 lb ai/A	4 WAP	B		
Nonionic Surfactant	100 L	0.25 % v/v	4 WAP	B		
9 Dual Magnum.....s-metolachlor	7.62 E	1.43 lb ai/A	7 DPP	A	78.3 c	33.3 cde
Reflex.....fomesafen	2 L	0.25 lb ai/A	4 WAP	B		
Nonionic Surfactant	100 L	0.25 % v/v	4 WAP	B		
10 Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7 DPP	A	85.0 bc	20.0 ef
Reflex.....fomesafen	2 L	0.25 lb ai/A	4 WAP	B		
Nonionic Surfactant	100 L	0.25 % v/v	4 WAP	B		
LSD (P=.05)					10.19	19.95
Standard Deviation					5.94	11.63
CV					6.95	31.42
Replicate F					0.213	1.849
Replicate Prob(F)					0.8105	0.1860
Treatment F					81.630	11.093
Treatment Prob(F)					0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code			GLXMA	GLXMA					
Crop Code			Soybean	Soybean					
Weed or Crop Name									
Weed or Crop Name									
Rating Data Type			Leafburn	Yield					
Rating Unit			%	Bu/A					
Rating Date			06/18/12	11/05/12					
Trt	Treatment	Form Conc	Form Type	Rate	Grow Unit	Appl Stg	Code		
No.	Name			Rate					
1	Untreated Check							0.0c	43.6 a
2	Fierce Premix	76 WG	0.142 lb ai/A	7 DPP	A			0.0c	38.8 a
3	Fierce Premix	76 WG	0.178 lb ai/A	7 DPP	A			0.0c	34.0 a
4	Fierce Premix	76 WG	0.214 lb ai/A	7 DPP	A			0.0c	42.1 a
5	Classic.....chlorimuron	25 WG	0.0195 lb ai/A	7 DPP	A			0.0c	57.3 a
	Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	7 DPP	A				
	V-10206	85 WG	0.053 lb ai/A	7 DPP	A				
6	Prefix Premix	5.3 E	1.33 lb ai/A	7 DPP	A			0.0c	40.4 a
7	Fierce Premix	76 WG	0.178 lb ai/A	7 DPP	A			0.0c	40.0 a
	Metribuzin.....metribuzin	75 DF	0.187 lb ai/A	7 DPP	A				
8	Dual Magnum....s-metolachlor	7.62 E	1.1 lb ai/A	7 DPP	A			2.0b	43.1 a
	Reflex.....fomesafen	2 L	0.25 lb ai/A	4 WAP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	4 WAP	B				
9	Dual Magnum....s-metolachlor	7.62 E	1.43 lb ai/A	7 DPP	A			0.0c	48.1 a
	Reflex.....fomesafen	2 L	0.25 lb ai/A	4 WAP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	4 WAP	B				
10	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	7 DPP	A			5.0 a	44.9 a
	Reflex.....fomesafen	2 L	0.25 lb ai/A	4 WAP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	4 WAP	B				
LSD (P=.05)							1.44	22.36	
Standard Deviation							0.84	13.04	
CV							119.52	30.16	
Replicate F							1.000	5.919	
Replicate Prob(F)							0.3874	0.0106	
Treatment F							11.476	0.687	
Treatment Prob(F)							0.0001	0.7114	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Monsanto Soybean Weed Control Systems

Trial ID: Soy10-12 Cooperator: Monsanto
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Cutleaf Evening Primrose	OEOLA	Oenothera lacinata Hill

Crop 1: Soybean	GLXMA	Variety: H4601
Planting Date: 05/16/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 190000 Sd/A	Row Spacing: 15 in	Seed Bed: Firm/Trashy
Soil Temperature: 82 F	Soil Moisture: Dry	Emergence Date: 05/23/12

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/Soybean Stubble

SOIL DESCRIPTION

% Sand: 79 % OM: 2.1 Texture: sandy loam
 % Silt: 10 pH: 5.8
 % Clay: 11 CEC: 7.8 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: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/03/12	07/03/12
Time of Day:	11:30 am	11:00 am
Application Method:	Spray	Spray
Application Timing:	14EPP	35DAP
Applc. Placement:	Brdcst	Brdcst
Air Temp., Unit:	63 F	90 F
% Relative Humidity:	77	42
Wind Velocity, Unit:	1 mph	4 mph
Wind Direction:	Northeast	Southwest
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	62 F	86 F
Soil Surf. Moisture:	Moist	Dry
Root Zone Moisture:	Moist	Dry
Leaf Surf. Moisture:	Dry	Drt
% Cloud Cover:	95	30

CROP STAGE AT EACH APPLICATION		
Crop 1 Code:	A GLXMA	B GLXMA
Growth Stage:	4 trifol	
Height, Unit:	8 in	
Crop Health:	Fair	
WEED STAGE AT EACH APPLICATION		
Weed 1 Code:	A ERICA	B ERICA
Growth Stage:	bolting	
Height, Unit:	5 in	
Density, Unit:	2-80 m ²	
Weed 2 Code:	OEOLA	OEOLA
Growth Stage:	flower	
Height, Unit:	12 in	
Density, Unit:	0-7 m ²	
APPLICATION EQUIPMENT		
Appl. Equipment:	A Tractor	B Tractor
Operating Pressure:	40 psi	29 psi
Nozzle Type:	AIRMIX	AITEEJET
Nozzle Size:	11002	11005
Nozzle Spacing, Unit:	20 in	20 in
Boom Length, Unit:	6 nozl	18 nozl
Boom Height, Unit:	20 in	18 in
Ground Speed, Unit:	3 mph	5 mph
Carrier:	water	Water
Spray Volume, Unit:	20 gpa	25 GPA
Propellant:	Comp. Air	Pump
Trial Comments		
06-22-12: Grass density is much higher in Rep 3 then in the other two reps. Grass species in reps 1 and 2 is large crabgrass, but in rep 3 it is a mixture of large crabgrass and giant foxtail. Also, there is a significant amount of deer feeding which makes crop injury hard to rate.		
07-19-12: Weeds were drought stressed at the time of POST applications and common ragweed and pigweeds have not died.		
08-17-12: Morningglory species were the only species consistent enough to rate. Most rows had not completely canopied over.		

Monsanto Soybean Weed Control Systems

Trial ID: Soy10-12 Cooperator: Monsanto
 Location: Field #10 Investigator: Mark VanGessel

Weed Code	GLXMA	IPOSS	GGGAN	GLXMA	AMASS	AMBEL
Crop Code	Soybean	Mornlry Species	Annual Grasses	Soybean	Pigweed Species	Common Ragweed
Weed or Crop Name	Stunting %	Control %	Control %	Stunting %	Control %	Control %
Weed or Crop Name	06/05/12	06/05/12	06/05/12	06/22/12	06/22/12	06/22/12
Rating Data Type						
Rating Unit						
Rating Date						
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1 Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A		0.0 b	0.0 d
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
2 MON76754	4 SL	1.5 lb ae/A	14EPP A	50.0 a	43.3 b	43.3 b
Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
3 Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	7.3 b	80.0 a	76.7 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
Valor XLT Premix	40.3 WG	0.0756 lb ai/A	14EPP A			
Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
4 MON76754	4 SL	1.5 lb ae/A	14EPP A	40.0 a	73.3 a	81.7 a
Valor XLT Premix	40.3 WG	0.0756 lb ai/A	14EPP A			
Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
5 Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	0.0 b	68.3 a	91.7 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
Authority First Premix	70 DF	0.131 lb ai/A	14EPP A			
Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
6 Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	0.0 b	76.7 a	81.7 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
Authority XL Premix	70 DG	0.175 lb ai/A	14EPP A			
Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
7 Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	2.3 b	75.0 a	78.3 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
Canopy Premix	75 DF	0.187 lb ai/A	14EPP A			
Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
8 Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	0.0 b	46.7 b	86.7 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
Sencor.....metribuzin	75 DF	0.281 lb ai/A	14EPP A			
Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
9 Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	12.0 b	20.0 c	86.7 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
Harness.....acetochlor	7 E	1.09 lb ai/A	14EPP A			
Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
10 Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	5.7 b	36.7 b	90.0 a
2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
Warrant.....acetochlor	3 CS	1.13 lb ai/A	14EPP A			
Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
LSD (P=.05)		20.31	15.89	18.25	2.11	5.53
Standard Deviation		11.79	9.26	10.64	1.05	3.21
CV		100.49	17.82	14.84	27.43	3.6
Replicate F		1.562	2.650	7.277	0.141	2.024
Replicate Prob(F)		0.2383	0.0980	0.0048	0.8713	0.1628
Treatment F		7.093	26.058	21.784	49.232	286.976
Treatment Prob(F)		0.0003	0.0001	0.0001	0.0001	0.0003

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	IPOSS	GGGAN	GLXMA	AMASS	AMBEL	IPOSS
Weed or Crop Name		Mornlry Species Control %	Annual Grasses Control %	Soybean Stunting %	Pigweed Species Control %	Common Ragweed Control %	Mornlry Species Control %
Rating Data Type		06/22/12	06/22/12	07/19/12	07/19/12	07/19/12	07/19/12
Rating Unit							
Rating Date							
Trt	Treatment	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
No.	Name			Unit			
1	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	0.0d	0.0 b	
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
2	MON76754	4 SL	1.5 lb ae/A	14EPP A	39.0 c	0.0 b	28.0 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			100.0 a
3	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	71.0 a	53.3 a	100.0 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			100.0 a
	Valor XLT Premix	40.3 WG	0.0756 lb ai/A	14EPP A			68.3 abc
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			
4	MON76754	4 SL	1.5 lb ae/A	14EPP A	63.3 ab	66.7 a	13.3 a
	Valor XLT Premix	40.3 WG	0.0756 lb ai/A	14EPP A			100.0 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			100.0 a
5	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	68.3 a	60.0 a	15.7 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			91.7 a
	Authority First Premix	70 DF	0.131 lb ai/A	14EPP A			80.0 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			71.0 ab
6	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	68.3 a	56.7 a	
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			100.0 a
	Authority XL Premix	70 DG	0.175 lb ai/A	14EPP A			83.3 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			73.3 a
7	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	69.3 a	65.0 a	
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			100.0 a
	Canopy Premix	75 DF	0.187 lb ai/A	14EPP A			100.0 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			74.3 a
8	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	50.0 bc	46.7 a	
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			88.3 a
	Sencor.....metribuzin	75 DF	0.281 lb ai/A	14EPP A			91.0 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			56.7 cd
9	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	50.0 bc	63.3 a	14.7 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			90.0 a
	Harness.....acetochlor	7 E	1.09 lb ai/A	14EPP A			93.3 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			65.0 abc
10	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP A	50.0 bc	56.7 a	20.5 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP A			100.0 a
	Warrant.....acetochlor	3 CS	1.13 lb ai/A	14EPP A			92.9 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	35DAP B			60.0 bcd
LSD (P=.05)			15.48	32.04	29.11	12.68	16.32
Standard Deviation			8.98	18.68	11.21	7.24	9.32
CV			16.97	39.88	60.7	7.49	9.98
Replicate F			0.445	0.246	2.399	0.477	2.348
Replicate Prob(F)			0.6481	0.7844	0.2386	0.6302	0.1320
Treatment F			17.337	5.535	0.861	1.472	1.993
Treatment Prob(F)			0.0001	0.0010	0.5724	0.2519	0.1239
							4.456
							0.0062

Means followed by same letter do not significantly differ (P= .05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	GGGAN	IPOSS	GLXMA					
Weed or Crop Name		Annual Grasses Control %	Mornlry Species Control %	Soybean					
Rating Data Type		07/19/12	08/17/12	Yield Bu/A					
Rating Unit									
Rating Date									
Trt	Treatment	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code			
No.	Name								
1	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	14EPP	A		56.7 cd	15.1 a
	2,4-D ester	3.8 L	0.95	lb ae/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	35DAP	B			
2	MON76754	4 SL	1.5	lb ae/A	14EPP	A	93.2 a	48.9 d	14.5 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	35DAP	B			
3	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	14EPP	A	96.3 a	75.0 a	23.4 a
	2,4-D ester	3.8 L	0.95	lb ae/A	14EPP	A			
	Valor XLT Premix	40.3 WG	0.0756	lb ai/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	35DAP	B			
4	MON76754	4 SL	1.5	lb ae/A	14EPP	A	95.7 a	63.3 bc	19.7 a
	Valor XLT Premix	40.3 WG	0.0756	lb ai/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	35DAP	B			
5	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	14EPP	A	97.0 a	66.7 ab	22.3 a
	2,4-D ester	3.8 L	0.95	lb ae/A	14EPP	A			
	Authority First Premix	70 DF	0.131	lb ai/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	35DAP	B			
6	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	14EPP	A	97.0 a	60.9 bc	20.8 a
	2,4-D ester	3.8 L	0.95	lb ae/A	14EPP	A			
	Authority XL Premix	70 DG	0.175	lb ai/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	35DAP	B			
7	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	14EPP	A	98.3 a	75.0 a	21.9 a
	2,4-D ester	3.8 L	0.95	lb ae/A	14EPP	A			
	Canopy Premix	75 DF	0.187	lb ai/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	35DAP	B			
8	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	14EPP	A	95.0 a	58.3 bc	17.1 a
	2,4-D ester	3.8 L	0.95	lb ae/A	14EPP	A			
	Sencor.....metribuzin	75 DF	0.281	lb ai/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	35DAP	B			
9	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	14EPP	A	97.3 a	56.7 cd	18.6 a
	2,4-D ester	3.8 L	0.95	lb ae/A	14EPP	A			
	Harness.....acetochlor	7 E	1.09	lb ai/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	35DAP	B			
10	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	14EPP	A	96.3 a	58.9 bc	28.5 a
	2,4-D ester	3.8 L	0.95	lb ae/A	14EPP	A			
	Warrant.....acetochlor	3 CS	1.13	lb ai/A	14EPP	A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98	lb ae/A	35DAP	B			
LSD (P=.05)					3.37		9.23		12.96
Standard Deviation					1.94		5.31		7.56
CV					2.01		8.55		37.45
Replicate F					4.938		1.420		23.996
Replicate Prob(F)					0.0225		0.2724		0.0001
Treatment F					1.793		7.273		0.915
Treatment Prob(F)					0.1569		0.0004		0.5342

Means followed by same letter do not significantly differ (P= .05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Morningglory Control in Soybeans

Trial ID: Soy11-12 Cooperator:
 Location: Field #9 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
3.	Volunteer Wheat	TRZAX	Triticum aestivum L. Wiggers

Crop 1: Soybean	GLXMA	Variety: H3912
Planting Date: 07/10/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 180000 Sd/A	Row Spacing: 15 in	Seed Bed: Firm/Trashy
Soil Temperature: 85 F	Soil Moisture: Moist	Emergence Date: 07/16/12

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/Wheat Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Unit
1.	07/11/12	Dual II Magnum	7.64	E	1.25	pt/A

SOIL DESCRIPTION

% Sand: 83 % OM: 1.7 Texture: loamy sand
 % Silt: 9 pH: 5.2
 % Clay: 8 CEC: 6.5 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: 0.1 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	07/30/12
Time of Day:	12:30 pm
Application Method:	Spray
Application Timing:	POST
Applic. Placement:	Brdcst
Air Temp., Unit:	84 F
% Relative Humidity:	55
Wind Velocity, Unit:	3 mph
Wind Direction:	East
Dew Presence (Y/N):	N
Soil Temp., Unit:	83 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:	GLXMA
Growth Stage:	2-3 trifol
Height, Unit:	9 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	IPOSS
Growth Stage:	veg-run
Height, Unit:	10 in
Density,Unit:	30-50 m ²
Weed 2 Code:	AMAPA
Growth Stage:	vegetative
Height, Unit:	8 in
Density,Unit:	30-50 m ²
Weed 3 Code:	TRZAX
Growth Stage:	4-5 leaf
Height, Unit:	8 in
Density,Unit:	30-80 m ²

	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
08-03-12: Injury is a combination of stunting and leaf burn. Morningglory is predominately ivyleaf morningglory.
08-28-12: Still 7 - 10% stunting from Harmony application.

Morninglory Control in Soybeans

Trial ID: Soy11-12 Cooperator:
 Location: Field #9 Investigator: Mark VanGessel

Weed Code	GLXMA	IPOSS	GLXMA	IPOSS	IPOSS	IPOSS
Crop Code	Soybean	Mornlgy	Soybean	Mornlgy	Mornlgy	Mornlgy
Weed or Crop Name		Species		Species	Species	Species
Weed or Crop Name		Control		Control	Control	Control
Rating Data Type	Injury %	%	Stunting %	%	%	%
Rating Unit	08/03/12	08/03/12	08/10/12	08/10/12	08/28/12	09/26/12
Rating Date						
Trt Treatment No.	Form No.	Form Conc	Rate Type	Grow Rate	Appl Unit	Stg Code
1 Untreated Check						
Select Max.....clethodim	1 EC	0.125 lb	ai/A	POST A		
Nonionic Surfactant	100 L	0.25 %	v/v	POST A		
2 Touchdown HiTech..glyphosate	5 SL	0.78 lb	ae/A	POST A		
Nonionic Surfactant	100 L	0.25 %	v/v	POST A		
3 Touchdown HiTech..glyphosate	5 SL	0.78 lb	ae/A	POST A		
LI-700	100 L	0.25 %	v/v	POST A		
4 Touchdown HiTech..glyphosate	5 SL	0.78 lb	ae/A	POST A		
Agridex NIS	100 L	0.25 %	v/v	POST A		
5 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb	ae/A	POST A		
Cadet.....fluthiacet	0.91 EC	0.0064 lb	ai/A	POST A		
6 Roundup WeatherMax..glyphosate	4.5 AS	1 lb	ae/A	POST A		
Resource.....flumiclorac	0.86 EC	0.0403 lb	ai/A	POST A		
7 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb	ae/A	POST A		
HE-111	100 L	0.625 %	v/v	POST A		
8 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb	ae/A	POST A		
Cadet.....fluthiacet	0.91 EC	0.0064 lb	ai/A	POST A		
9 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb	ae/A	POST A		
Resource.....flumiclorac	0.86 EC	0.0403 lb	ai/A	POST A		
10 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb	ae/A	POST A		
Reflex.....fomesafen	2 L	0.375 lb	ai/A	POST A		
11 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb	ae/A	POST A		
Reflex.....fomesafen	2 L	0.25 lb	ai/A	POST A		
12 Roundup WeatherMax..glyphosate	4.5 AS	0.77 lb	ae/A	POST A		
Reflex.....fomesafen	2 L	0.375 lb	ai/A	POST A		
Harmony SG.....thifensulfuron	50 SG	.00387 lb	ai/A	POST A		
30% Urea Ammonium Nitrate	100 L	1 %	v/v	POST A		
LSD (P=.05)		1.24	7.41	6.76	7.44	10.88
Standard Deviation		0.73	4.38	3.99	4.39	6.42
CV		10.23	6.24	83.03	6.36	9.77
Replicate F		2.014	2.110	1.415	1.779	0.578
Replicate Prob(F)		0.1573	0.1452	0.2642	0.1923	0.5691
Treatment F		494.028	99.197	4.079	87.200	35.310
Treatment Prob(F)		0.0001	0.0001	0.0024	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(Soy12a-12)

University of Delaware

Soybean Safety from PPO Herbicides

Trial ID: Soy12a-12 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Large Crabgrass	DIGSA	Digitaria sanguinalis (L.) Scop.
2.	Horsenettle	SOLCA	Solanum carolinense L.

Crop 1: Soybean GLXMA Variety: A4404
 Planting Date: 05/23/12 Planting Method: Row- Unit Planter Depth: 1 in
 Rate: 180000 Sd/A Row Spacing: 15 in Seed Bed: Smooth
 Soil Temperature: 78 F Soil Moisture: Moist Emergence Date: 05/29/12

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	Unit
1.	04/30/12	Gramoxone SL	2	SL	2	qt/A
2.	04/30/12	Nonionic Surfactant			0.25	% v/v

SOIL DESCRIPTION

% Sand: 83 % OM: 1.2 Texture: loamy sand
 % Silt: 10 pH: 6.1
 % Clay: 7 CEC: 5.1 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: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A	B	C
Application Date:	04/30/12	05/24/12	06/15/12
Time of Day:	12:20 pm	9:30 am	9:30 am
Application Method:	Spray	Spray	Spray
Application Timing:	21DPP	PRE	21DAP
Appli. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	58 F	73 F	72 F
% Relative Humidity:	46	72	51
Wind Velocity, Unit:	4 mph	1 mph	6 mph
Wind Direction:	Southeast	Southeast	Northeast
Dew Presence (Y/N):	N	Y	N
Soil Temp., Unit:	58 F	71 F	70 F
Soil Surf. Moisture:	Moist	Moist	Dry
Root Zone Moisture:	Moist	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist	Dry
% Cloud Cover:	100	40	0

CROP STAGE AT EACH APPLICATION			
	A	B	C
Crop 1 Code:	GLXMA	GLXMA	GLXMA
Growth Stage:			2-trifol
Height, Unit:			6 in
Crop Health:			Good

WEED STAGE AT EACH APPLICATION			
	A	B	C
Weed 1 Code:	DIGSA	DIGSA	DIGSA
Growth Stage:			3lf-4 tlr
Height, Unit:			4 in
Density, Unit:			0-100 m ²
Weed 2 Code:	SOLCA	SOLCA	SOLCA
Growth Stage:			vegetative
Height, Unit:			5 in
Density, Unit:			0-4 m ²

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	20 in	24 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
06-01-12: Soybeans were at cotyledon to unifoliate stage.
10-03-12: Few weeds present. Should not impact yield or interfere with harvesting.

Soybean Safety from PPO Herbicides

Trial ID: Soy12a-12 Cooperator:
 Location: Field #18 Investigator: Mark VanGessel

Weed Code	GLXMA	GLXMA	GLXMA	GLXMA	AMASS	GLXMA
Crop Code	Soybean	Soybean	Soybean	Soybean	Pigweed Species Control %	Soybean
Weed or Crop Name						
Weed or Crop Name						
Rating Data Type	Stunting %	Stunting %	Stunting %	Stunting %		
Rating Unit	06/01/12	06/14/12	06/19/12	07/03/12	07/03/12	11/05/12
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1	Untreated Check					
2	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	21 DPP	A	0.0c
3	Valor SX.....flumioxazin	51 WG	0.191 lb ai/A	PRE	B	2.3c
4	Reflex.....fomesafen Nonionic Surfactant	2 L 100 L	0.75 lb ai/A 0.25 % v/v	21 DAP	C	46.7b
5	Sharpen.....saflufenacil Valor SX.....flumioxazin	2.85 SC 51 WG	0.089 lb ai/A 0.191 lb ai/A	21 DPP	A	13.3a
6	Valor SX.....flumioxazin Reflex.....fomesafen Nonionic Surfactant	51 WG 2 L 100 L	0.191 lb ai/A 0.75 lb ai/A 0.25 % v/v	PRE	B	36.7c
7	Sharpen.....saflufenacil Reflex.....fomesafen Nonionic Surfactant	2.85 SC 2 L 100 L	0.089 lb ai/A 0.75 lb ai/A 0.25 % v/v	21 DPP	A	1.7c
8	Sharpen.....saflufenacil Valor SX.....flumioxazin Reflex.....fomesafen Nonionic Surfactant	2.85 SC 51 WG 2 L 100 L	0.089 lb ai/A 0.191 lb ai/A 0.75 lb ai/A 0.25 % v/v	21 DPP	A	12.3a
LSD (P=.05)			6.07	9.26	6.36	6.17
Standard Deviation			3.46	5.29	3.63	3.52
CV			64.97	18.85	12.19	28.37
Replicate F			0.524	0.386	5.843	2.351
Replicate Prob(F)			0.6033	0.6866	0.0143	0.1317
Treatment F			7.409	66.565	86.739	7.875
Treatment Prob(F)			0.0008	0.0001	0.0001	0.0006
					0.0001	0.0001
						0.2005

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Influence of Application Timing on Soybean Safety from PPO Herbicides

Trial ID: Soy13-12 Cooperator:
 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

Crop 1: Soybean	GLXMA	Variety: A4404
Planting Date: 05/23/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 180000 Sd/A	Row Spacing: 15 in	Seed Bed: Firm/Trashy
Soil Temperature: 78 F	Soil Moisture: Moist	Emergence Date: 05/29/12

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/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Unit
1.	05/04/12	Liberty 280	2.34	SL	29	fl oz/A
2.	05/04/12	2,4-D ester	3.8	L	1.5	pt/A
3.	05/04/12	Dual II Magnum	7.64	E	1.5	pt/A
4.	05/04/12	Dry Ammonium Sulfate			1.2	lb/A

SOIL DESCRIPTION

% Sand: 79 % OM: 2.1 Texture: sandy loam
 % Silt: 10 pH: 5.8
 % Clay: 11 CEC: 7.8 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: 0.4 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/03/12	05/24/12
Time of Day:	11:45 am	10:00 am
Application Method:	Spray	Spray
Application Timing:	21DPP	PRE
Appli. Placement:	Brdcst	Brdcst
Air Temp., Unit:	63 F	73 F
% Relative Humidity:	77	72
Wind Velocity, Unit:	1 mph	1 mph
Wind Direction:	Northeast	Southeast
Dew Presence (Y/N):	N	Y
Soil Temp., Unit:	62 F	71 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Moist
% Cloud Cover:	95	40

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

05-17-12: Burndown control is very good except for field pansy. Both treatments with 21 DPP have excellent control of field pansy.

06-05-12: Some deer feeding but injured plants are not recovering like other treatments.

Influence of Application Timing on Soybean Safety from PPO Herbicides

Trial ID: Soy13-12 Cooperator:

Location: Field #10 Investigator: Mark VanGessel

Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	GLXMA	GLXMA	IPOSS	GLXMA	IPOSS	GLXMA
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Stunting %	Stunting %	Mornlry Species Control	Stunting %	Mornlry Species Control	Yield Bu/A
1	Untreated Check						0.0c	0.0d	0.0d	0.0c	0.0d	16.0c
2	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	21 DPP	A		0.0c	15.1c	53.3c	3.1c	53.3c	24.4 ab
3	Valor SX.....flumioxazin	51 WG	0.191 lb ai/A	PRE	B		0.0c	33.3 b	69.3 bc	0.0c	61.7 bc	26.5 ab
4	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	21 DPP	A		0.0c	17.3 c	71.7 b	2.3 c	76.7 a	22.6 abc
	Valor SX.....flumioxazin	51 WG	0.191 lb ai/A	21 DPP	A							
5	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	PRE	B	19.0 a	63.3 a	93.3 a	20.0 a	78.3 a	19.3 bc	
	Valor SX.....flumioxazin	51 WG	0.191 lb ai/A	PRE	B							
6	Sharpen.....saflufenacil	2.85 SC	0.0223 lb ai/A	PRE	B	11.3 b	40.0 b	86.0 ab	10.7 b	70.0 ab	29.2 a	
	Valor SX.....flumioxazin	51 WG	0.096 lb ai/A	PRE	B							
LSD (P=.05)							1.62	8.07	16.85	5.02	12.97	7.87
Standard Deviation							0.89	4.37	9.26	2.67	7.13	4.33
CV							17.57	15.49	14.88	44.27	12.58	18.82
Replicate F							0.493	0.641	1.284	0.271	2.541	8.508
Replicate Prob(F)							0.6249	0.5492	0.3188	0.7695	0.1281	0.0069
Treatment F							255.620	78.188	39.316	26.310	50.689	3.695
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001	0.0373

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Control in Double-Cropped Soybeans for Vegetable Rotations

Trial ID: Soy14-12 Cooperator:
 Location: Field #7 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Crabgrass Species	DIGSS	Digitaria sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
3.	Morningglory Species	IPOSS	Ipomoea sp.
4.	Common Ragweed	AMBEL	Ambrosia artemisifolia L.

Crop 1: Soybean	GLXMA	Variety: H3912
Planting Date:	07/02/12	Planting Method: Row- Unit Planter
Rate:	180000 Sd/A	Row Spacing: 15 in Seed Bed: Firm/Trashy
Soil Temperature:	90 F	Soil Moisture: Moist Emergence Date: 07/11/12

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: 78 % OM: 2.3 Texture: sandy loam
 % Silt: 13 pH: 5.9
 % Clay: 9 CEC: 7.8 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	B
Application Date:	07/06/12	07/30/12
Time of Day:	9:15 am	12:30 pm
Application Method:	Spray	Spray
Application Timing:	PRE	POST
Appli. Placement:	Brdcst	Brdcst
Air Temp., Unit:	86 F	84 F
% Relative Humidity:	61	55
Wind Velocity, Unit:	2 mph	3 mph
Wind Direction:	Northeast	East
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	83 F	83 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Dry	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	20	50

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		2-trifol
Height, Unit:	6	in
Crop Health:	Fair	

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	DIGSS	DIGSS
Growth Stage:		1-4 tiller
Height, Unit:	7	in
Density,Unit:	5-40	m2
Weed 2 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:	15	in
Density,Unit:	10-50	m2
Weed 3 Code:	IPOSS	IPOSS
Growth Stage:		vegetative
Height, Unit:	4	in
Density,Unit:	5-15	m2
Weed 4 Code:	AMBEL	AMBEL
Growth Stage:		vegetative
Height, Unit:	12	in
Density,Unit:	0-20	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	32 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
07-30-12: Palmer amaranth height ranged from 3-20 inches at POST application.
Rating for control of Palmer amaranth plants present at time of soybean planting (PP-Cntrl [pre-plant control]) were rated separately from those plants that emerged after soybean planting (PRECntrl).
07-28-12: Not sure if Lorox antagonized glyphosate for burndown control OR provided enough residual control to allow Palmer Amaranth to recover and regrow quicker due to less weed competition from seedling Palmer Amaranth. Common ragweed plants were in the untreated check plot, but not observed in any other plots.
08-14-12: Treatments 5 through 10 were very poor for spurred anoda control and treatments 5, 6, 9 were poor to fair for morningglory control.

Weed Control in Double-Cropped Soybeans for Vegetable Rotations											
Trial ID: Soy14-12		Cooperator: Location: Field #7 Investigator: Mark VanGessel									
Weed Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	AMAPA Palmer	AMAPA Palmer	GGGAN Annual Grasses	AMAPA Palmer	AMAPA Palmer	DIGSA Large Crabgras
			PP-Cntrl %	07/28/12	07/28/12	PP-Cntrl %	07/28/12	Control %	PP-Cntrl %	PP-Cntrl %	Large Control %
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code				
1	Untreated Check					0.0 d		0.0 c	0.0 c	0.7 c	0.0 a
2	Roundup PowerMax..glyphosate Dry Ammonium Sulfate	4.5 AS 100 D	1.12 lb ae/A 1.2% w/v	PRE PRE	A A	55.0 ab	0.0 d	90.0 a	50.0 b	0.0 c	86.4 a
3	Roundup PowerMax..glyphosate Dual II Magnum..s-metolachlor Dry Ammonium Sulfate Roundup PowerMax..glyphosate Dry Ammonium Sulfate	4.5 AS 7.64 E 100 D 4.5 AS 100 D	1.12 lb ae/A 1.19 lb ai/A 1.2 % w/v 1.12 lb ae/A 1.2 % w/v	PRE PRE POST B POST B	A A A A	36.7 bc	26.7 c	85.0 a	60.0 b	100.0 a	86.5 a
4	Roundup PowerMax..glyphosate Ignite 280.....glufosinate Dry Ammonium Sulfate Roundup PowerMax..glyphosate Dry Ammonium Sulfate	4.5 AS 2.34 SL 100 D 4.5 AS 100 D	1.12 lb ae/A 0.585 lb ai/A 1.2 % w/v 1.12 lb ae/A 1.2 % w/v	PRE PRE POST B POST B	A A A A	66.7 a	0.0 d	86.7 a	76.7 a	99.0 a	86.5 a
5	Roundup PowerMax..glyphosate Dual II Magnum..s-metolachlor Dry Ammonium Sulfate Ultra Blazer....acifluorfen Nonionic Surfactant	4.5 AS 7.64 E 100 D 2 L 100 L	1.12 lb ae/A 1.19 lb ai/A 1.2 % w/v 0.375 lb ai/A 0.25 % v/v	PRE PRE POST B POST B	A A A A	36.7 bc	36.7 bc	85.0 a	78.3 a	96.7 a	70.0 a
6	Roundup PowerMax..glyphosate Dual II Magnum..s-metolachlor Dry Ammonium Sulfate Storm Premix Nonionic Surfactant	4.5 AS 7.64 E 100 D 4 EC 100 L	0.77 lb ae/A 1.19 lb ai/A 1.2 % w/v 0.75 lb ai/A 0.25 % v/v	PRE PRE POST B POST B	A A A A	36.7 bc	36.7 bc	85.0 a	80.0 a	98.3 a	65.0 a
7	Roundup PowerMax..glyphosate Lorox.....linuron Dual II Magnum..s-metolachlor Dry Ammonium Sulfate Ultra Blazer....acifluorfen Nonionic Surfactant	4.5 AS 50 DF 7.64 E 100 D 2 L 100 L	0.77 lb ae/A 0.75 lb ai/A 1.19 lb ai/A 1.2 % w/v 0.375 lb ai/A 0.25 % v/v	PRE PRE POST B POST B	A A A A	36.7 bc	53.3 ab	86.7 a	78.7 a	75.0 b	92.5 a
8	Roundup PowerMax..glyphosate Lorox.....linuron Dual II Magnum..s-metolachlor Dry Ammonium Sulfate Ultra Blazer....acifluorfen Nonionic Surfactant	4.5 AS 50 DF 7.64 E 100 D 2 L 100 L	0.77 lb ae/A 1 lb ai/A 1.19 lb ai/A 1.2 % w/v 0.375 lb ai/A 0.25 % v/v	PRE PRE POST B POST B	A A A A	23.3 c	60.0 a	71.7 b	76.7 a	80.0 b	35.0 a
9	Roundup PowerMax..glyphosate Dual II Magnum..s-metolachlor Dry Ammonium Sulfate Raptor.....imazamox Crop Oil Concentrate 30% Urea Ammonium Nitrate	4.5 AS 7.64 E 100 D 1 AS 100 L 100 L	1.12 lb ae/A 1.19 lb ai/A 1.2 % w/v 0.039 lb ai/A 1.25 % v/v 2.5 % v/v	PRE PRE POST B POST B POST B	A A A A A	30.0 c	40.0 bc	85.0 a	78.3 a	93.7 a	86.5 a

Weed Code		AMAPA	AMAPA	GGGAN	AMAPA	AMAPA	DIGSA
Weed or Crop Name	Palmer	Palmer	Annual	Palmer	Palmer	Palmer	Large
Weed or Crop Name	Amaranth	Amaranth	Grasses	Amaranth	Amaranth	Amaranth	Crabgras
Rating Data Type	PP-Cntrl	PRECntrl	Control	PP-Cntrl	PP-Cntrl	PRECntrl	Control
Rating Unit	%	%	%	%	%	%	%
Rating Date	07/28/12	07/28/12	07/28/12	08/14/12	08/14/12	08/14/12	08/14/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
10	Roundup PowerMax..glyphosate	4.5 AS	1.12 lb ae/A	PRE	A		
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	PRE	A		
	Dry Ammonium Sulfate	100 D	1.2% w/v	PRE	A		
	Roundup PowerMax..glyphosate	4.5 AS	1.12 lb ae/A	POST	B		
	Raptor.....imazamox	1 AS	0.039 lb ai/A	POST	B		
	Crop Oil Concentrate	100 L	1.25 % v/v	POST	B		
	30% Urea Ammonium Nitrate	100 L	2.5 % v/v	POST	B		
LSD (P=.05)		21.50	17.03	11.54	12.04	9.90	74.99
Standard Deviation		12.54	9.84	6.73	7.02	5.69	27.01
CV		34.66	29.84	8.89	10.55	7.65	38.14
Replicate F		2.933	1.990	1.123	0.183	1.698	4.058
Replicate Prob(F)		0.0790	0.1691	0.3471	0.8341	0.2164	0.1142
Treatment F		5.964	13.732	48.393	40.398	147.837	2.629
Treatment Prob(F)		0.0007	0.0001	0.0001	0.0001	0.0001	0.1827

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Horseweed Control in Double-Cropped Soybeans

Trial ID: Soy16-12 Cooperator:
 Location: Field #26 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.

Crop 1: Soybean GLXMA

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

Trial Initiation Comments: The study area had been mowed approximately 1 week prior to herbicide application to simulate wheat harvest.

SOIL DESCRIPTION

% Sand: 81 **% OM:** 1.2 **Texture:** loamy sand
% Silt: 10 **pH:** 5.8
% Clay: 9 **CEC:** 5.2 **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:	07/12/12
Time of Day:	2:00 pm
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	85 F
% Relative Humidity:	43
Wind Velocity, Unit:	3 mph
Wind Direction:	East
Dew Presence (Y/N):	N
Soil Temp., Unit:	82 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	65

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	ERICA
Growth Stage:	regrowth
Height, Unit:	8 in
Density, Unit:	0-10 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

08-15-12: Treatments 5-8 provided best level of Palmer Amaranth control for both burndown and residual control. (>95%).

Horseweed Control in Double-Cropped Soybeans

Trial ID: Soy16-12 Cooperator:
 Location: Field #26 Investigator: Mark VanGessel

Weed Code		ERICA	ERICA						
Weed or Crop Name		Horseweed	Horseweed						
Weed or Crop Name		Control	Control						
Rating Data Type		%	%						
Rating Unit		07/28/12	08/15/12						
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
1	Untreated Check							0.0e	0.0e
2	Roundup PowerMax..glyphosate Dry Ammonium Sulfate	4.5 AS 100 D	1.12 lb ae/A 2.04 % v/v	lb ae/A	PRE	A	53.3 d	66.7 cd	
3	Ignite 280.....glufosinate Dry Ammonium Sulfate	2.34 SL 100 D	0.585 lb ai/A 2.04 % v/v	lb ai/A	PRE	A	95.0 ab	100.0 a	
4	Gramoxone SL....paraquat Crop Oil Concentrate 30% Urea Ammonium Nitrate	2 SL 100 L 100 L	1 lb ai/A 1.25 % v/v 2.5 % v/v	lb ai/A	PRE	A	95.0 ab	100.0 a	
5	Roundup PowerMax..glyphosate Canopy Premix Dry Ammonium Sulfate	4.5 AS 75 DF 100 D	1.12 lb ae/A 0.187 lb ai/A 2.04 % v/v	lb ae/A	PRE	A	96.3 ab	100.0 a	
6	Ignite 280.....glufosinate Canopy Premix Dry Ammonium Sulfate	2.34 SL 75 DF 100 D	0.585 lb ai/A 0.187 lb ai/A 2.04 % v/v	lb ai/A	PRE	A	73.3 c	66.2 d	
7	Gramoxone SL....paraquat Canopy Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	2 SL 75 DF 100 L 100 L	1 lb ai/A 0.187 lb ai/A 1.25 % v/v 2.5 % v/v	lb ai/A	PRE	A	88.3 ab	78.6 bc	
8	Gramoxone SL....paraquat Canopy Premix Crop Oil Concentrate 30% Urea Ammonium Nitrate	2 SL 75 DF 100 L 100 L	1 lb ai/A 0.187 lb ai/A 1.25 % v/v 10 % v/v	lb ai/A	PRE	A	97.0 a	100.0 a	
9	Gramoxone SL....paraquat Canopy Premix Nonionic Surfactant	2 SL 75 DF 100 L	1 lb ai/A 0.187 lb ai/A 0.25 % v/v	lb ai/A	PRE	A	86.7 b	90.0 ab	
LSD (P=.05)					10.27		12.01		
Standard Deviation						5.93	6.86		
CV						7.79	8.8		
Replicate F						2.219	1.383		
Replicate Prob(F)						0.1410	0.2830		
Treatment F						86.723	67.264		
Treatment Prob(F)						0.0001	0.0001		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Dicamba Tolerant Soybeans

Trial ID: Soy30-12 Cooperator: Monsanto
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
3.	Common Lambsquarters	CHEAL	Chenopodium album L.
4.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
5.	Morningglory Species	IPOSS	Ipomoea sp.
6.	Annual Grasses	GGGAN	

Crop 1: Soybean GLXMA **Variety:** GM_A19788:A92205
Planting Date: 05/16/12 **Planting Method:** Row- Unit Planter **Depth:** 1 in
Rate: 190000 Sd/A **Row Spacing:** 15 in **Seed Bed:** Firm/Trashy
Soil Temperature: 82 F **Soil Moisture:** Dry **Emergence Date:** 05/23/12

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/Soybean Stubble

MAINTENANCE

Field Prep./Maintenance: Crop destruct 7-2-12. See treatment below

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/02/12	Liberty 280	2.34	SL	29	fl oz/A
2.	07/02/12	Callisto	4	SC	3	fl oz/A
3.	07/02/12	Dual II Magnum	7.64	E	1.5	pt/A
4.	07/02/12	Dry Ammonium Sulfate			2	% w/v
5.	07/02/12	Crop Oil Concentrate			1	% w/v

SOIL DESCRIPTION

% Sand: 79 % OM: 2.1 Texture: sandy loam
% Silt: 10 pH: 5.8
% Clay: 11 CEC: 7.8 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: 0.4 **Unit:** mi

APPLICATION DESCRIPTION		
	A	B
Application Date:	05/04/12	06/07/12
Time of Day:	2:30 pm	9:00 am
Application Method:	Spray	Spray
Application Timing:	14EPP	21DAP
Applie. Placement:	Brdcst	Brdcst
Air Temp., Unit:	80 F	69 F
% Relative Humidity:	63	65
Wind Velocity, Unit:	4 mph	2 mph
Wind Direction:	Northeast	West
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	79 F	65 F
Soil Surf. Moisture:	Dry	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	80	10

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	GLXMA	GLXMA
Growth Stage:		2-trifol
Height, Unit:		6 in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	ERICA	ERICA
Growth Stage:	bolting	
Height, Unit:	5 in	
Density, Unit:	20-100 m2	
Weed 2 Code:	OEOLA	OEOLA
Growth Stage:	flower	
Height, Unit:	10 in	
Density, Unit:	0-2 m2	
Weed 3 Code:	CHEAL	CHEAL
Growth Stage:		vegetative
Height, Unit:		4 in
Density, Unit:		0-3 m2
Weed 4 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:		8 in
Density, Unit:		0-3 m2
Weed 5 Code:	IPOSS	IPOSS
Growth Stage:		cot-5 leaf
Height, Unit:		3 in
Density, Unit:		15-70 m2
Weed 6 Code:	GGGAN	GGGAN
Growth Stage:		vegetative
Height, Unit:		8 in
Density, Unit:		0-5 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:	22 in	24 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

06-15-12: Ratings are injury from POST treatments. Treatment 16 has severe leaf puckering and resulting in less leaf expansion. Treatment 14 has leaf discoloration and chlorotic blotches on leaf.

06-22-12: Plot 302 has chlorotic spots from Warrant treatment that are still noticeable. First spray can did not have Roundup in it, so these plots did not receive a POST application of glyphosate: 101, 102, 103, 109, 110, 111, 201, 204, 209, 210, 211, 212, 303, 304, 309, 310, 311, 312.

Dicamba Tolerant Soybeans

Trial ID: Soy30-12 Cooperator: Monsanto
 Location: Field #10 Investigator: Mark VanGessel

Weed Code	ERIC	OEOA	ERIC	AMASS	IPOSS	DIGSA
Crop Code	Horse-weed Control %	Cutleaf EPrimrse Control %	Horse-weed Control %	Pigweed Species Control %	Morngrly Species Control %	Large Crabgras Control %
Weed or Crop Name	05/18/12	05/18/12	06/05/12	06/05/12	06/05/12	06/05/12
Weed or Crop Name						
Rating Data Type						
Rating Unit						
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	14EPP A		
	2,4-D ester	3.8 L	0.95lb ae/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
2	MON76754	4 SL	1.5lb ae/A	14EPP A	73.3 a	62.9 ef
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
3	MON76754	4 SL	1.5lb ae/A	14EPP A	75.0 a	62.9 ef
	Clarity.....dicamba	4 L	0.5lb ai/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
4	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	14EPP A	75.0 a	92.9 a
	2,4-D ester	3.8 L	0.95lb ae/A	14EPP A		
	Valor XLT Premix	40.3 WG	0.0756lb ai/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
5	MON76754	4 SL	1.5lb ae/A	14EPP A	78.7 a	78.0 bcd
	Valor XLT Premix	40.3 WG	0.0756lb ai/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
6	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	14EPP A	73.3 a	93.9 a
	2,4-D ester	3.8 L	0.95lb ae/A	14EPP A		
	Authority First Premix	70 DF	0.131lb ai/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
7	MON76754	4 SL	1.5lb ae/A	14EPP A	79.3 a	83.3 abc
	Authority First Premix	70 DF	0.131lb ai/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
8	MON76754	4 SL	1.5lb ae/A	14EPP A	79.3 a	89.6 ab
	Authority XL Premix	70 DG	0.175lb ai/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
9	MON76754	4 SL	1.5lb ae/A	14EPP A	76.7 a	78.0 bcd
	Canopy Premix	75 DF	0.187lb ai/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
10	MON76754	4 SL	1.5lb ae/A	14EPP A	79.3 a	74.4 cde
	Sencor.....metribuzin	75 DF	0.28lb ai/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
11	MON76754	4 SL	1.5lb ae/A	14EPP A	71.7 a	70.5 c-f
	Harness.....acetochlor	7 E	1.09lb ai/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
12	MON76754	4 SL	1.5lb ae/A	14EPP A	75.0 a	60.6 f
	Warrant.....acetochlor	3 CS	1.13lb ai/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
13	MON76754	4 SL	1.5lb ae/A	14EPP A	75.0 a	83.3 abc
	Valor XLT Premix	40.3 WG	0.0756lb ai/A	14EPP A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B		
	Warrant.....acetochlor	3 CS	1.13lb ai/A	21DAP B		

Weed Code		ERIC A	OEOLA	ERIC A	AMASS	IPOSS	DIGSA			
Crop Code		Horse-weed Control %	Cutleaf EPrimrse Control %	Horse-weed Control %	Pigweed Species Control %	Morngrly Species Control %	Large Crabgras Control %			
Weed or Crop Name		05/18/12	05/18/12	06/05/12	06/05/12	06/05/12	06/05/12			
Weed or Crop Name										
Rating Data Type										
Rating Unit										
Rating Date										
Trt Treatment No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit Stg	Appl Code				
14 MON76754	Valor XLT Premix	4 SL 40.3 WG	1.5lb ae/A 0.0756lb ai/A	14EPP A 14EPP A	75.0 a	83.3 abc	100.0 a	100.0 a	87.0 a	86.0 a
	MON76754	4 SL	1.5lb ae/A	21DAP B						
	Warrant.....acetochlor	3 CS	1.13lb ai/A	21DAP B						
15 MON76754	Valor XLT Premix	4 SL 40.3 WG	1.5lb ae/A 0.0756lb ai/A	14EPP A 14EPP A	75.0 a	83.3 abc	99.0 a	100.0 a	86.7 a	80.0 a
	MON76754	4 SL	1.5lb ae/A	21DAP B						
16 MON76754	Valor XLT Premix	4 SL 40.3 WG	1.5lb ae/A 0.0756lb ai/A	14EPP A 14EPP A	75.0 a	83.3 abc	100.0 a	100.0 a	83.3 ab	92.7 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B						
	Flexstar.....fomesafen	1.88 ME	0.352lb ai/A	21DAP B						
LSD (P=.05)				11.69	13.77	4.85	11.21	15.07	20.97	
Standard Deviation				7.01	8.00	2.90	6.73	9.04	12.57	
CV				9.34	10.24	2.98	7.47	14.43	19.06	
Replicate F				1.551	4.093	0.991	0.311	9.996	0.364	
Replicate Prob(F)				0.2285	0.0354	0.3840	0.7348	0.0005	0.6978	
Treatment F				0.769	5.167	22.078	41.207	23.003	10.615	
Treatment Prob(F)				0.6989	0.0009	0.0001	0.0001	0.0001	0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	GLXMA	GLXMA	AMASS	AMBEL	CHEAL	IPOSS
Weed or Crop Name		Soybean	Soybean	Pigweed Species Control %	Common Ragweed Control %	Common Lambqtrs Control %	Mornlgy Species Control %
Rating Data Type		Injury %	Stunting %	06/22/12	06/22/12	06/22/12	06/22/12
Rating Unit							
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	14EPP A	0.0c	0.0c	51.7 a
	2,4-D ester	3.8 L	0.95lb ae/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
2	MON76754	4 SL	1.5lb ae/A	14EPP A	0.0c	0.0c	83.1 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
3	MON76754	4 SL	1.5lb ae/A	14EPP A	0.0c	0.0c	76.1 a
	Clarity.....dicamba	4 L	0.5lb ai/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
4	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	14EPP A	0.0c	0.0c	100.0 a
	2,4-D ester	3.8 L	0.95lb ae/A	14EPP A			
	Valor XLT Premix	40.3 WG	0.0756lb ai/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
5	MON76754	4 SL	1.5lb ae/A	14EPP A	0.0c	0.0c	100.0 a
	Valor XLT Premix	40.3 WG	0.0756lb ai/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
6	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	14EPP A	0.0c	0.0c	100.0 a
	2,4-D ester	3.8 L	0.95lb ae/A	14EPP A			
	Authority First Premix	70 DF	0.131lb ai/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
7	MON76754	4 SL	1.5lb ae/A	14EPP A	0.0c	0.0c	100.0 a
	Authority First Premix	70 DF	0.131lb ai/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
8	MON76754	4 SL	1.5lb ae/A	14EPP A	0.0c	0.0c	100.0 a
	Authority XL Premix	70 DG	0.175lb ai/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
9	MON76754	4 SL	1.5lb ae/A	14EPP A	0.0c	0.0c	97.2 a
	Canopy Premix	75 DF	0.187lb ai/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
10	MON76754	4 SL	1.5lb ae/A	14EPP A	0.0c	0.0c	68.1 a
	Sencor.....metribuzin	75 DF	0.28lb ai/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
11	MON76754	4 SL	1.5lb ae/A	14EPP A	0.0c	2.3 bc	79.8 a
	Harness.....acetochlor	7 E	1.09lb ai/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
12	MON76754	4 SL	1.5lb ae/A	14EPP A	0.0c	0.0c	93.3 a
	Warrant.....acetochlor	3 CS	1.13lb ai/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
13	MON76754	4 SL	1.5lb ae/A	14EPP A	0.0c	12.3 a	100.0 a
	Valor XLT Premix	40.3 WG	0.0756lb ai/A	14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98lb ae/A	21DAP B			
	Warrant.....acetochlor	3 CS	1.13lb ai/A	21DAP B			

Weed Code		GLXMA	GLXMA	AMASS	AMBEL	CHEAL	IPOSS
Crop Code		Soybean	Soybean	Pigweed Species Control	Common Ragweed Control	Common Lambqtrs Control	Mornlgy Species Control
Weed or Crop Name		Injury %	Stunting %	%	%	%	%
Weed or Crop Name				06/22/12	06/22/12	06/22/12	06/22/12
Rating Data Type							
Rating Unit							
Rating Date							
Trt Treatment No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
14 MON76754	Valor XLT Premix	4 SL 40.3 WG	1.5 lb ae/A 0.0756 lb ai/A	14EPP A 14EPP A			
	MON76754	4 SL	1.5 lb ae/A	21DAP B			
	Warrant.....acetochlor	3 CS	1.13 lb ai/A	21DAP B			
15 MON76754	Valor XLT Premix	4 SL 40.3 WG	1.5 lb ae/A 0.0756 lb ai/A	14EPP A 14EPP A			
	MON76754	4 SL	1.5 lb ae/A	21DAP B			
16 MON76754	Valor XLT Premix	4 SL 40.3 WG	1.5 lb ae/A 0.0756 lb ai/A	14EPP A 14EPP A			
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP B			
	Flexstar.....fomesafen	1.88 ME	0.352 lb ai/A	21DAP B			
LSD (P=.05)				1.94	4.55	32.69	38.23
Standard Deviation				1.16	2.73	18.53	21.68
CV				57.58	121.26	20.46	22.51
Replicate F				0.754	0.940	0.748	1.230
Replicate Prob(F)				0.4793	0.4017	0.4924	0.3241
Treatment F				82.723	7.304	1.893	0.437
Treatment Prob(F)				0.0001	0.0001	0.1274	0.9361
							0.1268

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code			GGGAN				
Crop Code			Annual				
Weed or Crop Name			Grasses				
Weed or Crop Name			Control				
Rating Data Type			%				
Rating Unit			06/22/12				
Rating Date							
Trt	Treatment	Form Conc	Form Type	Rate	Grow Unit	Appl Stg	Code
No.	Name						
1	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP	A		64.0 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
2	MON76754	4 SL	1.5 lb ae/A	14EPP	A		93.6 a
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
3	MON76754	4 SL	1.5 lb ae/A	14EPP	A		93.1 a
	Clarity.....dicamba	4 L	0.5 lb ai/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
4	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP	A		96.7 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Valor XLT Premix	40.3 WG	0.0756 lb ai/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
5	MON76754	4 SL	1.5 lb ae/A	14EPP	A		99.7 a
	Valor XLT Premix	40.3 WG	0.0756 lb ai/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
6	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	14EPP	A		100.0 a
	2,4-D ester	3.8 L	0.95 lb ae/A	14EPP	A		
	Authority First Premix	70 DF	0.131 lb ai/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
7	MON76754	4 SL	1.5 lb ae/A	14EPP	A		100.0 a
	Authority First Premix	70 DF	0.131 lb ai/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
8	MON76754	4 SL	1.5 lb ae/A	14EPP	A		99.7 a
	Authority XL Premix	70 DG	0.175 lb ai/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
9	MON76754	4 SL	1.5 lb ae/A	14EPP	A		93.2 a
	Canopy Premix	75 DF	0.187 lb ai/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
10	MON76754	4 SL	1.5 lb ae/A	14EPP	A		93.5 a
	Sencor.....metribuzin	75 DF	0.28 lb ai/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
11	MON76754	4 SL	1.5 lb ae/A	14EPP	A		96.3 a
	Harness.....acetochlor	7 E	1.09 lb ai/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
12	MON76754	4 SL	1.5 lb ae/A	14EPP	A		100.0 a
	Warrant.....acetochlor	3 CS	1.13 lb ai/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
13	MON76754	4 SL	1.5 lb ae/A	14EPP	A		99.7 a
	Valor XLT Premix	40.3 WG	0.0756 lb ai/A	14EPP	A		
	Roundup PowerMax..glyphosate	4.5 AS	0.98 lb ae/A	21DAP	B		
	Warrant.....acetochlor	3 CS	1.13 lb ai/A	21DAP	B		

Weed Code		GGGAN					
Crop Code		Annual Grasses					
Weed or Crop Name		Control %					
Weed or Crop Name		06/22/12					
Rating Data Type							
Rating Unit							
Rating Date							
Trt	Treatment	Form	Form	Rate	Grow	Appl	
No.	Name	Conc	Type	Rate	Unit	Stg	Code
14	MON76754 Valor XLT Premix MON76754 Warrant.....acetochlor	4 SL 40.3 WG	1.5lb ae/A 0.0756lb ai/A	14EPP A			100.0 a
15	MON76754 Valor XLT Premix MON76754	4 SL 40.3 WG	1.5lb ae/A 0.0756lb ai/A	14EPP A			99.7 a
16	MON76754 Valor XLT Premix Roundup PowerMax..glyphosate Flexstar.....fomesafen	4 SL 40.3 WG 4.5 AS 1.88 ME	1.5lb ae/A 0.0756lb ai/A 0.98lb ae/A 0.352lb ai/A	14EPP A 14EPP A 21DAP B 21DAP B			97.3 a
LSD (P=.05)							37.35
Standard Deviation							21.18
CV							22.2
Replicate F							1.081
Replicate Prob(F)							0.3679
Treatment F							0.520
Treatment Prob(F)							0.8868

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Impact of Irrigation on Safety of Spartan Charge

Trial ID: Bean2-12 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

Crop 1: Lima Bean	PHSLU	Variety: Cypress and C-Elite
Planting Date: 05/29/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 4 Sd/row-ft	Row Spacing: 30 in	Seed Bed: Smooth
Soil Temperature: 88 F	Soil Moisture: Moist	Emergence Date: 06/03/12

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 and Field Cultivated

SOIL DESCRIPTION

% Sand: 83	% OM: 0.9	Texture: loamy sand
% Silt: 8	pH: 6.2	
% Clay: 9	CEC: 5.2	Fert. Level: Medium

Irrigation/Type: Sprinkler - Traveling Gun **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:	05/21/12	05/29/12	05/31/12
Time of Day:	11:00 am	3:00 pm	3:30 pm
Application Method:	Spray	Spray	Spray
Application Timing:	7 DPP	PRE	PRE
Appli. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	72 F	89 F	84 F
% Relative Humidity:	78	50	47
Wind Velocity, Unit:	5 mph	8 mph	3 mph
Wind Direction:	Southeast	Southwest	Northeast
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	72 F	89 F	82 F
Soil Surf. Moisture:	Wet	Dry	Moist
Root Zone Moisture:	Wet	Moist	Moist
Leaf Surf. Moisture:	N/A	N/A	N/A
% Cloud Cover:	95	50	30

APPLICATION EQUIPMENT			
	A	B	C
Appl. Equipment:	Backpack	Tractor	Tractor
Operating Pressure:	31 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:	6 nozl	6 nozl	6 nozl
Boom Height, Unit:	18 in	18 in	18 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	Comp. Air	Comp. Air

Trial Comments								
06-13-12: Stunting includes biomass reduction.								
Stand counts in borders on 6-13-12.								

Rep#	Cypress				C-Elite			
	Total #	<2 unifloiate	Stunted	Injured	Total#	<2 unifloiate	Stunted	Injured
1	38	2	3	2	46	4	5	1
2	40	4	4	3	42	2	2	2
3	40	1	3	3	50	7	3	0

Impact of Irrigation on Safety of Spartan Charge									
Trial ID: Bean2-12		Cooperator:							
Location: Field #30		Investigator: Mark VanGessel							
Crop Code		PHSLU	PHSLU	PHSLU	PHSLU	PHSLU	PHSLU	PHSLU	PHSLU
Weed or Crop Name	Cypress	Cypress	Cypress	Cypress	Cypress	C-elite	C-elite	C-elite	C-elite
Weed or Crop Name	lima	lima	lima	lima	lima	lima	lima	lima	lima
Rating Data Type	std ct	<2unifol	stunted	injured	std ct	<2unifol	stunted	injured	std ct
Rating Unit	#/10'row	#/10'row	#/10'row	#/10'row	#/10'row	#/10'row	#/10'row	#/10'row	#/10'row
Rating Date	06/13/12	06/13/12	06/13/12	06/13/12	06/13/12	06/13/12	06/13/12	06/13/12	06/13/12
Trt Treatment	Form	Form	Rate	Grow	Appl				
No. Name	Conc	Type	Rate	Unit	Stg	Code			
1 Spartan Charge Premix	3.5 F	0.103 lb ai/A	7 DPP	A	39.0a	2.3a	2.7a	1.7b	38.7a
Incorporated with irrig									3.7a
2 Spartan Charge Premix	3.5 F	0.205 lb ai/A	7 DPP	A	40.0a	1.0a	2.7a	0.7b	41.7a
Incorporated with irrig									3.3a
3 Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	B	39.7a	5.3a	3.7a	1.7b	43.3a
Incorporated with irrig									3.7a
4 Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	C	39.3a	4.0a	4.0a	3.3a	35.7a
Not Irrigated									3.7a
5 Untreated Check					44.0a	3.0a	2.3a	1.0b	41.0a
LSD (P=.05)					5.31	3.67	1.48	1.35	8.57
Standard Deviation					2.82	1.95	0.79	0.72	4.55
CV					6.99	62.21	25.61	43.13	11.36
Replicate F					0.477	2.228	3.027	0.516	0.795
Replicate Prob(F)					0.6372	0.1701	0.1050	0.6154	0.4843
Treatment F					1.577	2.132	2.541	6.129	1.282
Treatment Prob(F)					0.2700	0.1682	0.1219	0.0147	0.3532
									0.9773
									0.4576

Crop Code		PHSLU	PHSLU	PHSLU	PHSLU	PHSLU	PHSLU	PHSLU	PHSLU
Weed or Crop Name	C-elite	Cypress	C-elite	Cypress	C-elite	Cypress	C-elite	C-elite	C-elite
Weed or Crop Name	lima	lima	lima	lima	lima	lima	lima	lima	lima
Rating Data Type	injured	Stunting	injured	Stunting	injured	Stunting	injured	Stunting	injured
Rating Unit	#/10'row	%	#/10'row	%	#/10'row	%	#/10'row	%	#/10'row
Rating Date	06/13/12	06/13/12	06/13/12	06/13/12	06/13/12	06/25/12	06/25/12	06/25/12	06/25/12
Trt Treatment	Form	Form	Rate	Grow	Appl				
No. Name	Conc	Type	Rate	Unit	Stg	Code			
1 Spartan Charge Premix	3.5 F	0.103 lb ai/A	7 DPP	A	0.3a	12.0b	5.7bc	3.3b	2.3b
Incorporated with irrig									
2 Spartan Charge Premix	3.5 F	0.205 lb ai/A	7 DPP	A	0.7a	14.7ab	11.3ab	5.0b	3.3b
Incorporated with irrig									
3 Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	B	0.7a	14.0b	11.3ab	0.0b	0.0b
Incorporated with irrig									
4 Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	C	1.3a	17.0a	15.7a	14.0a	12.3a
Not Irrigated									
5 Untreated Check					3.3a	0.0c	0.0c	0.0b	0.0b
LSD (P=.05)					3.50	2.80	5.98	7.54	6.41
Standard Deviation					1.86	1.49	3.18	4.00	3.41
CV					146.64	12.91	36.08	89.6	94.61
Replicate F					0.541	0.211	4.463	2.951	0.828
Replicate Prob(F)					0.6020	0.8145	0.0499	0.1097	0.4713
Treatment F					1.275	60.571	10.952	6.198	6.716
Treatment Prob(F)					0.3556	0.0001	0.0025	0.0143	0.0113

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Impact of Irrigation on Safety of Spartan Charge

Trial ID: Bean2b-12 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

Crop 1: Lima Bean	PHSLU	Variety: Cypress and C-Elite
Planting Date: 07/25/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 4 Sd/row-ft	Row Spacing: 30 in	Seed Bed: Smooth
Soil Temperature: 84 F	Soil Moisture: Moist	Emergence Date: 07/30/12

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 and Field Cultivated

SOIL DESCRIPTION

% Sand: 83 % OM: 0.9 Texture: loamy sand
% Silt: 8 pH: 6.2
% Clay: 9 CEC: 5.2 Fert. Level: Medium
Irrigation/Type: Sprinkler - Traveling Gun 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:	07/18/12	07/25/12	07/27/12
Time of Day:	11:30 am	1:30 pm	7:45 am
Application Method:	Spray	Spray	Spray
Application Timing:	7 EPP	PRE	PRE
Appl. Placement:	Brdcst	Brdcst	Brdcst
Air Temp., Unit:	94 F	84 F	82 F
% Relative Humidity:	51	32	75
Wind Velocity, Unit:	3 mph	4 mph	1 mph
Wind Direction:	Southwest	North	Northwest
Dew Presence (Y/N):	N	N	Y
Soil Temp., Unit:	93 F	84 F	79 F
Soil Surf. Moisture:	Dry	Dry	Moist
Root Zone Moisture:	Dry	Dry	Moist
Leaf Surf. Moisture:	N/A	N/A	N/A
% Cloud Cover:	30	0	15

APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	Tractor	Tractor	Tractor
Operating Pressure:	40 psi	40 psi	40 psi
Nozzle Type:	AIR MIX	AIR MIX	AIR MIX
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:	18 in	18 in	18 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

(Bean2b-12)

University of Delaware

Impact of Irrigation on Safety of Spartan Charge

Trial ID: Bean2b-12 Cooperator:
 Location: Field #30 Investigator: Mark VanGessel

Crop Code	PHSLU Cypress lima Stunting %	PHSLU C-elite lima Stunting %	PHSLU Cypress lima std ct #/10'row	PHSLU Cypress lima <2unifol #/10'row	PHSLU Cypress lima stunted #/10'row	PHSLU Cypress lima injured #/10'row	PHSLU C-elite lima std ct #/10'row	
Trt Treatment No. Name	Form Conc Form Type	Rate Rate	Grow Unit	Appl Stg	Code			
1 Spartan Charge Premix Incorporated with irrig	3.5 F	0.103 lb ai/A	7 DPP	A	2.3 bc	2.3 c	31.7 a	2.0 a
2 Spartan Charge Premix Incorporated with irrig	3.5 F	0.205 lb ai/A	7 DPP	A	15.7 a	22.3 a	27.0 a	4.3 a
3 Spartan Charge Premix Incorporated with irrig PRE	3.5 F	0.103 lb ai/A	PRE	B	3.3 bc	7.3 bc	31.7 a	1.7 a
4 Spartan Charge Premix Not Irrigated	3.5 F	0.103 lb ai/A	PRE	C	7.0 b	14.7 ab	30.7 a	3.3 a
5 Untreated Check					0.0 c	0.0 c	29.0 a	1.3 a
LSD (P=.05)		4.89	7.72	3.42	2.90	4.81	5.23	5.47
Standard Deviation		2.59	4.10	1.82	1.54	2.56	2.78	2.91
CV		45.79	43.94	6.06	60.73	53.25	297.63	8.18
Replicate F		3.574	1.074	3.879	0.366	0.031	1.356	0.103
Replicate Prob(F)		0.0778	0.3861	0.0664	0.7044	0.9700	0.3110	0.9037
Treatment F		16.757	15.055	3.636	2.014	0.908	0.981	0.426
Treatment Prob(F)		0.0006	0.0009	0.0568	0.1853	0.5031	0.4695	0.7863

Crop Code	PHSLU C-elite lima <2unifol #/10'row	PHSLU C-elite lima stunted #/10'row	PHSLU C-elite lima injured #/10'row	PHSLU Cypress lima Stunting %	PHSLU C-elite lima std Stunting %
Trt Treatment No. Name	Form Conc Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1 Spartan Charge Premix Incorporated with irrig	3.5 F	0.103 lb ai/A	7 DPP	A	2.0 bc
2 Spartan Charge Premix Incorporated with irrig	3.5 F	0.205 lb ai/A	7 DPP	A	3.7 a
3 Spartan Charge Premix Incorporated with irrig PRE	3.5 F	0.103 lb ai/A	PRE	B	2.3 ab
4 Spartan Charge Premix Not Irrigated	3.5 F	0.103 lb ai/A	PRE	C	1.3 bc
5 Untreated Check		0.7 c	1.7 a	0.0 a	0.0 c
LSD (P=.05)		1.67	2.51	0.97	6.81
Standard Deviation		0.89	1.34	0.52	3.62
CV		44.25	77.04	387.3	67.86
Replicate F		0.255	1.607	1.000	0.249
Replicate Prob(F)		0.7807	0.2589	0.4096	0.7851
Treatment F		4.894	0.131	1.000	6.145
Treatment Prob(F)		0.0272	0.9667	0.4609	0.0146

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Controlling Hard to Manage Weeds in Snap Beans

Trial ID: Bean3-12 Cooperator: PA Vegetable Growers
 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

CROP AND WEED DESCRIPTION

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

Crop 1: Snap Bean	PHSVN	Variety: Dart
Planting Date: 07/03/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 7 Sd/row-ft	Row Spacing: 30 in	Seed Bed: Smooth
Soil Temperature: 90 F	Soil Moisture: Moist	Emergence Date: 07/08/12

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 and Field Cultivated

SOIL DESCRIPTION

% Sand: 81 % OM: 1.3 Texture: loamy sand
 % Silt: 12 pH: 6.0
 % Clay: 7 CEC: 5.3 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:	07/05/12	07/19/12
Time of Day:	9:00 am	1:15 pm
Application Method:	Spray	Spray
Application Timing:	PRE	4" weeds
Appli. Placement:	Brdcst	Brdcst
Air Temp., Unit:	89 F	92 F
% Relative Humidity:	50	50
Wind Velocity, Unit:	2 mph	3 mph
Wind Direction:	Northwest	North
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	87 F	91 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Moist	Wet
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	30	55

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	PHSVN	PHSVN
Growth Stage:		2-trifol
Height, Unit:	7	in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	IPOSS	IPOSS
Growth Stage:		cot-4 leaf
Height, Unit:	2	in
Density, Unit:	0-8	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	24 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

7-17-12: Beans are at unifoliate stage. First set of trifoliates are out but not second set. Beans are 4-5" tall.

8-13-12: Treatment 7 is weak on lambsquarters. Treatments 8 & 3 are weak on jimsonweed.

Controlling Hard to Manage Weeds in Snap Beans											
Trial ID: Bean3-12		Cooperator: PA Vegetable Growers									
Location: Field #18		Investigator: Mark VanGessel									
Weed Code		PHSVN	AMASS	IPOSS	PHSVN	AMASS	IPOSS				
Crop Code		Snap	Pigweed	Mornglry	Snap	Pigweed	Mornglry				
Weed or Crop Name		Bean	Species	Species	Bean	Species	Species				
Weed or Crop Name		BiomsRdx	Control	%	Stunting	Control	%				
Rating Data Type		%	07/17/12	07/17/12	%	07/31/12	07/31/12				
Rating Unit											
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code				
1	Untreated Check										
2	Dual Magnum.....s-metolachlor Sharpen.....saflufenacil	7.62 E 2.85 SC	1.19 lb ai/A 0.0223 lb ai/A	PRE	A A	96.3 a	100.0 a	90.0 a	90.0 a	99.0 a	79.3 a
3	Dual Magnum.....s-metolachlor Reflex.....fomesafen	7.62 E 2 L	1.19 lb ai/A 0.312 lb ai/A	PRE	A A	7.0 d	100.0 a	74.3 ab	5.7 de	96.0 ab	53.3 b
4	Zidua.....pyroxasulfone	85 WG	0.106 lb ai/A	PRE	A	23.3 b	100.0 a	76.0 ab	28.3 b	100.0 a	63.3 ab
	Reflex.....fomesafen	2 L	0.312 lb ai/A	PRE	A						
5	Dual Magnum.....s-metolachlor Reflex.....fomesafen Nonionic Surfactant	7.62 E 2 L 100 L	1.19 lb ai/A 0.25 lb ai/A 0.25 % v/v	PRE 4" weeds 4" weeds	B B	9.0 d	93.3 a	13.3 c	15.0 c	100.0 a	68.3 ab
6	Dual Magnum.....s-metolachlor Sandea.....halosulfuron	7.62 E 75 DF	1.19 lb ai/A 0.0314 lb ai/A	PRE	A A	18.3 c	100.0 a	84.3 ab	26.7 b	100.0 a	74.3 a
7	Dual Magnum.....s-metolachlor Sandea.....halosulfuron Nonionic Surfactant	7.62 E 75 DF 100 L	1.19 lb ai/A 0.0314 lb ai/A 0.25 % v/v	PRE 4" weeds 4" weeds	B B	0.0 e	100.0 a	20.0 c	2.3 e	100.0 a	79.3 a
8	Dual Magnum.....s-metolachlor Reflex.....fomesafen	7.62 E 2 L	1.59 lb ai/A 0.312 lb ai/A	PRE	A A	10.7 d	100.0 a	65.0 b	9.7 cd	93.3 b	56.7 b
LSD (P=.05)						3.90	7.15	20.72	6.71	5.65	16.24
Standard Deviation						2.23	4.08	11.83	3.83	3.22	9.27
CV						10.81	4.71	22.37	17.24	3.75	15.63
Replicate F						2.558	1.000	0.676	0.207	1.110	2.852
Replicate Prob(F)						0.1130	0.3927	0.5243	0.8151	0.3569	0.0914
Treatment F						607.072	221.714	27.416	176.104	350.429	23.348
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	GGGAN	PHSVN	AMASS	IPOSS	PHSVN
Weed or Crop Name	Weed or Crop Name	Annual Grasses Control %	Snap Bean Stunting %	Pigweed Species Control %	Morngrly Species Control %	Snap Bean Wt lbs /25rowFt
Rating Data Type	Rating Unit	07/31/12	08/13/12	08/13/12	08/13/12	08/23/12
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1	Untreated Check			0.0 b		
2	Dual Magnum.....s-metolachlor Sharpen.....saflufenacil	7.62 E 2.85 SC	1.19 lb ai/A 0.0223 lb ai/A	PRE PRE	A A	100.0 a 91.7 a
3	Dual Magnum.....s-metolachlor Reflex.....fomesafen	7.62 E 2 L	1.19 lb ai/A 0.312 lb ai/A	PRE PRE	A A	100.0 a 3.3 cd
4	Zidua.....pyroxasulfone Reflex.....fomesafen	85 WG 2 L	0.106 lb ai/A 0.312 lb ai/A	PRE PRE	A A	100.0 a 15.7 b
5	Dual Magnum.....s-metolachlor Reflex.....fomesafen Nonionic Surfactant	7.62 E 2 L 100 L	1.19 lb ai/A 0.25 lb ai/A 0.25 % v/v	PRE 4" weeds B	A	100.0 a 9.0 bc
6	Dual Magnum.....s-metolachlor Sandea.....halosulfuron	7.62 E 75 DF	1.19 lb ai/A 0.0314 lb ai/A	PRE PRE	A A	100.0 a 96.0 a
7	Dual Magnum.....s-metolachlor Sandea.....halosulfuron Nonionic Surfactant	7.62 E 75 DF 100 L	1.19 lb ai/A 0.0314 lb ai/A 0.25 % v/v	PRE 4" weeds B	A	100.0 a 0.0 d
8	Dual Magnum.....s-metolachlor Reflex.....fomesafen	7.62 E 2 L	1.59 lb ai/A 0.312 lb ai/A	PRE PRE	A A	100.0 a 100.0 a
LSD (P=.05)			0.00	7.42	10.50	11.53
Standard Deviation			0.00	4.17	5.90	6.48
CV			0.0	22.69	6.2	9.41
Replicate F			0.000	0.266	0.053	2.678
Replicate Prob(F)			1.0000	0.7712	0.9483	0.1093
Treatment F			0.000	185.560	2.602	4.374
Treatment Prob(F)			1.0000	0.0001	0.0748	0.0143
						0.567
						0.5795
						31.971
						0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Postemergence Herbicide Combinations for Snap Beans

Trial ID: Bean4-12 Cooperator: PA Vegetable Growers
 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

CROP AND WEED DESCRIPTION

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

Crop 1: Snap Bean	PHSVN	Variety: Dart
Planting Date: 07/03/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 7 Sd/row-ft	Row Spacing: 30 in	Seed Bed: Smooth
Soil Temperature: 90 F	Soil Moisture: Moist	Emergence Date: 07/08/12

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 and Field Cultivated

SOIL DESCRIPTION

% Sand: 81 % OM: 1.3 Texture: loamy sand
 % Silt: 12 pH: 6.0
 % Clay: 7 CEC: 5.3 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:	07/05/12	07/19/12
Time of Day:	10:00 am	1:30 pm
Application Method:	Spray	Spray
Application Timing:	PRE	4" weeds
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	92 F	92 F
% Relative Humidity:	47	50
Wind Velocity, Unit:	2 mph	3 mph
Wind Direction:	North	North
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	90 F	91 F
Soil Surf. Moisture:	Dry	Moist
Root Zone Moisture:	Moist	Wet
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	30	55

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	PHSVN	PHSVN
Growth Stage:		2-trifol
Height, Unit:	7	in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	IPOSS	IPOSS
Growth Stage:		cot-4 leaf
Height, Unit:	2	in
Density, Unit:	0-8	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	24 in
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	20 gpa	20 gpa
Propellant:	Comp. Air	Comp. Air

<p>Trial Comments</p> <p>07-17-12: Beans are at unifoliate stage. First trifoliates are open but second set is not. Beans are about 4-5" tall.</p> <p>07-27-12: Beans were rated for leaf injury, either chlorosis or leaf burn depending on the herbicides and/or adjuvants.</p>

Postemergence Herbicide Combinations for Snap Beans

Trial ID: Bean4-12 Cooperator: PA Vegetable Growers

Location: Field #18 Investigator: Mark VanGessel

Weed Code	Crop Code	PHSVN	PHSVN	PHSVN	PHSVN	AMASS	CHEAL
Weed or Crop Name		Snap	Snap	Snap	Snap	Pigweed	Common
Weed or Crop Name		Bean	Bean	Bean	Bean	Species	Lambqtrs
Rating Data Type		Stunting %	Clrs_lfb %	Stunting %	Clrs_lfb %	Control %	Control %
Rating Unit		07/17/12	07/28/12	07/28/12	08/01/12	08/01/12	08/01/12
Rating Date							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1	Untreated Check						
	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	0.0c	0.0e
2	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	10.7 d	19.0 a
	Basagran.....bentazon	4 L	0.75 lb ai/A	4" weeds	B		
	Raptor.....imazamox	1 AS	0.0312 lb ai/A	4" weeds	B		
	Nonionic Surfactant	100 L	0.25 % v/v	4" weeds	B		
	30% Urea Ammonium Nitrate	100 L	2.5 % v/v	4" weeds	B		
3	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	9.0 d	12.0 bcd
	Basagran.....bentazon	4 L	0.75 lb ai/A	4" weeds	B		
	Raptor.....imazamox	1 AS	0.0312 lb ai/A	4" weeds	B		
	Nonionic Surfactant	100 L	0.25 % v/v	4" weeds	B		
4	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	13.0 cd	12.0 bcd
	Basagran.....bentazon	4 L	0.75 lb ai/A	4" weeds	B		
	Raptor.....imazamox	1 AS	0.0312 lb ai/A	4" weeds	B		
	LI-700	100 L	0.25 % v/v	4" weeds	B		
5	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	18.3 b	15.3 ab
	Basagran.....bentazon	4 L	0.75 lb ai/A	4" weeds	B		
	Reflex.....fomesafen	2 L	0.187 lb ai/A	4" weeds	B		
	Nonionic Surfactant	100 L	0.25 % v/v	4" weeds	B		
	30% Urea Ammonium Nitrate	100 L	2.5 % v/v	4" weeds	B		
6	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	11.3 d	10.7 bcd
	Basagran.....bentazon	4 L	0.75 lb ai/A	4" weeds	B		
	Reflex.....fomesafen	2 L	0.187 lb ai/A	4" weeds	B		
	Nonionic Surfactant	100 L	0.25 % v/v	4" weeds	B		
7	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	13.3 cd	11.7 bcd
	Basagran.....bentazon	4 L	0.75 lb ai/A	4" weeds	B		
	Reflex.....fomesafen	2 L	0.187 lb ai/A	4" weeds	B		
	LI-700	100 L	0.25 % v/v	4" weeds	B		
8	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	11.3 d	13.7 abc
	Basagran.....bentazon	4 L	0.75 lb ai/A	4" weeds	B		
	Raptor.....imazamox	1 AS	0.0312 lb ai/A	4" weeds	B		
	Reflex.....fomesafen	2 L	0.187 lb ai/A	4" weeds	B		
	Nonionic Surfactant	100 L	0.25 % v/v	4" weeds	B		
9	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	12.3 b	17.3 bc
	Reflex.....fomesafen	2 L	0.312 lb ai/A	PRE	A		
	Sandeal.....halosulfuron	75 DF	0.0314 lb ai/A	4" weeds	B		
	Nonionic Surfactant	100 L	0.25 % v/v	4" weeds	B		
10	Dual Magnum.....s-metolachlor	7.62 E	1.19 lb ai/A	PRE	A	20.7 a	23.3 a
	Sandeal.....halosulfuron	75 DF	0.0314 lb ai/A	PRE	A		
	Reflex.....fomesafen	2 L	0.25 lb ai/A	4" weeds	B		
	Nonionic Surfactant	100 L	0.25 % v/v	4" weeds	B		
LSD (P=.05)				7.46	4.82	5.95	5.21
Standard Deviation				3.29	2.81	3.47	3.03
CV				29.92	22.02	31.74	31.95
Replicate F				0.092	0.662	0.468	0.879
Replicate Prob(F)				0.9137	0.5277	0.6337	0.4321
Treatment F				29.938	14.750	6.661	14.421
Treatment Prob(F)				0.0039	0.0001	0.0003	0.0001

Weed Code	Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	IPOSS Morngrly Species Control %	PHSVN Snap Bean Stunting %	ABUTH Velvet- leaf Control %	CHEAL Common Lambqtrs Control %	DATST Jimson- weed Control %	IPOSS Morngrly Species Control %
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg						
1	Untreated Check						0.0e	0.0a	0.0b	0.0b	0.8b	33.3 e
2	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	PRE	A	76.0c	5.7 a	100.0 a	100.0 a	100.0 a	86.7 a
	Basagran.....bentazon	4 L		0.75 lb ai/A	4" weeds	B						
	Raptor.....imazamox	1 AS		0.0312 lb ai/A	4" weeds	B						
	Nonionic Surfactant	100 L		0.25 % v/v	4" weeds	B						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	4" weeds	B						
3	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	PRE	A	73.3c	3.3 a	100.0 a	100.0 a	100.0 a	75.0 bcd
	Basagran.....bentazon	4 L		0.75 lb ai/A	4" weeds	B						
	Raptor.....imazamox	1 AS		0.0312 lb ai/A	4" weeds	B						
	Nonionic Surfactant	100 L		0.25 % v/v	4" weeds	B						
4	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	PRE	A	71.7c	4.0 a	100.0 a	100.0 a	100.0 a	78.3 abc
	Basagran.....bentazon	4 L		0.75 lb ai/A	4" weeds	B						
	Raptor.....imazamox	1 AS		0.0312 lb ai/A	4" weeds	B						
	LI-700	100 L		0.25 % v/v	4" weeds	B						
5	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	PRE	A	71.7c	2.3 a	100.0 a	100.0 a	100.0 a	71.7 cd
	Basagran.....bentazon	4 L		0.75 lb ai/A	4" weeds	B						
	Reflex.....fomesafen	2 L		0.187 lb ai/A	4" weeds	B						
	Nonionic Surfactant	100 L		0.25 % v/v	4" weeds	B						
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v	4" weeds	B						
6	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	PRE	A	79.3bc	2.3 a	100.0 a	100.0 a	100.0 a	75.3 bcd
	Basagran.....bentazon	4 L		0.75 lb ai/A	4" weeds	B						
	Reflex.....fomesafen	2 L		0.187 lb ai/A	4" weeds	B						
	Nonionic Surfactant	100 L		0.25 % v/v	4" weeds	B						
7	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	PRE	A	60.0d	2.3 a	100.0 a	100.0 a	100.0 a	68.3 d
	Basagran.....bentazon	4 L		0.75 lb ai/A	4" weeds	B						
	Reflex.....fomesafen	2 L		0.187 lb ai/A	4" weeds	B						
	LI-700	100 L		0.25 % v/v	4" weeds	B						
8	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	PRE	A	85.3 ab	3.3 a	100.0 a	100.0 a	100.0 a	81.7 ab
	Basagran.....bentazon	4 L		0.75 lb ai/A	4" weeds	B						
	Raptor.....imazamox	1 AS		0.0312 lb ai/A	4" weeds	B						
	Reflex.....fomesafen	2 L		0.187 lb ai/A	4" weeds	B						
	Nonionic Surfactant	100 L		0.25 % v/v	4" weeds	B						
9	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	PRE	A	73.3c	5.7 a	100.0 a	100.0 a	100.0 a	76.0 bcd
	Reflex.....fomesafen	2 L		0.312 lb ai/A	PRE	A						
	Sandeal.....halosulfuron	75 DF		0.0314 lb ai/A	4" weeds	B						
	Nonionic Surfactant	100 L		0.25 % v/v	4" weeds	B						
10	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	PRE	A	87.7a	11.7 a	100.0 a	100.0 a	100.0 a	79.3 abc
	Sandeal.....halosulfuron	75 DF		0.0314 lb ai/A	PRE	A						
	Reflex.....fomesafen	2 L		0.25 lb ai/A	4" weeds	B						
	Nonionic Surfactant	100 L		0.25 % v/v	4" weeds	B						
LSD (P=.05)							8.25	6.77	0.00	0.00	0.45	9.33
Standard Deviation							4.81	3.95	0.00	0.00	0.26	5.44
CV							7.09	97.07	0.0	0.0	0.29	7.5
Replicate F							0.313	3.173	0.000	0.000	0.889	0.319
Replicate Prob(F)							0.7353	0.0660	1.0000	1.0000	0.4305	0.7310
Treatment F							81.468	1.915	0.000	0.000	43010.672	21.906
Treatment Prob(F)							0.0001	0.1151	1.0000	1.0000	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL

Weed Code					PHSVN
Crop Code					Snap
Weed or Crop Name					Bean
Weed or Crop Name					Wt lbs
Rating Data Type					25'row
Rating Unit					08/23/12
Rating Date					
Trt	Treatment	Form Conc	Form Type	Rate Rate	Grow Stg Appl Code
No.	Name				
1	Untreated Check				6.087 a
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A PRE	A
2	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A PRE	A
	Basagran.....bentazon	4 L		0.75 lb ai/A 4" weeds	B
	Raptor.....imazamox	1 AS		0.0312 lb ai/A 4" weeds	B
	Nonionic Surfactant	100 L		0.25 % v/v 4" weeds	B
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v 4" weeds	B
3	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A PRE	A
	Basagran.....bentazon	4 L		0.75 lb ai/A 4" weeds	B
	Raptor.....imazamox	1 AS		0.0312 lb ai/A 4" weeds	B
	Nonionic Surfactant	100 L		0.25 % v/v 4" weeds	B
4	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A PRE	A
	Basagran.....bentazon	4 L		0.75 lb ai/A 4" weeds	B
	Raptor.....imazamox	1 AS		0.0312 lb ai/A 4" weeds	B
	LI-700	100 L		0.25 % v/v 4" weeds	B
5	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A PRE	A
	Basagran.....bentazon	4 L		0.75 lb ai/A 4" weeds	B
	Reflex.....fomesafen	2 L		0.187 lb ai/A 4" weeds	B
	Nonionic Surfactant	100 L		0.25 % v/v 4" weeds	B
	30% Urea Ammonium Nitrate	100 L		2.5 % v/v 4" weeds	B
6	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A PRE	A
	Basagran.....bentazon	4 L		0.75 lb ai/A 4" weeds	B
	Reflex.....fomesafen	2 L		0.187 lb ai/A 4" weeds	B
	Nonionic Surfactant	100 L		0.25 % v/v 4" weeds	B
7	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A PRE	A
	Basagran.....bentazon	4 L		0.75 lb ai/A 4" weeds	B
	Reflex.....fomesafen	2 L		0.187 lb ai/A 4" weeds	B
	LI-700	100 L		0.25 % v/v 4" weeds	B
8	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A PRE	A
	Basagran.....bentazon	4 L		0.75 lb ai/A 4" weeds	B
	Raptor.....imazamox	1 AS		0.0312 lb ai/A 4" weeds	B
	Reflex.....fomesafen	2 L		0.187 lb ai/A 4" weeds	B
	Nonionic Surfactant	100 L		0.25 % v/v 4" weeds	B
9	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A PRE	A
	Reflex.....fomesafen	2 L		0.312 lb ai/A PRE	A
	Sandea.....halosulfuron	75 DF		0.0314 lb ai/A 4" weeds	B
	Nonionic Surfactant	100 L		0.25 % v/v 4" weeds	B
10	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A PRE	A
	Sandea.....halosulfuron	75 DF		0.0314 lb ai/A PRE	A
	Reflex.....fomesafen	2 L		0.25 lb ai/A 4" weeds	B
	Nonionic Surfactant	100 L		0.25 % v/v 4" weeds	B
LSD (P=.05)					2.6263
Standard Deviation					1.5310
CV					21.45
Replicate F					0.415
Replicate Prob(F)					0.6666
Treatment F					0.946
Treatment Prob(F)					0.5119

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL

Phaseolus safety to Kixor

Trial ID: Bean5-12 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

Crop 1: Snap Bean

Planting Date: 07/03/12

PHSVN

Variety: Dart

Rate: 5 Sd/row-ft

Planting Method: Row- Unit Planter

Depth: 1 in

Soil Temperature: 90 F

Row Spacing: 30 in

Seed Bed: Smooth

Soil Moisture: Moist

Emergence Date: 07/08/12

Crop 2: Lima Bean

Planting Date: 07/03/12

PHSLU

Variety: Cypress

Rate: 5 Sd/row-ft

Planting Method: Row- Unit Planter

Depth: 1 in

Soil Temperature: 90 F

Row Spacing: 30 in

Seed Bed: Smooth

Soil Moisture: Moist

Emergence Date: 07/07/12

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 2

Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK

Tillage Type: Disked twice and Field Cultivated

SOIL DESCRIPTION

% Sand: 81 % OM: 1.3 Texture: loamy sand

% Silt: 12 pH: 6.0

% Clay: 7 CEC: 5.3 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:	07/05/12
Time of Day:	10:00 am
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	92 F
% Relative Humidity:	47
Wind Velocity, Unit:	2 mph
Wind Direction:	North
Dew Presence (Y/N):	N
Soil Temp., Unit:	90 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	30

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

07-17-12: Injury for treatments 1 to 4 was due to biomass reduction. Injury for treatments 5 and 6 was due to leaf burn and stunting. Treatment 6 also caused some plant death.

Phaseolus safety to Kixor

Trial ID: Bean5-12 Cooperator:

Location: Field #18 Investigator: Mark VanGessel

Crop Code	PHSLU	PHSVN	PHSLU	PHSVN							
Weed or Crop Name	Lima	Snap	Lima	Snap							
Weed or Crop Name	Bean	Bean	Bean	Bean							
Rating Data Type	Injury %	Injury %	Injury %	Injury %							
Rating Unit											
Rating Date	07/17/12	07/17/12	07/31/12	07/31/12							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code				
1	Untreated Check							0.0 d	0.0 d	0.0 c	0.0 d
	Dual II Magnum..s-metolachlor	7.64 E	0.955 lb ai/A	0.955 lb ai/A	PRE	A					
2	Dual II Magnum..s-metolachlor Sharpen.....saflufenacil	7.64 E 2.85 SC	0.955 lb ai/A 0.0167 lb ai/A	0.955 lb ai/A 0.0278 lb ai/A	PRE	A	27.5 c	72.5 b	30.0 b	65.0 b	
3	Dual II Magnum..s-metolachlor Sharpen.....saflufenacil	7.64 E 2.85 SC	0.955 lb ai/A 0.0445 lb ai/A	0.955 lb ai/A 0.375 lb ai/A	PRE	A	55.0 b	97.0 ab	55.0 ab	90.0 a	
4	Dual II Magnum..s-metolachlor Sharpen.....saflufenacil	7.64 E 2.85 SC	0.955 lb ai/A 0.0445 lb ai/A	0.955 lb ai/A 0.375 lb ai/A	PRE	A	75.0 a	98.0 a	77.5 a	99.0 a	
5	Dual II Magnum..s-metolachlor Lorox.....linuron	7.64 E 50 DF	0.955 lb ai/A 0.375 lb ai/A	0.955 lb ai/A 0.75 lb ai/A	PRE	A	18.5 c	23.5 cd	0.0 c	15.0 cd	
6	Dual II Magnum..s-metolachlor Lorox.....linuron	7.64 E 50 DF	0.955 lb ai/A 0.375 lb ai/A	0.955 lb ai/A 0.75 lb ai/A	PRE	A	30.0 c	42.5 c	51.5 b	32.5 c	
LSD (P=.05)				14.31	24.86	25.59	24.67				
Standard Deviation				5.57	9.67	9.22	9.60				
CV				16.22	17.39	25.85	19.1				
Replicate F				6.194	2.697	0.318	2.738				
Replicate Prob(F)				0.0553	0.1615	0.6031	0.1589				
Treatment F				46.140	34.619	23.298	35.867				
Treatment Prob(F)				0.0003	0.0007	0.0047	0.0006				

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Sulfentrazone Use in Lima Bean

Trial ID: Bean6-12 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

Crop 1: Lima Bean	PHSLU	Variety: Cypress
Planting Date: 07/03/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 4 Sd/row-ft	Row Spacing: 30 in	Seed Bed: Smooth
Soil Temperature: 90 F	Soil Moisture: Moist	Emergence Date: 07/07/12

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 and Field Cultivated

SOIL DESCRIPTION

% Sand: 81	% OM: 1.3	Texture: loamy sand
% Silt: 12	pH: 6.0	
% Clay: 7	CEC: 5.3	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:	07/05/12
Time of Day:	9:00 am
Application Method:	Spray
Application Timing:	PRE
Appli. Placement:	Brdcst
Air Temp., Unit:	89 F
% Relative Humidity:	50
Wind Velocity, Unit:	2 mph
Wind Direction:	Northwest
Dew Presence (Y/N):	N
Soil Temp., Unit:	87 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	30

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

07-16-12: Injury is due to stunting and leaf crinkling/burn.

07-17-12: Plot 106 had visible injury.

Sulfentrazone Use in Lima Bean									
Trial ID: Bean6-12		Cooperator:							
Location: Field #18		Investigator: Mark VanGessel							
Weed Code		PHSLU	AMASS	IPOSS	PHSLU	PHSLU	PHSLU	PHSLU	PHSLU
Crop Code		Lima	Pigweed	Mornlry	Lima	Lima	Lima	Lima	Lima
Weed or Crop Name		Bean	Species	Species	Row2	Row3	Row2	Row2	Row3
Weed or Crop Name		Injury	Control	Control	Std ct	Std ct	NotNorml	NotNorml	NotNorml
Rating Data Type		%	%	%	#/10'row	#/10'row	#/10'row	#/10'row	#/10'row
Rating Unit		07/16/12	07/17/12	07/17/12	07/17/12	07/17/12	07/17/12	07/17/12	07/17/12
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit				
1	Untreated Check			0.0f	0.0c	0.0e	52.7 a	58.0 a	2.7 a
2	Spartan Charge Premix	3.5 F	0.0342 lb ai/A	PRE	8.0 e	71.7 b	43.3 d	59.0 a	57.3 a
3	Spartan Charge Premix	3.5 F	0.077 lb ai/A	PRE	20.0 d	100.0 a	66.7 c	53.7 a	55.3 a
4	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	23.3 cd	100.0 a	78.3 bc	56.7 a	51.3 a
5	Spartan Charge Premix	3.5 F	0.154 lb ai/A	PRE	28.3 b	100.0 a	81.7 ab	56.7 a	54.0 a
6	Spartan Charge Premix	3.5 F	0.205 lb ai/A	PRE	46.7 a	100.0 a	93.3 a	55.3 a	53.0 a
7	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	30.0 b	100.0 a	76.7 bc	52.0 a	46.7 a
	Dual Magnum.....s-metolachlor	7.62 E	1.43 lb ai/A	PRE					
8	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	30.0 b	100.0 a	73.3 bc	52.7 a	48.3 a
	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE					
9	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	28.3 b	100.0 a	84.0 ab	48.0 a	48.3 a
	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE					
	Pursuit.....imazethapyr	2 AS	0.0234 lb ai/A	PRE					
10	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	26.7 bc	100.0 a	86.7 ab	58.3 a	51.3 a
	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE					
	Pursuit.....imazethapyr	2 AS	0.0312 lb ai/A	PRE					
LSD (P=.05)					4.92	1.57	14.21	12.51	8.02
Standard Deviation					2.87	0.91	8.28	7.26	4.68
CV					11.88	1.05	12.11	13.32	8.93
Replicate F					5.548	1.000	0.106	1.184	1.711
Replicate Prob(F)					0.0133	0.3874	0.8996	0.3300	0.2088
Treatment F					59.921	3662.334	33.413	0.639	2.063
Treatment Prob(F)					0.0001	0.0001	0.0001	0.7500	0.0912
									0.9124
									0.1154

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code		PHSLU	AMASS	IPOSS	PHSLU	AMASS	IPOSS	PHSLU
Crop Code		Lima Bean Injury %	Pigweed Species Control %	Morngly Species Control %	Lima Bean Stunting %	Pigweed Species Control %	Morngly Species Control %	Lima Bean gaps/row ft/25ft
Weed or Crop Name		07/31/12	07/31/12	07/31/12	08/10/12	08/10/12	08/10/12	09/18/12
Weed or Crop Name								
Rating Data Type								
Rating Unit								
Rating Date								
Trt	Treatment	Form Conc	Form Type	Rate Rate	Grow Unit			
No.	Name				Stg			
1	Untreated Check			0.0c	0.0e	0.0d	0.0c	0.0e
2	Spartan Charge Premix	3.5 F	0.0342 lb ai/A	PRE	40.0 d	33.3 c	0.5 c	58.1 d
3	Spartan Charge Premix	3.5 F	0.077 lb ai/A	PRE	16.7 b	71.0 c	60.0 b	70.0 c
4	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	22.3 ab	93.3 b	68.3 ab	88.3 b
5	Spartan Charge Premix	3.5 F	0.154 lb ai/A	PRE	20.0 ab	97.7 a	70.0 ab	89.3 ab
6	Spartan Charge Premix	3.5 F	0.205 lb ai/A	PRE	18.0 b	99.0 a	71.7 ab	93.3 ab
7	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	20.0 ab	100.0 a	76.7 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62 E	1.43 lb ai/A	PRE				71.7 ab
8	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	25.7 a	100.0 a	75.0 a	66.7 b
	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE				0.00 a
9	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	21.7 ab	98.3 a	78.3 a	9.0 a
	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE				96.7 ab
	Pursuit.....imazethapyr	2 AS	0.0234 lb ai/A	PRE				74.3 ab
10	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	20.7 ab	100.0 a	76.7 a	100.0 a
	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE				76.7 ab
	Pursuit.....imazethapyr	2 AS	0.0312 lb ai/A	PRE				0.50 a
LSD (P=.05)				7.51	4.27	14.97	5.09	10.87
Standard Deviation				4.38	2.49	8.72	2.96	6.31
CV				26.52	3.12	14.3	81.84	7.93
Replicate F				1.895	1.310	1.182	0.761	3.358
Replicate Prob(F)				0.1791	0.2943	0.3292	0.4824	0.0590
Treatment F				12.764	562.122	25.066	4.668	73.544
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0031	0.0001
								0.6363

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code		PHSLU	PHSLU	PHSLU	PHSLU	PHSLU
Crop Code		Lima	Lima	Lima	Lima	Lima
Weed or Crop Name		Bean	Bean	Bean	Bean	Bean
Weed or Crop Name		YldPod	YldBeans	plump	flat	dry
Rating Data Type		lb/25'	lb/25'	#/4plnt	#/4plnt	#/4plnt
Rating Unit						
Rating Date		09/19/12	09/19/12	09/19/12	09/19/12	09/19/12
Trt	Treatment	Form	Form	Rate	Grow	
No.	Name	Conc	Type	Rate	Unit	Stg
1	Untreated Check					
2	Spartan Charge Premix	3.5 F	0.0342 lb ai/A	PRE	2.77 a	0.640 c
3	Spartan Charge Premix	3.5 F	0.0771 lb ai/A	PRE	5.83 a	1.540 bc
4	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	6.19 a	1.753 ab
5	Spartan Charge Premix	3.5 F	0.154 lb ai/A	PRE	6.80 a	1.687 ab
6	Spartan Charge Premix	3.5 F	0.205 lb ai/A	PRE	6.24 a	1.773 ab
7	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	8.31 a	2.487 a
	Dual Magnum.....s-metolachlor	7.62 E	1.43 lb ai/A	PRE		
8	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	7.45 a	2.047 ab
	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE		
9	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	7.75 a	2.247 ab
	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE		
	Pursuit.....imazethapyr	2 AS	0.0234 lb ai/A	PRE		
10	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	6.33 a	1.807 ab
	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE		
	Pursuit.....imazethapyr	2 AS	0.0312 lb ai/A	PRE		
LSD (P=.05)			3.296	0.9371	23.54	9.47
Standard Deviation			1.904	0.5414	12.50	5.03
CV			29.72	30.49	35.18	32.23
Replicate F			2.292	2.000	0.930	1.353
Replicate Prob(F)			0.1333	0.1678	0.4335	0.3119
Treatment F			2.095	2.758	2.731	1.492
Treatment Prob(F)			0.0990	0.0401	0.1057	0.2914
						0.3009

Sulfentrazone in Heavy Trash Fields

After Small Grain Harvest

Trial ID: Bean11-12 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

Crop 1: Lima Bean	PHSLU	Variety: Cypress
Planting Date: 07/10/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 4 Sd/row-ft	Row Spacing: 30 in	Seed Bed: Firm/Trashy
Soil Temperature: 85 F	Soil Moisture: Moist	Emergence Date: 07/15/12

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/Wheat Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	07/11/12	Gramoxone SL	2	SL	2	qt/A
2.	07/11/12	Nonionic Surfactant			0.25	% v/v
3.	07/19/12	Select Max	1	EC	16	fl oz/A
4.	07/19/12	Nonionic Surfactant			0.25	% v/v

SOIL DESCRIPTION

% Sand: 83 % OM: 1.7 Texture: loamy sand

% Silt: 9 pH: 5.2

% Clay: 8 CEC: 6.5 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: 0.1 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	07/11/12
Time of Day:	10:45 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:	East
Dew Presence (Y/N):	N
Soil Temp., Unit:	80 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	N/A
% Cloud Cover:	20

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

07-17-12: Unifoliates are out. No trifoliates have emerged. Beans are 2-3" tall.

07-28-12: Not sure why treatment 5 has more stunting than other treatments.

Sulfentrazone in Heavy Trash Fields

After Small Grain Harvest

Trial ID: Bean11-12 Cooperator:

Location: Field #4 Investigator: Mark VanGessel

Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	PHSLU Lima Bean Stunting %	PHSLU Lima Bean Stunting %	PHSLU Lima Bean Injury %		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Appl Code	07/17/12	07/28/12	08/10/12
1	Untreated Check							0.0 a	0.0 c	0.0 a
2	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	PRE	A			0.0 a	0.0 c	0.0 a
3	Spartan Charge Premix	3.5 F	0.103 lb ai/A	PRE	A			0.0 a	10.3 b	4.7 a
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	PRE	A					
4	Spartan Charge Premix	3.5 F	0.082 lb ai/A	PRE	A			0.0 a	10.3 b	3.3 a
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	PRE	A					
5	Spartan Charge Premix	3.5 F	0.077 lb ai/A	PRE	A			5.0 a	21.3 a	0.0 a
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	PRE	A					
6	Spartan Charge Premix	3.5 F	0.082 lb ai/A	PRE	A			6.7 a	8.0 b	0.0 a
	Pursuit.....imazethapyr	2 AS	0.0312 lb ai/A	PRE	A					
	Dual II Magnum..s-metolachlor	7.64 E	1.19 lb ai/A	PRE	A					
LSD (P=.05)						5.67	7.41	4.98		
Standard Deviation						3.12	4.07	2.74		
CV						160.36	48.89	205.4		
Replicate F						1.000	2.289	1.622		
Replicate Prob(F)						0.4019	0.1519	0.2454		
Treatment F						2.886	11.422	1.778		
Treatment Prob(F)						0.0723	0.0007	0.2051		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluating Pelargonic Acid Formulations

Trial ID: Brndwn1-12 Cooperator: Falcon Lab
 Location: Field #9 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Henbit	LAMAM	Lamium amplexicaule L.
2.	Knawel	SCRAN	Scleranthus annuus L.
3.	Redstem Filaree	EROCI	Erodium cicutarium (L.) L'Her. ex Ait.
4.	Common Groundsel	SENVU	Senecio vulgaris L.
5.	Yellow Rocket	BARVU	Barbarea vulgaris R. Br.
6.	Vetch species	VICSS	Vicia Ssp.
7.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
8.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
9.	Field Pansy	VIORA	Viola rafinesquii Greene
10.	Curly Dock	RUMCR	Rumex crispus L.
11.	Tall Buttercup	RANAC	Ranunculus acris L.

Crop 1: Winter Wheat TRZAW **Variety:** USG3770
Planting Date: 10/11/11 **Planting Method:** Drilled **Depth:** 1 in
Rate: 100 lb/A **Row Spacing:** 7 in **Seed Bed:** Medium
Soil Temperature: 63 F **Soil Moisture:** Moist **Emergence Date:** 10/18/11

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

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	11/26/11	Select Max	1	EC	16	fl oz/A
2.	11/26/11	Nonionic Surfactant			0.25	% v/v

SOIL DESCRIPTION

% Sand: 83 % OM: 1.7 Texture: loamy sand
 % Silt: 9 pH: 5.2
 % Clay: 8 CEC: 6.5 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: 0.1 **Unit:** mi

APPLICATION DESCRIPTION	
	A
Application Date:	11/09/11
Time of Day:	2:30 pm
Application Method:	Spray
Application Timing:	POST
Applie. Placement:	Brdcst
Air Temp., Unit:	66 F
% Relative Humidity:	61
Wind Velocity, Unit:	1 mph
Wind Direction:	East
Dew Presence (Y/N):	N
Soil Temp., Unit:	65 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	40

CROP STAGE AT EACH APPLICATION	
	A
Crop 1 Code:	TRZAW
Growth Stage:	2-tiller
Height, Unit:	5 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	LAMAM
Growth Stage:	2-8 leaf
Height, Unit:	1 in
Density,Unit:	40-240 m2
Weed 2 Code:	SCRAN
Growth Stage:	vegetative
Height, Unit:	1 in
Density,Unit:	0-160 m2
Weed 3 Code:	EROCI
Growth Stage:	2-8 leaf
Height, Unit:	1.7 in
Density,Unit:	0-20 m2
Weed 4 Code:	SENVU
Growth Stage:	2-6 leaf
Height, Unit:	1 in
Density,Unit:	40-160 m2
Weed 5 Code:	BARVU
Growth Stage:	cot-6 leaf
Height, Unit:	1 in
Density,Unit:	0-80 m2
Weed 6 Code:	VICSS
Growth Stage:	vegetative
Height, Unit:	2 in
Density,Unit:	0-50 m2
Weed 7 Code:	STEME
Growth Stage:	cot-4 leaf
Height, Unit:	0.5 in
Density,Unit:	0-80 m2
Weed 8 Code:	CERVU
Growth Stage:	cot-4 leaf
Height, Unit:	0.5 in
Density,Unit:	0-80 m2

Weed 9 Code:	VIORA
Growth Stage:	cot-4 leaf
Height, Unit:	0.5 in
Density,Unit:	0-40 m ²
Weed10 Code:	RUMCR
Growth Stage:	cot-4 leaf
Height, Unit:	0.5 in
Density,Unit:	0-20 m ²
Weed11 Code:	RANAC
Growth Stage:	cot-4 leaf
Height, Unit:	0.5 in
Density,Unit:	0-80 m ²

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:	22 in
Ground Speed, Unit:	1.2 mph
Carrier:	water
Spray Volume, Unit:	50 gpa
Propellant:	Comp. Air

Trial Comments

Fld 7 - demo on larger weeds (Bio Herbs)

Trt.	Primrose	Henbit	Erica	Filaree
1	0	0	0	0
2	0	50	0	30
3	50	60	60	.
4	70	50	50	30
5	40	60	40	0
6	40	20	30	0
7	60	40	30	0
8	75	60	50	0

03-13-12: Aim was weak on chickweed. Less than 50% control of redstem filaree. No control of horsweed and primrose.

Evaluating Pelargonic Acid Formulations

Trial ID: Brndwn1-12 Cooperator: Falcon Lab
 Location: Field #9 Investigator: Mark VanGessel

Weed Code	TRZAW	LAMAM	EROCI	LAMAM	SCRAN
Crop Code	Winter Wheat	Henbit	Redstem Filaree	Henbit	Knawel
Weed or Crop Name	Injury %	Control %	Control %	Control %	Control %
Rating Data Type					
Rating Unit					
Rating Date					
	11/21/11	12/05/11	12/05/11	03/13/12	03/13/12
Trt Treatment No. Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg Code
1 Untreated Check				0.0e	0.0d
2 Aim.....carfentrazone Crop Oil Concentrate	2 EW 100 L	0.0312 lb ai/A 1 % v/v	16.3 c	75.0 a	50.0 a
3 Scythe.....pelargonic acid	4.2 L	5 % v/v	21.7 b	68.3 ab	40.0 a
4 Scythe.....pelargonic acid	4.2 L	7 % v/v	38.3 a	63.3 ab	36.7 a
5 Racer.....ammonium pelargonate	3.3 L	10 % v/v	40.0 a	68.3 ab	43.3 a
6 Taps.....pelargonic acid	50 D	1.44 % w/v	5.7 d	23.3 c	20.0 b
7 Taps.....pelargonic acid	50 D	2.16 % w/v	20.0 bc	53.3 b	40.0 a
8 Taps.....pelargonic acid	50 D	2.88 % w/v	16.7 c	53.3 b	50.0 a
LSD (P=.05)			3.84	17.16	15.05
Standard Deviation			2.19	9.80	8.59
CV			11.05	19.35	24.55
Replicate F			3.964	0.033	2.032
Replicate Prob(F)			0.0432	0.9680	0.1679
Treatment F			122.112	21.009	11.742
Treatment Prob(F)			0.0001	0.0001	0.0001
					12.40
					24.73
					7.08
					14.12
					35.3
					1.191
					0.3329
					10.842
					0.0001
					0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Control of Forage Radishes in the Spring

Trial ID: Brndwn2-12 Cooperator:
 Location: Field Dill #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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Forage Radish	RAPSN	Raphanus sativus L.

Crop 1: Non-Crop

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 1
 Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
 Tillage Type: No-Tillage tillage-radish cover crop

SOIL DESCRIPTION

% Sand: 85 % OM: 0.7 Texture: loamy sand
 % Silt: 10 pH: 5.7
 % Clay: 5 CEC: 4.5 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: 1 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	03/12/12
Time of Day:	11:30 am
Application Method:	Spray
Application Timing:	EPP
Appli. Placement:	Brdcst
Air Temp., Unit:	63 F
% Relative Humidity:	35
Wind Velocity, Unit:	5 mph
Wind Direction:	Southwest
Dew Presence (Y/N):	N
Soil Temp., Unit:	60 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	15

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	RAPSN
Growth Stage:	veg-eaFlwr
Height, Unit:	6 in
Density, Unit:	5-12 m ²

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

04/03/12: The rest of the field had a vertical tillage implement run over it which provided about 80% control.

Control of Forage Radishes in the Spring

Trial ID: Brndwn2-12 Cooperator:

Location: Field Dill #12 Investigator: Mark VanGessel

Weed Code	RAPSN	RAPSN
Weed or Crop Name	Tillage	Tillage
Weed or Crop Name	Radish	Radish
Rating Data Type	Control	Control
Rating Unit	%	%
Rating Date	03/23/12	04/03/12
Trt Treatment	Form	Appl
No. Name	Form Conc	Rate Stg
	Type	Unit Code
1 Untreated Check		0.0
2 Mirage.....glyphosate	3 AS	0.75 lb ae/A EPP A
Nonionic Surfactant	100 L	0.25 % v/v EPP A
3 Mirage.....glyphosate	3 AS	0.75 lb ae/A EPP A
2,4-D ester	4 L	1 lb ae/A EPP A
Nonionic Surfactant	100 L	0.25 % v/v EPP A
4 Gramoxone Inteon..paraquat	2 SL	1 lb ai/A EPP A
Nonionic Surfactant	100 L	0.25 % v/v EPP A
5 Gramoxone Inteon..paraquat	2 SL	1 lb ai/A EPP A
Sencor.....metribuzin	75 DF	0.234 lb ai/A EPP A
Nonionic Surfactant	100 L	0.25 % v/v EPP A
6 Harmony Extra SG Premix	50 SG	0.028 lb ai/A EPP A
Nonionic Surfactant	100 L	0.25 % v/v EPP A
30% Urea Ammonium Nitrate	100 L	25 % v/v EPP A
7 Gramoxone Inteon..paraquat	2 SL	1 lb ai/A EPP A
Sencor.....metribuzin	75 DF	0.234 lb ai/A EPP A
2,4-D ester	4 L	1 lb ae/A EPP A
Nonionic Surfactant	100 L	0.25 % v/v EPP A
LSD (P=.05)		.
Standard Deviation		.
CV		.

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Herbicide and Turbo Till Interaction

Trial ID: Brndwn3-12 Cooperator:
 Location: Field #35 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

Crop 1:	Non-Crop
---------	----------

SITE AND DESIGN

Plot Width, Unit: 12 FT Plot Length, Unit: 25 FT Reps: 3

Site Type: Field Study Design: SPLIT-PLOT

Tillage Type: No Tillage/Sorghum Stubble

MAINTENANCE

Field Prep./Maintenance: The entire study was sprayed twice with Gramoxone Inteon at 2 qt/A + NIS at 0.25 %v/v on 3-21-12 and 3-27-12.
 Turbo Till treatments were turbo tilled on 3-22-12.

SOIL DESCRIPTION

% Sand:	82	% OM:	1.2	Texture:	loamy sand
% Silt:	11	pH:	6.4		
% Clay:	7	CEC:	7.0	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: 0.1 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	03/21/12	03/22/12
Time of Day:	12:10 pm	2:30 pm
Application Method:	Spray	Spray
Application Timing:	EPP	EPP
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	64 F	80 F
% Relative Humidity:	83	47
Wind Velocity, Unit:	1 mph	2 mph
Wind Direction:	Southwest	Southwest
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	64 F	79 F
Soil Surf. Moisture:	Dry	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	Dry	Dry
% Cloud Cover:	100	20

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:	24 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

05-07-12: Good weed pressure but very consistent ratings. No corn injury observed.

05-16-12: Plots were treated with dicamba (6 fl.oz/A) Rep1; Ignite 280 (29 fl.oz/A) Rep2; or Sharpen (2 fl.oz/A) Rep3.

05-22-12: Banvel was 50, 60, and 60% control for horseweed, primrose, and vetch, respectively. Sharpen was 90, 85, and 40% for horseweed, primrose, and vetch, respectively. Liberty was 75, 80, and 60% for horseweed, primrose, and vetch, respectively

06-03-12: Dicamba provided 75, 40, and 97% control of horseweed, primrose, and vetch, respectively; Sharpen was 100, 95, and 88% for horseweed, primrose, and vetch, respectively. Ignite 280 was 99% for primrose and vetch. For horseweed with Ignite, about 1 out of 30 plants survived, but control was about 85% of these remaining plants. The rest of the plants were 100% control. However, the plants that were injured but not dead are likely to recover and start regrowing. Horseweed in the dicamba treatment was still present, but not very competitive.

Herbicide and Turbo Till Interaction						
Trial ID: Brndwn3-12		Cooperator: Location: Field #35 Investigator: Mark VanGessel				
Weed Code			ERICA	VICSS		
Weed or Crop Name			Horseweed	Vetch		
Weed or Crop Name			Control	Species		
Rating Data Type			%	Control		
Rating Unit			05/07/12	%		
Rating Date				05/07/12		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1 Before TurboTill	Bicep II Magnum Premix	5.5 L		2.06 lb ai/A	EPP A	
	Gramoxone Inteon..paraquat	2 SL		1 lb ai/A	EPP A	
	Nonionic Surfactant	100 L		0.25% v/v	EPP A	
2 Before TurboTill	Lumax Premix	3.95 SC		1.48 lb ai/A	EPP A	30.0 c-f
	Atrazine 4L	4 L		0.67 lb ai/A	EPP A	
	Gramoxone Inteon..paraquat	2 SL		1 lb ai/A	EPP A	
	Nonionic Surfactant	100 L		0.25% v/v	EPP A	
3 Before TurboTill	Princep.....simazine	4 L		1 lb ai/A	EPP A	66.7 a
	Gramoxone Inteon..paraquat	2 SL		1 lb ai/A	EPP A	
	Nonionic Surfactant	100 L		0.25% v/v	EPP A	
4 Before TurboTill	Basis Premix	75 DF		0.0234 lb ai/A	EPP A	43.3 a-e
	Gramoxone Inteon..paraquat	2 SL		1 lb ai/A	EPP A	
	Nonionic Surfactant	100 L		0.25% v/v	EPP A	
5 Before TurboTill	Valor SX.....flumioxazin	51 WG		0.064 lb ai/A	EPP A	56.7 ab
	Gramoxone Inteon..paraquat	2 SL		1 lb ai/A	EPP A	
	Nonionic Surfactant	100 L		0.25% v/v	EPP A	
6 Before TurboTill	Gramoxone Inteon..paraquat	2 SL		1 lb ai/A	EPP A	8.3 fg
	Nonionic Surfactant	100 L		0.25% v/v	EPP A	
	Untreated Check					
7 After Turbo Till	Bicep II Magnum Premix	5.5 L		2.06 lb ai/A	EPP B	0.0 g
	Gramoxone Inteon..paraquat	2 SL		1 lb ai/A	EPP B	
	Nonionic Surfactant	100 L		0.25% v/v	EPP B	
8 After Turbo Till	Lumax Premix	3.95 SC		1.48 lb ai/A	EPP B	36.7 b-e
	Atrazine 4L	4 L		0.67 lb ai/A	EPP B	
	Gramoxone Inteon..paraquat	2 SL		1 lb ai/A	EPP B	
	Nonionic Surfactant	100 L		0.25% v/v	EPP B	
9 After Turbo Till	Princep.....simazine	4 L		1 lb ai/A	EPP B	56.7 ab
	Gramoxone Inteon..paraquat	2 SL		1 lb ai/A	EPP B	
	Nonionic Surfactant	100 L		0.25% v/v	EPP B	

Weed Code			ERICA Horse- weed Control %	VICSS Vetch Species Control %					
No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
10	After Turbo Till								
	Basis Premix	75 DF	0.0234 lb ai/A	EPP	B			43.3 a-e	66.7 a-d
	Gramoxone Inteon..paraquat	2 SL	1 lb ai/A	EPP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	EPP	B				
11	After Turbo Till							23.3 efg	53.3 b-e
	Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	EPP	B				
	Gramoxone Inteon..paraquat	2 SL	1 lb ai/A	EPP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	EPP	B				
12	After Turbo Till							0.0g	0.0g
	Untreated Check								
	Gramoxone Inteon..paraquat	2 SL	1 lb ai/A	EPP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	EPP	B				
13	No Turbo Till							36.7 b-e	88.3 abc
	Bicep II Magnum Premix	5.5 L	2.06 lb ai/A	EPP	B				
	Gramoxone Inteon..paraquat	2 SL	1 lb ai/A	EPP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	EPP	B				
14	No Turbo Till							65.0 a	100.0 a
	Lumax Premix	3.95 SC	1.48 lb ai/A	EPP	B				
	Atrazine 4L	4 L	0.67 lb ai/A	EPP	B				
	Gramoxone Inteon..paraquat	2 SL	1 lb ai/A	EPP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	EPP	B				
15	No Turbo Till							50.0 a-d	61.7 a-e
	Princep.....simazine	4 L	1 lb ai/A	EPP	B				
	Gramoxone Inteon..paraquat	2 SL	1 lb ai/A	EPP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	EPP	B				
16	No Turbo Till							53.3 abc	86.7 abc
	Basis Premix	75 DF	0.0234 lb ai/A	EPP	B				
	Gramoxone Inteon..paraquat	2 SL	1 lb ai/A	EPP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	EPP	B				
17	No Turbo Till							28.3 def	33.3 d-g
	Valor SX.....flumioxazin	51 WG	0.064 lb ai/A	EPP	B				
	Gramoxone Inteon..paraquat	2 SL	1 lb ai/A	EPP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	EPP	B				
18	No Turbo Till							0.0g	33.3 d-g
	Untreated Check								
	Gramoxone Inteon..paraquat	2 SL	1 lb ai/A	EPP	B				
	Nonionic Surfactant	100 L	0.25 % v/v	EPP	B				
LSD (P=.05)							23.36	43.33	
Standard Deviation							14.01	25.99	
CV							39.31	41.19	
Replicate F							0.186	7.074	
Replicate Prob(F)							0.8309	0.0029	
Treatment F							7.369	4.593	
Treatment Prob(F)							0.0001	0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Herbicide and Turbo Till Interaction

Trial ID: Brndwn3-12 Cooperator:
 Location: Field #35 Investigator: Mark VanGessel

Weed Code		ERICA	VICSS						
Weed or Crop Name		Horse-weed	Vetch						
Weed or Crop Name		Control	Species						
Rating Data Type		%	Control						
Rating Unit		05/07/12	%	05/07/12					
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
TABLE OF R MEANS									
Replicate 1								35.3	56.4
Replicate 2								37.2	51.2
Replicate 3								34.4	81.7
TABLE OF A (Timing of Turbo Till) MEANS									
1 Before TurboTill								34.2	67.1
2 After Turbo Till								33.9	55.0
3 No Turbo Till								38.9	67.2
TABLE OF B (Herbicides) MEANS									
1 Bicep II Magnum Premix	5.5 L	2.06 lb	ai/A	EPP	A		34.4	91.3	
1 Gramoxone Inteon..paraquat	2 SL	1 lb	ai/A	EPP	A				
1 Nonionic Surfactant	100 L	0.25 %	v/v	EPP	A				
2 Lumax Premix	3.95 SC	1.48 lb	ai/A	EPP	A		62.8	97.8	
2 Atrazine 4L	4 L	0.67 lb	ai/A	EPP	A				
2 Gramoxone Inteon..paraquat	2 SL	1 lb	ai/A	EPP	A				
2 Nonionic Surfactant	100 L	0.25 %	v/v	EPP	A				
3 Princep.....simazine	4 L	1 lb	ai/A	EPP	A		45.6	49.4	
3 Gramoxone Inteon..paraquat	2 SL	1 lb	ai/A	EPP	A				
3 Nonionic Surfactant	100 L	0.25 %	v/v	EPP	A				
4 Basis Premix	75 DF	0.0234 lb	ai/A	EPP	A		51.1	80.0	
4 Gramoxone Inteon..paraquat	2 SL	1 lb	ai/A	EPP	A				
4 Nonionic Surfactant	100 L	0.25 %	v/v	EPP	A				
5 Valor SX.....flumioxazin	51 WG	0.064 lb	ai/A	EPP	A		20.0	32.2	
5 Gramoxone Inteon..paraquat	2 SL	1 lb	ai/A	EPP	A				
5 Nonionic Surfactant	100 L	0.25 %	v/v	EPP	A				
6 Gramoxone Inteon..paraquat	2 SL	1 lb	ai/A	EPP	A		0.0	27.8	
6 Nonionic Surfactant	100 L	0.25 %	v/v	EPP	A				
6 Untreated Check									
TABLE OF A (Timing of Turbo Till) B (Herbicides) MEANS									
1 Before TurboTill								30.0	94.0
1 Bicep II Magnum Premix	5.5 L	2.06 lb	ai/A	EPP	A				
1 Gramoxone Inteon..paraquat	2 SL	1 lb	ai/A	EPP	A				
1 Nonionic Surfactant	100 L	0.25 %	v/v	EPP	A				
2 After Turbo Till							36.7	91.7	
1 Bicep II Magnum Premix	5.5 L	2.06 lb	ai/A	EPP	A				
1 Gramoxone Inteon..paraquat	2 SL	1 lb	ai/A	EPP	A				
1 Nonionic Surfactant	100 L	0.25 %	v/v	EPP	A				

Weed Code			ERIC	VICSS					
Weed or Crop Name			Horse-weed Control %	Vetch Species Control %					
Rating Data Type									
Rating Unit									
Rating Date			05/07/12	05/07/12					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code		
3	No Turbo Till							36.7	88.3
1	Bicep II Magnum Premix	5.5 L		2.06 lb	ai/A	EPP	A		
1	Gramoxone Inteon..paraquat	2 SL		1 lb	ai/A	EPP	A		
1	Nonionic Surfactant	100 L		0.25 %	v/v	EPP	A		
1	Before TurboTill							66.7	98.3
2	Lumax Premix	3.95 SC		1.48 lb	ai/A	EPP	A		
2	Atrazine 4L	4 L		0.67 lb	ai/A	EPP	A		
2	Gramoxone Inteon..paraquat	2 SL		1 lb	ai/A	EPP	A		
2	Nonionic Surfactant	100 L		0.25 %	v/v	EPP	A		
2	After Turbo Till							56.7	95.0
2	Lumax Premix	3.95 SC		1.48 lb	ai/A	EPP	A		
2	Atrazine 4L	4 L		0.67 lb	ai/A	EPP	A		
2	Gramoxone Inteon..paraquat	2 SL		1 lb	ai/A	EPP	A		
2	Nonionic Surfactant	100 L		0.25 %	v/v	EPP	A		
3	No Turbo Till							65.0	100.0
2	Lumax Premix	3.95 SC		1.48 lb	ai/A	EPP	A		
2	Atrazine 4L	4 L		0.67 lb	ai/A	EPP	A		
2	Gramoxone Inteon..paraquat	2 SL		1 lb	ai/A	EPP	A		
2	Nonionic Surfactant	100 L		0.25 %	v/v	EPP	A		
1	Before TurboTill							43.3	63.3
3	Princep.....simazine	4 L		1 lb	ai/A	EPP	A		
3	Gramoxone Inteon..paraquat	2 SL		1 lb	ai/A	EPP	A		
3	Nonionic Surfactant	100 L		0.25 %	v/v	EPP	A		
2	After Turbo Till							43.3	23.3
3	Princep.....simazine	4 L		1 lb	ai/A	EPP	A		
3	Gramoxone Inteon..paraquat	2 SL		1 lb	ai/A	EPP	A		
3	Nonionic Surfactant	100 L		0.25 %	v/v	EPP	A		
3	No Turbo Till							50.0	61.7
3	Princep.....simazine	4 L		1 lb	ai/A	EPP	A		
3	Gramoxone Inteon..paraquat	2 SL		1 lb	ai/A	EPP	A		
3	Nonionic Surfactant	100 L		0.25 %	v/v	EPP	A		
1	Before TurboTill							56.7	86.7
4	Basis Premix	75 DF		0.0234 lb	ai/A	EPP	A		
4	Gramoxone Inteon..paraquat	2 SL		1 lb	ai/A	EPP	A		
4	Nonionic Surfactant	100 L		0.25 %	v/v	EPP	A		
2	After Turbo Till							43.3	66.7
4	Basis Premix	75 DF		0.0234 lb	ai/A	EPP	A		
4	Gramoxone Inteon..paraquat	2 SL		1 lb	ai/A	EPP	A		
4	Nonionic Surfactant	100 L		0.25 %	v/v	EPP	A		
3	No Turbo Till							53.3	86.7
4	Basis Premix	75 DF		0.0234 lb	ai/A	EPP	A		
4	Gramoxone Inteon..paraquat	2 SL		1 lb	ai/A	EPP	A		
4	Nonionic Surfactant	100 L		0.25 %	v/v	EPP	A		
1	Before TurboTill							8.3	10.0
5	Valor SX.....flumioxazin	51 WG		0.064 lb	ai/A	EPP	A		
5	Gramoxone Inteon..paraquat	2 SL		1 lb	ai/A	EPP	A		
5	Nonionic Surfactant	100 L		0.25 %	v/v	EPP	A		

Weed Code					ERICA	VICSS
Weed or Crop Name					Horse-weed Control %	Vetch Species Control %
Rating Data Type					05/07/12	05/07/12
Rating Unit						
Rating Date						
Trt	Treatment	Form No.	Form Name	Rate Conc	Grow Stg	Appl Code
				Type Rate	Unit	
2	After Turbo Till					
5	Valor SX.....flumioxazin	51	WG	0.064 lb	ai/A	EPP A
5	Gramoxone Inteon..paraquat	2	SL	1 lb	ai/A	EPP A
5	Nonionic Surfactant	100	L	0.25 %	v/v	EPP A
3	No Turbo Till					
5	Valor SX.....flumioxazin	51	WG	0.064 lb	ai/A	EPP A
5	Gramoxone Inteon..paraquat	2	SL	1 lb	ai/A	EPP A
5	Nonionic Surfactant	100	L	0.25 %	v/v	EPP A
1	Before TurboTill					
6	Gramoxone Inteon..paraquat	2	SL	1 lb	ai/A	EPP A
6	Nonionic Surfactant	100	L	0.25 %	v/v	EPP A
6	Untreated Check					
2	After Turbo Till					
6	Gramoxone Inteon..paraquat	2	SL	1 lb	ai/A	EPP A
6	Nonionic Surfactant	100	L	0.25 %	v/v	EPP A
6	Untreated Check					
3	No Turbo Till					
6	Gramoxone Inteon..paraquat	2	SL	1 lb	ai/A	EPP A
6	Nonionic Surfactant	100	L	0.25 %	v/v	EPP A
6	Untreated Check					

Herbicide and Turbo Till Interaction

Trial ID: Brndwn3-12 Cooperator:

Location: Field #35 Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For ERICA Horse-weed Control % 05/07/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	31352.314815				
R	2	73.148148	36.574074	0.186	0.8309	9.5
A	2	284.259259	142.129630	0.724	0.4922	9.5
B	5	23313.425926	4662.685185	23.743	0.0001	13.5
AB	10	1004.629630	100.462963	0.512	0.8699	23.4
ERROR	34	6676.851852	196.377996			

FACTORIAL/POOLED ERROR AOV For VICSS Vetch Species Control % 05/07/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	53	83893.720265				
R	2	9554.406423	4777.203211	7.516	0.0020	17.2
A	2	1768.729445	884.364722	1.391	0.2625	17.2
B	5	42057.413285	8411.482657	13.234	0.0001	24.3
AB	10	8902.326484	890.232648	1.401	0.2219	42.0
ERROR	34	21610.844629	635.613077			

V-10349 for Chickweed Control

Trial ID: Brndwn4-12 Cooperator: Valent
 Location: Field #7 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
2.	Jagged Chickweed	HLOUM	Holosteum umbellatum L.
3.	Cutleaf Evening Primrose	OEOLA	Oenothera laciniata Hill
4.	Horseweed	ERICA	Erigeron canadensis L.
5.	Field Pansy	VIORA	Viola rafinesquii Greene
6.	Mouseear Cress	ARBTH	Arabidopsis thaliana (L.) Heynh.
7.	Common Venuslookingglass	TJDPE	Triodanis perfoliata (L.) Nieuwl.
8.	Woolly Plantain	PLAPR	Plantago patagonica Jacq.
9.	Carolina Geranium	GERCA	Geranium carolinianum L.
10.	Vetch species	VICSS	Vicia Ssp.

Crop 1: Non-Crop

SITE AND DESIGN

Plot Width, Unit: 10 FT Plot Length, Unit: 20 FT Reps: 3
 Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
 Tillage Type: No Tillage/Medium Weeds

SOIL DESCRIPTION

% Sand: 78 % OM: 2.3 Texture: sandy loam
 % Silt: 13 pH: 5.9
 % Clay: 9 CEC: 7.8 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:	03/27/12
Time of Day:	11:00 am
Application Method:	Spray
Application Timing:	POST
Applic. Placement:	Brdcst
Air Temp., Unit:	43 F
% Relative Humidity:	23
Wind Velocity, Unit:	6 mph
Wind Direction:	North
Dew Presence (Y/N):	N
Soil Temp., Unit:	40 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:	CERVU
Growth Stage:	flower
Height, Unit:	4 in
Density,Unit:	20-200 m ²
Weed 2 Code:	HLOUM
Growth Stage:	flower
Height, Unit:	8 in
Density,Unit:	0-80 m ²
Weed 3 Code:	OEOLA
Growth Stage:	rosette
Height, Unit:	6 in
Density,Unit:	0-60 m ²
Weed 4 Code:	ERICA
Growth Stage:	rosette
Height, Unit:	4 in
Density,Unit:	0-80 m ²
Weed 5 Code:	VIORA
Growth Stage:	flower
Height, Unit:	4 in
Density,Unit:	0-80 m ²
Weed 6 Code:	ARBTH
Growth Stage:	flwr-seed
Height, Unit:	9 in
Density,Unit:	0-60 m ²
Weed 7 Code:	TJDPE
Growth Stage:	bolting
Height, Unit:	2.5 in
Density,Unit:	0-120 m ²
Weed 8 Code:	PLAPR
Growth Stage:	rosette
Height, Unit:	6 in
Density,Unit:	0-25 m ²
Weed 9 Code:	GERCA
Growth Stage:	vegetative
Height, Unit:	5 in
Density,Unit:	0-20 m ²
Weed10 Code:	VICSS
Growth Stage:	vegetative
Height, Unit:	7 in
Density,Unit:	0-20 m ²

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:	26 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Trt No	Treatment Application Comment
4	Plot 104 was accidentally oversprayed with trt #9

Trial Comments

Sharpen was very good on jagged chickweed, but weak on purslane speedwell.

V-10349 for Chickweed Control

Trial ID: Brndwn4-12 Cooperator: Valent
 Location: Field #7 Investigator: Mark VanGessel

Weed Code	ERICA	CERVU	ERICA	CERVU	ERICA	CERVU	OEOLA
Weed or Crop Name	Horseweed	Mouseear	Horseweed	Mouseear	Horseweed	Mouseear	Cutleaf
Rating Data Type	Control %	Chickwd	Control %	Chickwd	Control %	Chickwd	EPrimrse
Rating Unit							
Rating Date	04/06/12	04/06/12	04/19/12	04/19/12	04/30/12	04/30/12	04/30/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg	
1	Untreated Check				0.0e	0.0f	0.0d
2	Ignite 280 Liquid AMS 34%	2.34 SL 100 L	0.53 lb ai/A 4.5% v/v	POST POST	86.7 a	81.7 ab	76.3 a
3	Roundup PowrMax Liquid AMS 34%	4.5 AS 100 L	1.12 lb ae/A 3.75 % v/v	POST POST	63.3 b	60.0 cd	73.3 a
4	Sharpen Crop Oil Conc.	2.85 SC 100 L	0.0445 lb ai/A 1.25 % v/v	POST POST	88.9 a	44.4 de	76.3 a
5	Harmony Extra SG Nonionic Surf.	50 SG 100 L	0.042 lb ai/A 0.25 % v/v	POST POST	33.9 d	33.3 e	69.8 a
6	Gramoxone SL Nonionic Surf.	2 SL 100 L	1 lb ai/A 0.25 % v/v	POST POST	86.7 a	85.0 a	68.3 a
7	V-10349 MSO	80 WG 100 L	0.5 lb ai/A 1.25 % v/v	POST POST	30.0 d	33.3 e	21.7 c
8	V-10349 MSO	80 WG 100 L	0.75 lb ai/A 1.25 % v/v	POST POST	10.0 e	40.0 e	33.3 bc
9	V-10349 MSO	80 WG 100 L	1 lb ai/A 1.25 % v/v	POST POST	36.7 cd	43.3 de	40.0 b
10	V-10349 MSO	80 WG 100 L	1.5 lb ai/A 1.25 % v/v	POST POST	50.0 bc	65.0 bc	43.3 b
LSD (P=.05)		14.04	16.94	15.92	6.65	16.34	11.32
Standard Deviation		8.11	9.83	9.15	3.86	9.44	6.57
CV		16.69	20.23	18.21	4.89	21.36	9.31
Replicate F		1.368	2.983	8.777	1.136	2.286	0.496
Replicate Prob(F)		0.2827	0.0776	0.0030	0.3442	0.1339	0.6174
Treatment F		47.107	19.887	25.411	194.773	36.948	106.461
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0001	0.0028

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Enhanced Gramoxone Activity with PSII Herbicides

Trial ID: Brndwn5-12 Cooperator:
 Location: Field #7 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

Crop 1: Field Corn	ZEAMX	Variety: H6110RCSS
Planting Date: 05/25/12	Planting Method: Row- Unit Planter	Depth: 2 in
Rate: 19000 Sd/A	Row Spacing: 30 in	Seed Bed: Firm
Soil Temperature: 82 F	Soil Moisture: Dry	Emergence Date: 06/05/12

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/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/25/12	Gramoxone SL	2	SL	2	qt/A
2.	05/25/12	Metribuzin	75	DF	4	oz wt/A
3.	05/25/12	Crop Oil Concentrate			1	% v/v
4.	05/25/12	30% UAN			2	% v/v

SOIL DESCRIPTION

% Sand: 78 % OM: 2.3 Texture: sandy loam
 % Silt: 13 pH: 5.9
 % Clay: 9 CEC: 7.8 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:	04/20/12
Time of Day:	8:30 am
Application Method:	Spray
Application Timing:	EPP
Appli. Placement:	Brdcst
Air Temp., Unit:	56 F
% Relative Humidity:	78
Wind Velocity, Unit:	0 mph
Wind Direction:	N/A
Dew Presence (Y/N):	N
Soil Temp., Unit:	55 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Dry
Leaf Surf. Moisture:	Dry
% Cloud Cover:	95

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

Trt No	Treatment Application Comment
6	Plot 106 was sprayed with trt. 2

Trial Comments

05-07-12: All treatments have excellent control of field pansy and chickweed.

06-03-12: Paraquat plus metribuzin resulted in 100% control of horseweed. In the untreated check, about 5% of the plants survived and they were about 80% control (slightly less control than the glufosinate in Brndwn 3). Primrose control was excellent.

Enhanced Gramoxone Activity with PSII Herbicides

Trial ID: Brndwn5-12 Cooperator:
 Location: Field #7 Investigator: Mark VanGessel

Weed Code	OEOLA						
Weed or Crop Name	Cutleaf						
Weed or Crop Name	EPrimrse						
Rating Data Type	Control						
Rating Unit	%						
Rating Date	05/07/12						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1	Untreated Check						0.0 c
2	Gramoxone SL....paraquat Nonionic Surfactant	2 SL 100 L		1 lb ai/A 0.25 % v/v	EPP	A	84.7 ab
3	Atrazine 4L Gramoxone SL....paraquat Nonionic Surfactant	4 L 2 SL 100 L		1 lb ai/A 1 lb ai/A 0.25 % v/v	EPP	A	86.3 ab
4	Princep.....simazine Gramoxone SL....paraquat Nonionic Surfactant	4 L 2 SL 100 L		1 lb ai/A 1 lb ai/A 0.25 % v/v	EPP	A	94.3 a
5	Basagran.....bentazon Gramoxone SL....paraquat Nonionic Surfactant	4 L 2 SL 100 L		1 lb ai/A 1 lb ai/A 0.25 % v/v	EPP	A	84.7 ab
6	Lorox.....linuron Gramoxone SL....paraquat Nonionic Surfactant	50 DF 2 SL 100 L		0.5 lb ai/A 1 lb ai/A 0.25 % v/v	EPP	A	72.6 b
7	Metribuzin.....metribuzin Gramoxone SL....paraquat Nonionic Surfactant	75 DF 2 SL 100 L		0.187 lb ai/A 1 lb ai/A 0.25 % v/v	EPP	A	86.3 ab
8	Sinbar.....terbacil Gramoxone SL....paraquat Nonionic Surfactant	80 W 2 SL 100 L		0.2 lb ai/A 1 lb ai/A 0.25 % v/v	EPP	A	92.7 ab
LSD (P=.05)		20.50					
Standard Deviation		11.62					
CV		15.46					
Replicate F		1.583					
Replicate Prob(F)		0.2425					
Treatment F		21.449					
Treatment Prob(F)		0.0001					

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(Brndwn6-12)

University of Delaware

Evaluating Glyphosate Additives for Burndown Activity

Trial ID: Brndwn6-12 Cooperator:
 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Horseweed	ERICA	Erigeron canadensis L.
2.	Cutleaf Evening Primrose	OEOLA	Oenothera lacinata Hill
3.	Morningglory Species	IPOSS	Ipomoea sp.

Crop 1: Soybean	GLXMA	Variety: A4404
Planting Date: 05/23/12	Planting Method: Row- Unit Planter	Depth: 1 in
Rate: 180000 Sd/A	Row Spacing: 15 in	Seed Bed: Firm
Soil Temperature: 78 F	Soil Moisture: Dry	Emergence Date: 06/07/12

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/Soybean Stubble

No.	Date	Treatment Name	Form Conc	Form Type	Rate	Rate Unit
1.	05/25/12	Gramoxone SL	2	SL	2	qt/A
2.	05/25/12	Metribuzin	75	DF	4	oz wt/A
3.	05/25/12	Crop Oil Concentrate			1	% v/v
4.	05/25/12	30% UAN			2	% v/v
5.	07/05/12	Roundup WeatherMax	4.5	AS	32	fl oz/A
6.	07/05/12	Raptor	1	AS	5	fl oz/A
7.	07/05/12	Dry Ammonium Sulfate			1.2	% w/v

SOIL DESCRIPTION

% Sand: 79 % OM: 2.1 Texture: sandy loam
 % Silt: 10 pH: 5.8
 % Clay: 11 CEC: 7.8 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: 0.4 Unit: mi

APPLICATION DESCRIPTION	
	A
Application Date:	05/03/12
Time of Day:	11:30 am
Application Method:	Spray
Application Timing:	POST
Applc. Placement:	Brdcst
Air Temp., Unit:	63 F
% Relative Humidity:	77
Wind Velocity, Unit:	1 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	62 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	95

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	ERICA
Growth Stage:	bolting
Height, Unit:	6 in
Density,Unit:	60-100 m2
Weed 2 Code:	OEOLA
Growth Stage:	flower
Height, Unit:	12 in
Density,Unit:	0-7 m2
Weed 3 Code:	IPOSS
Growth Stage:	cotyledon
Height, Unit:	1 in
Density,Unit:	0-10 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
06-03-12: Entire site sprayed with Gramoxone 2SL (2 qts) plus metribuzin (2 oz wt) plus COC and liquid N prior to planting soybeans. Horseweed control was excellent except for a few plants that survived and those plants were rated about 90% control.

Evaluating Glyphosate Additives for Burndown Activity

Trial ID: Brndwn6-12 Cooperator:

Location: Field #10 Investigator: Mark VanGessel

Weed Code		ERIC A Horse-weed Control %	OEOLA Cutleaf EPrimrse Control %	ERIC A Horse-weed Control %	OEOLA Cutleaf EPrimrse Control %	
Weed or Crop Name		05/21/12	05/21/12	05/25/12	05/25/12	
Weed or Crop Name						
Rating Data Type						
Rating Unit						
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code
1	Untreated Check					
	Roundup PowerMax..glyphosate	4.5 AS	1lb ae/A	POST A	65.0 a	66.7 abc
2	Roundup PowerMax..glyphosate Liquid Ammonium Sulfate 34%	4.5 AS 100 L	1lb ae/A 2.5% v/v	POST A	60.0 a	61.2 cd
3	Roundup PowerMax..glyphosate Taps.....pelargonic acid	4.5 AS 50 D	1lb ae/A 2% w/w	POST A	74.3 a	71.7 ab
4	Roundup PowerMax..glyphosate Taps.....pelargonic acid	4.5 AS 50 D	1lb ae/A 4% w/w	POST A	66.7 a	65.0 a-d
5	Roundup PowerMax..glyphosate PDS	4.5 AS 100 L	1lb ae/A 0.195 % v/v	POST A	63.3 a	73.7 a
6	Roundup PowerMax..glyphosate PDS	4.5 AS 100 L	1lb ae/A 0.39 % v/v	POST A	63.3 a	56.2 d
7	Roundup PowerMax..glyphosate PDS	4.5 AS 100 L	1lb ae/A 0.78 % v/v	POST A	70.0 a	71.7 ab
8	Roundup PowerMax..glyphosate Monty's NanoBoost	4.5 AS 100 L	1lb ae/A 0.078 % v/v	POST A	70.0 a	63.3 bcd
LSD (P=.05)				10.00	9.87	12.04
Standard Deviation				5.71	5.49	6.83
CV				8.57	8.3	9.56
Replicate F				1.175	1.182	0.260
Replicate Prob(F)				0.3374	0.3428	0.7748
Treatment F				1.978	3.569	0.808
Treatment Prob(F)				0.1313	0.0296	0.5957
						0.0126

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Preemergence Herbicide Applications for Cucumber

Trial ID: Cuke1-12 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Morningglory Species	IPOSS	Ipomoea sp.
2.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.

Crop 1: Cucumber	CUMSA	Variety: Expedition
Planting Date: 07/10/12	Planting Method: Row- Unit Planter	Depth: 0.7 in
Rate: 60000 Sd/A	Row Spacing: 30 in	Seed Bed: Smooth
Soil Temperature: 83 F	Soil Moisture: Moist	Emergence Date: 07/15/12

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 and Field Cultivated

SOIL DESCRIPTION

% Sand: 79 % OM: 1.5 Texture: loamy sand
 % Silt: 14 pH: 6.2
 % Clay: 7 CEC: 4.9 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: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	07/11/12	07/27/12
Time of Day:	10:15 am	7:40 am
Application Method:	Spray	Spray
Application Timing:	PRE	POST
Applic. Placement:	Brdcst	Brdcst
Air Temp., Unit:	81 F	82 F
% Relative Humidity:	58	75
Wind Velocity, Unit:	2 mph	1 mph
Wind Direction:	East	Northwest
Dew Presence (Y/N):	N	Y
Soil Temp., Unit:	80 F	79 F
Soil Surf. Moisture:	Dry	Dry
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	N/A	Moist
% Cloud Cover:	20	15

CROP STAGE AT EACH APPLICATION		
	A	B
Crop 1 Code:	CUMSA	CUMSA
Growth Stage:		3-leaf
Height, Unit:	7	in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION		
	A	B
Weed 1 Code:	IPOSS	IPOSS
Growth Stage:		3-6 leaf
Height, Unit:	4	in
Density, Unit:		5-15 m ²
Weed 2 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:	4	in
Density, Unit:		5-15 m ²

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	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
07-15-12: Cucumbers at cotyledon stage - no injury observed.
08-03-12: Treatments 9 - 12 had an upright growth habit compared to other treatments that exhibited vining; Treatment 9 not as obvious as treatments 10-12.

Preemergence Herbicide Applications for Cucumber

Trial ID: Cuke1-12 Cooperator:

Location: Field #14 Investigator: Mark VanGessel

Weed Code		CUMSA	CUMSA	AMAPA	IPOSS
Crop Code		Cucumber	Cucumber	Palmer	Morngrly
Weed or Crop Name		Stunting	Stunting	Amaranth	Species
Weed or Crop Name		%	%	Control %	Control %
Rating Data Type		07/27/12	08/03/12	08/03/12	08/03/12
Rating Unit					
Rating Date					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Stg Appl Code
1	Untreated Check				0.0c 0.0b 0.0c 0.0f
2	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	PRE A	0.0c 0.0b 60.0b 33.3e
3	Curbit.....ethalfluralin	3 E	0.75 lb ai/A	PRE A	0.0c 0.0b 66.7b 46.7d
4	Curbit.....ethalfluralin	3 E	0.94 lb ai/A	PRE A	2.3c 0.0b 80.0a 66.7bc
5	Curbit.....ethalfluralin	3 E	1.12 lb ai/A	PRE A	7.0b 0.0b 80.3a 56.7cd
6	Strategy Premix Curbit.....ethalfluralin	2.1 E 3 E	0.394 lb ai/A 0.187 lb ai/A	PRE A	1.7c 0.0b 66.7b 66.7bc
7	Strategy Premix Curbit.....ethalfluralin	2.1 E 3 E	0.525 lb ai/A 0.187 lb ai/A	PRE A	0.0c 2.3 b 66.7b 33.3e
8	Curbit.....ethalfluralin Command.....clomazone	3 E 3 ME	0.94 lb ai/A 0.187 lb ai/A	PRE A	6.3b 0.0b 76.7a 56.7cd
9	Curbit.....ethalfluralin Sandea.....halosulfuron	3 E 75 DF	0.75 lb ai/A 0.0234 lb ai/A	PRE A	15.0a 10.7 a 77.7a 74.3ab
10	Curbit.....ethalfluralin Sandea.....halosulfuron	3 E 75 DF	0.75 lb ai/A 0.0313 lb ai/A	PRE A	14.0a 2.3 b 75.7a 69.3bc
11	Curbit.....ethalfluralin Sandea.....halosulfuron Nonionic Surfactant	3 E 75 DF 100 L	0.75 lb ai/A 0.0234 lb ai/A 0.25 % v/v	POST B	2.3b 78.7 a 76.7 ab
12	Curbit.....ethalfluralin Sandea.....halosulfuron Nonionic Surfactant	3 E 75 DF 100 L	0.75 lb ai/A 0.0313 lb ai/A 0.25 % v/v	POST B	10.7 a 83.3 a 83.3 a
LSD (P=.05)			3.00	3.51	8.15 12.89
Standard Deviation			1.75	2.07	4.81 7.61
CV			37.77	87.68	7.11 13.77
Replicate F			0.468	1.057	0.754 2.590
Replicate Prob(F)			0.6337	0.3646	0.4823 0.0977
Treatment F			33.046	11.264	65.580 28.992
Treatment Prob(F)			0.0001	0.0001	0.0001 0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(For1-12)

University of Delaware

Pasture and Hay Spring Herbicide Efficacy

Trial ID: For1-12 Cooperator:
 Location: Field #38 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Woolly Plantain	PLAPR	Plantago patagonica Jacq.
2.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
3.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.
4.	Henbit	LAMAM	Lamium amplexicaule L.
5.	Purple Deadnettle	LAMPU	Lamium purpureum L.
6.	Daisy Fleabane	ERIPH	Erigeron philadelphicus L.
7.	Shepherdspurse	CAPBP	Capsella bursa-pastoris (L.) Medik.

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/Corn Stubble

SOIL DESCRIPTION

% Sand: 79 % OM: 1.6 Texture: sandy loam
 % Silt: 2 pH: 5.8
 % Clay: 19 CEC: 5.2 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:	03/15/12
Time of Day:	3:00 pm
Application Method:	Spray
Application Timing:	POST
Applic. Placement:	Brdcst
Air Temp., Unit:	56 F
% Relative Humidity:	80
Wind Velocity, Unit:	4 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	54 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Moist
% Cloud Cover:	80

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	PLAPR
Growth Stage:	veg-eaflwr
Height, Unit:	4 in
Density,Unit:	30 m ²
Weed 2 Code:	CERVU
Growth Stage:	flower
Height, Unit:	6 in
Density,Unit:	4 m ²
Weed 3 Code:	STEME
Growth Stage:	flower
Height, Unit:	6 in
Density,Unit:	20 m ²
Weed 4 Code:	LAMAM
Growth Stage:	flower
Height, Unit:	4 in
Density,Unit:	15 m ²
Weed 5 Code:	LAMPU
Growth Stage:	flower
Height, Unit:	4 in
Density,Unit:	0-4 m ²
Weed 6 Code:	ERIPH
Growth Stage:	rosette
Height, Unit:	3.5 in
Density,Unit:	1-15 m ²
Weed 7 Code:	CAPBP
Growth Stage:	flwr-seed
Height, Unit:	10 in
Density,Unit:	0-1 m ²

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIR MIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	6 nozl
Boom Height, Unit:	24 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO ₂

Pasture and Hay Spring Herbicide Efficacy								
Trial ID:	For1-12	Cooperator:						
Location:	Field #38	Investigator:	Mark VanGessel					
Weed Code		CERVU	STEME	ERIPH	PLAPR	CERVU	ERIPH	PLAPR
Weed or Crop Name		Mouseear	Common	Daisy	Woolly	Mouseear	Daisy	Woolly
Weed or Crop Name		Chickwd	Chickwd	Fleabane	Plantain	Chickwd	Fleabane	Plantain
Rating Data Type		Control %	Control %	Control %	Control %	Control %	Control %	Control %
Rating Unit		03/30/12	03/30/12	03/30/12	03/30/12	04/17/12	04/17/12	04/17/12
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit			
					Stg			
1	Untreated Check			0.0 h	0.0 g	0.0 g	0.0 h	0.0 d
2	2,4-D amine	3.8 L	1 lb ae/A	POST	12.3 g	34.3 e	81.0 ab	67.3 cd
3	Unison.....,2,4-D acid	1.74 L	1 lb ae/A	POST	15.7 g	35.0 e	73.0 c	67.3 cd
4	Weedmaster Premix	3.87 L	1.93 lb ae/A	POST	44.3 ab	82.0 ab	83.7 a	78.3 ab
5	Latigo Premix	4.2 L	1.18 lb ae/A	POST	40.3 bcd	70.3 c	78.3 b	70.3 bc
6	Banvel.....dicamba	4 EC	0.5 lb ai/A	POST	39.7 cde	79.3 b	84.7 a	74.3 abc
	2,4-D amine	3.8 L	0.674 lb ae/A	POST				
7	Banvel.....dicamba	4 EC	0.5 lb ai/A	POST	47.7 a	84.0 a	84.7 a	80.3 a
	2,4-D amine	3.8 L	1 lb ae/A	POST				
8	Remedy Ultra....triclopyr	4 L	1 lb ae/A	POST	35.7 ef	68.3 c	62.0 e	13.3 fg
9	Crossbow Premix	3 L	1.5 lb ae/A	POST	33.0 f	63.0 d	63.3 e	67.0 cd
10	PastureGard Premix	2 EC	0.625 lb ae/A	POST	39.0 cde	84.3 a	68.3 cd	19.0 f
11	Aim.....carfentrazone	2 EW	0.0312 lb ai/A	POST	0.0 h	4.3 f	7.3 f	9.3 gh
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
12	Edict.....pyraflufen	0.177 SC	.00484 lb ai/A	POST	0.0 h	33.3 e	0.0 g	6.7 gh
	Vida.....pyraflufen	0.208 EC	.00484 lb ai/A	POST				
	Crop Oil Concentrate	100 L	1 % v/v	POST				
13	Rage D-Tech Premix	6 EC	1.5 lb ai/A	POST	42.7 bc	71.0 c	73.0 c	60.0 de
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
14	Rage D-Tech Premix	6 EC	0.75 lb ai/A	POST	37.3 de	63.7 d	66.0 de	52.3 e
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
LSD (P=.05)				4.24	4.25	4.94	9.39	6.04
Standard Deviation				2.53	2.53	2.94	5.60	3.60
CV				9.13	4.58	4.99	11.77	6.1
Replicate F				1.088	2.110	0.911	0.548	2.229
Replicate Prob(F)				0.3516	0.1415	0.4145	0.5846	0.1278
Treatment F				151.612	386.642	346.042	88.243	329.923
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	5163.011
								1508.840
								0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Fall-seeded Pasture Spring Herbicide Evaluation

Trial ID: For2-12 Cooperator:
 Location: Johnson 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Mouseear Chickweed	CERVU	Cerastium vulgatum L.
2.	Purple Deadnettle	LAMPU	Lamium purpureum L.
3.	Common Chickweed	STEME	Stellaria media (L.) Vill./cyr.

Crop 1: Tall Fescue	FESAR	Variety: Bar Optima Plus E34
Planting Date: 10/01/11	Planting Method: Broadcast- Spinner	Depth: 0.25 in
Rate: 40 lb/A		Seed Bed: Smooth/Trashy
Soil Temperature: 65 F	Soil Moisture: Moist	Emergence Date: 10/08/11

SITE AND DESIGN

Plot Width, Unit: 9 FT Plot Length, Unit: 120 FT Reps: 3
 Site Type: Pasture Study Design: RANDOMIZED COMPLETE BLOCK
 Tillage Type: Disked and drag harrowed

Trial Initiation Comments: Seed were hand-spun onto the soil surface and incorporated with a drag harrow.

MAINTENANCE

Field Prep./Maintenance: Treatments were applied in 30% UAN solution as 50% of the carrier (10 gal/A UAN) supplying 32.5 lb N/A.

SOIL DESCRIPTION

Texture: loamy sand 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: 10 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	03/27/12
Time of Day:	4:00 pm
Application Method:	Spray
Application Timing:	POST
Applic. Placement:	Brdcst
Air Temp., Unit:	54 F
% Relative Humidity:	18
Wind Velocity, Unit:	3 mph
Wind Direction:	Northwest
Dew Presence (Y/N):	N
Soil Temp., Unit:	50 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	5

CROP STAGE AT EACH APPLICATION	
	A
Crop 1 Code:	FESAR
Growth Stage:	5-8 tiller
Height, Unit:	4.5 in
Crop Health:	Good

WEED STAGE AT EACH APPLICATION	
	A
Weed 1 Code:	CERVU
Growth Stage:	Flower
Height, Unit:	7 in
Density,Unit:	50-100 m ²
Weed 2 Code:	LAMPU
Growth Stage:	Flower
Height, Unit:	6 in
Density,Unit:	0-100 m ²
Weed 3 Code:	STEME
Growth Stage:	Flower
Height, Unit:	7 in
Density,Unit:	0-50 m ²

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:	UAN/water
Spray Volume, Unit:	20 gpa
Propellant:	CO ₂

Trial Comments
03-27-12: Purple deadnettle and mouseear chickweed are taller than the grasses and are so thick in some areas that the tall fescue below is not visible.
04-06-12: No injury symptomology was noted on any treatments. The grass is beginning to grow above the weeds in all treatments.

Fall-seeded Pasture Spring Herbicide Evaluation

Trial ID: For2-12 Cooperator:
 Location: Johnson Investigator: Mark VanGessel

Weed Code	CERVU	LAMPU	CERVU	LAMPU				
Weed or Crop Name	Mouseear	Purple	Mouseear	Purple				
Weed or Crop Name	Chickwd	Deadnetl	Chickwd	Deadnetl				
Rating Data Type	Control	Control	Control	Control				
Rating Unit	%	%	%	%				
Rating Date	04/06/12	04/06/12	04/12/12	04/12/12				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg			
1	Banvel.....dicamba	4 EC	0.25 lb ai/A	POST	72.0 bc	74.4 a	79.0 a	97.1 a
	Aim.....carfentrazone	2 EW	0.0312 lb ai/A	POST				
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	50 % v/v	POST				
2	Rage D-Tech Premix	6 EC	1.5 lb ai/A	POST	65.3 e	73.4 a	77.3 a	97.6 a
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	50 % v/v	POST				
3	Rage D-Tech Premix	6 EC	0.75 lb ai/A	POST	66.0 de	72.4 a	72.7 a	96.6 a
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	50 % v/v	POST				
4	Rage D-Tech Premix	6 EC	0.75 lb ai/A	POST	74.7 ab	79.0 a	74.0 a	99.0 a
	Aim.....carfentrazone	2 EW	0.0156 lb ai/A	POST				
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	50 % v/v	POST				
5	Rage D-Tech Premix	6 EC	0.375 lb ai/A	POST	77.0 a	75.7 a	74.3 a	98.3 a
	Aim.....carfentrazone	2 EW	0.0234 lb ai/A	POST				
	Nonionic Surfactant	100 L	0.25 % v/v	POST				
	30% Urea Ammonium Nitrate	100 L	50 % v/v	POST				
6	Aim.....carfentrazone	2 EW	0.0312 lb ai/A	POST	69.0 cd	71.7 a	73.7 a	95.7 a
	30% Urea Ammonium Nitrate	100 L	50 % v/v	POST				
LSD (P=.05)				3.50	6.27	5.51	2.71	
Standard Deviation				1.92	3.25	3.03	1.40	
CV				2.72	4.36	4.03	1.44	
Replicate F				0.315	4.784	0.055	1.206	
Replicate Prob(F)				0.7366	0.0490	0.9472	0.3548	
Treatment F				17.982	1.997	1.960	2.182	
Treatment Prob(F)				0.0001	0.1962	0.1708	0.1689	

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(MELN1-12)

University of Delaware

Herbicides for Watermelons and Cantalopes

Under Plastic Application

Trial ID: MELN1-12 Cooperator:

Location: Dill 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

Crop 1: Watermelon	CITLA	Variety: Distinction
Planting Date: 05/23/12	Planting Method: Transplanted- Machine	
Rate: 1 pl/3row-ft	Row Spacing: 72 in	Seed Bed: plasticulture
Soil Temperature: 78 F	Soil Moisture: Moist	

SITE AND DESIGN

Plot Width, Unit: 7 FT Plot Length, Unit: 55 FT Reps: 3

Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK

Tillage Type: Conventional Tillage

Trial Initiation Comments: Beds were formed prior to herbicide application and the plastic was laid immediately after herbicide application.

SOIL DESCRIPTION

% Sand: 81	% OM: 0.9	Texture: loamy sand
% Silt: 10	pH: 5.9	
% Clay: 9	CEC: 5.1	Fert. Level: Optimum

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: 1 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	05/17/12
Time of Day:	2:00 pm
Application Method:	Spray
Application Timing:	PRE-TRP
Applic. Placement:	BroSoi
Air Temp., Unit:	71 F
% Relative Humidity:	44
Wind Velocity, Unit:	5 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	70 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	50

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Tractor
Operating Pressure:	40 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	20 in
Boom Length, Unit:	4 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	Comp. Air

Trial Comments

Watermelon Comments:

plot 106. 06-06-12 = last three plants 0

Cantalope Comments:

plot 105. 06-06-12 = stunting

(MELN1-12)

University of Delaware

Herbicides for Watermelons and Cantalopes

Under Plastic Application

Trial ID: MELN1-12 Cooperator:

Location: Dill Investigator: Mark VanGessel

Weed Code	CITLA	CUMMC	CITLA	CUMMC	CITLA	CUMMC	ERAME
Crop Code	Water-melon	Canta-lope	Water-melon	Canta-lope	Water-melon	Canta-lope	Stink-grass Count #/1ft2
Weed or Crop Name	Injury %	Injury %	Injury %	Injury %	Injury %	Injury %	
Weed or Crop Name							
Rating Data Type	05/30/12	05/30/12	06/06/12	06/06/12	06/13/12	06/13/12	07/02/12
Rating Unit							
Rating Date							
Trt Treatment	Form No.	Form Name	Rate Conc	Grow Type	Stg		
1 Untreated Check							
2 Reflex.....fomesafen	2 L	0.187 lb ai/A	0.187	PRE-TRP	0.0a	5.7a	0.0a
3 Dual II.....metolachlor	7.8 E	0.487 lb ai/A	0.487	PRE-TRP	0.0a	0.0a	0.0a
4 Dual II.....metolachlor	7.8 E	0.73 lb ai/A	0.73	PRE-TRP	0.0a	0.0a	0.0a
5 Dual II.....metolachlor	7.8 E	0.975 lb ai/A	0.975	PRE-TRP	4.0a	0.0a	3.3a
6 Sandea.....halosulfuron	75 DF	0.0234 lb ai/A	0.0234	PRE-TRP	4.0a	3.3a	0.0a
7 Sinbar.....terbacil	80 W	0.2 lb ai/A	0.2	PRE-TRP	0.0a	3.3a	0.0a
8 Prefar.....bensulide	4 E	6 lb ai/A	6	PRE-TRP	0.0a	2.3a	0.0a
LSD (P=.05)			6.28		5.82	3.10	5.76
Standard Deviation			3.59		3.32	1.76	3.29
CV			358.57		181.25	248.41	59.84
Replicate F			0.467		0.638	1.467	2.908
Replicate Prob(F)			0.6365		0.5432	0.2664	0.0879
Treatment F			0.800		1.277	1.736	17.160
Treatment Prob(F)			0.6004		0.3292	0.1852	0.0001

Weed Code	MOLVE	CITLA	CUMMC	ERAME	MOLVE
Crop Code	Carpet-weed Count #/1ft2	Water-melon Injury %	Canta-lope Injury %	Stink-grass Count #/1ft2	Carpet-weed Count #/1ft2
Weed or Crop Name					
Weed or Crop Name					
Rating Data Type	07/02/12	07/26/12	07/26/12	08/06/12	08/06/12
Rating Unit					
Rating Date					
Trt Treatment	Form No.	Form Name	Rate Conc	Grow Type	Stg
1 Untreated Check					
2 Reflex.....fomesafen	2 L	0.187 lb ai/A	0.187	PRE-TRP	0.7a
3 Dual II.....metolachlor	7.8 E	0.487 lb ai/A	0.487	PRE-TRP	0.3a
4 Dual II.....metolachlor	7.8 E	0.73 lb ai/A	0.73	PRE-TRP	1.0a
5 Dual II.....metolachlor	7.8 E	0.975 lb ai/A	0.975	PRE-TRP	0.3a
6 Sandea.....halosulfuron	75 DF	0.0234 lb ai/A	0.0234	PRE-TRP	1.0a
7 Sinbar.....terbacil	80 W	0.2 lb ai/A	0.2	PRE-TRP	0.3a
8 Prefar.....bensulide	4 E	6 lb ai/A	6	PRE-TRP	0.7a
LSD (P=.05)		1.26	0.00	13.15	3.18
Standard Deviation		0.72	0.00	7.51	1.81
CV		132.85	0.0	327.71	150.15
Replicate F		0.080	0.000	0.240	0.392
Replicate Prob(F)		0.9231	1.0000	0.7897	0.6826
Treatment F		0.724	0.000	0.715	1.966
Treatment Prob(F)		0.6547	1.0000	0.6613	0.1335

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(MELN2-12)

University of Delaware

Experimental PPO Herbicides for Watermelons and Cantalopes

Trial ID: MELN2-12 Cooperator:
 Location: Dill 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

CROP AND WEED DESCRIPTION

Weed	Common Name	Code	Scientific Name
1.	Palmer Amaranth	AMAPA	Amaranthus palmeri S.Wats.
2.	Common Lambsquarters	CHEAL	Chenopodium album L.
3.	Goosegrass	ELEIN	Eleusine indica (L.) Gaertn.
4.	Stinkgrass	ERAME	Eragrostis ciliaris (All.) E.Mosher

Crop 1: Watermelon	CITLA	Variety: Distinction
Planting Date:	06/01/12	Planting Method: Transplanted- Machine
Rate:	1 pl/3row-ft	Row Spacing: 7 ft Seed Bed: plasticulture
Soil Temperature:	85 F	Soil Moisture: Moist
Crop 2: Cantalope	CUMMC	Variety: Aphrodite
Planting Date:	06/01/12	Planting Method: Transplanted- Machine
Rate:	1 pl/3row-ft	Row Spacing: 7 ft Seed Bed: plasticulture
Soil Temperature:	85 F	Soil Moisture: Moist

SITE AND DESIGN

Plot Width, Unit: 8 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: 0.9 Texture: loamy sand
 % Silt: 10 pH: 5.9
 % Clay: 9 CEC: 5.1 Fert. Level: Optimum

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: 1 Unit: mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/31/12	06/14/12
Time of Day:	3:30 pm	7:45 am
Application Method:	Spray	Spray
Application Timing:	Dir-PRE	Dir-POST
Applic. Placement:	BanDir	BanDir
Air Temp., Unit:	84 F	69 F
% Relative Humidity:	47	81
Wind Velocity, Unit:	3 mph	9 mph
Wind Direction:	Northeast	Northeast
Dew Presence (Y/N):	N	N
Soil Temp., Unit:	82 F	67 F
Soil Surf. Moisture:	Moist	Moist
Root Zone Moisture:	Moist	Moist
Leaf Surf. Moisture:	N/A	Moist
% Cloud Cover:	30	100

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code:	CITLA	CITLA
Growth Stage:		vining
Height, Unit:		17 in
Crop Health:		Good
Crop 2 Code:	CUMMC	CUMMC
Growth Stage:		vining
Height, Unit:		17 in
Crop Health:		Good

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	AMAPA	AMAPA
Growth Stage:		vegetative
Height, Unit:		8 in
Density, Unit:		0-40 m ²
Weed 2 Code:	CHEAL	CHEAL
Growth Stage:		vegetative
Height, Unit:		5 in
Density, Unit:		0-12 m ²
Weed 3 Code:	ELEIN	ELEIN
Growth Stage:		1-3 tiller
Height, Unit:		5 in
Density, Unit:		0-25 m ²
Weed 4 Code:	ERAME	ERAME
Growth Stage:		2-4 tiller
Height, Unit:		8 in
Density, Unit:		15-60 m ²

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	Tractor	Tractor
Operating Pressure:	25 psi	25 psi
Nozzle Type:	XRTEEJET	XRTEEJET
Nozzle Size:	95015E	95015E
Nozzle Spacing, Unit:	8 in	8 in
Band Width, Unit:	32 in	32 in
Boom Length, Unit:	6 nozl	6 nozl
Ground Speed, Unit:	3 mph	3 mph
Carrier:	water	water
Spray Volume, Unit:	19.6 gpa	19.6 gpa
Propellant:	Comp. Air	Comp. Air

Experimental PPO Herbicides for Watermelons and Cantalopes

Trial ID: MELN2-12 Cooperator:

Location: Dill

Investigator: Mark VanGessel

Weed Code	CITLA	CUMMC	CITLA	CUMMC	CITLA	CUMMC					
Crop Code	Water-melon	Canta-lope	Water-melon	Canta-lope	Water-melon	Canta-lope					
Weed or Crop Name	Injury %	Injury %	Injury %	Injury %	Injury %	Injury %					
Weed or Crop Name											
Rating Data Type											
Rating Unit											
Rating Date											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code				
1	Untreated Check										
2	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-PRE	A	17.8 a	24.5 ab	14.9 a	44.6 a	25.9 abc	59.7 ab
	Curbit.....ethafluralin	3 E	0.56 lb ai/A	Dir-PRE	A						
3	Chateau.....flumioxazin	51 WG	0.127 lb ai/A	Dir-PRE	A	12.8 a	24.6 ab	19.0 a	33.2 ab	9.9 bc	30.8 bcd
	Curbit.....ethafluralin	3 E	0.56 lb ai/A	Dir-PRE	A						
4	Fierce Premix	76 WG	0.214 lb ai/A	Dir-PRE	A	23.8 a	27.1 a	33.0 a	49.7 a	35.9 ab	62.3 a
5	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-PRE	A	20.3 a	13.1 bc	44.0 a	29.7 abc	49.9 a	35.8 abc
	Curbit.....ethafluralin	3 E	1.12 lb ai/A	Dir-PRE	A						
6	Reflex.....fomesafen	2 L	0.375 lb ai/A	Dir-PRE	A	6.3 a	3.1 c	21.6 a	4.7 cd	12.4 bc	2.3 de
	Curbit.....ethafluralin	3 E	0.56 lb ai/A	Dir-PRE	A						
7	Sharpen.....saflufenacil	2.85 SC	0.067 lb ai/A	Dir-PRE	A	12.3 a	2.7 c	19.0 a	17.3 bcd	23.3 abc	17.3 cde
	Curbit.....ethafluralin	3 E	0.56 lb ai/A	Dir-PRE	A						
8	Sharpen.....saflufenacil	2.85 SC	0.111 lb ai/A	Dir-PRE	A	5.0 a	0.0 c	4.7 a	6.0 cd	4.7 c	3.3 de
	Curbit.....ethafluralin	3 E	0.56 lb ai/A	Dir-PRE	A						
9	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-POST	B	0.0 a	0.0 c	0.0 a	0.0 d	26.0 abc	25.0 cde
	Curbit.....ethafluralin	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						
10	Reflex.....fomesafen	2 L	0.375 lb ai/A	Dir-POST	B	0.0 a	0.0 c	0.0 a	0.0 d	19.3 bc	15.3 cde
	Curbit.....ethafluralin	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)		20.06	13.11	29.10	25.74	27.57	29.14				
Standard Deviation		11.28	7.37	16.35	14.47	15.50	16.38				
CV		114.63	77.53	104.71	78.11	74.76	65.04				
Replicate F		0.938	0.143	0.119	0.154	0.672	0.367				
Replicate Prob(F)		0.4183	0.8685	0.8890	0.8592	0.5287	0.7005				
Treatment F		1.860	7.510	2.518	5.365	2.802	5.596				
Treatment Prob(F)		0.1567	0.0010	0.0691	0.0044	0.0497	0.0037				

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	CITLA	CUMMC	CITLA	CUMMC	CITLA	CUMMC
Crop Code	Water-melon	Canta-lope	Water-melon	Canta-lope	Water-melon	Canta-lope
Weed or Crop Name	Injury %	Injury %	# plants per plot	# plants per plot	Injury %	Injury %
Rating Data Type	07/03/12	07/03/12	07/03/12	07/03/12	07/26/12	07/26/12
Rating Unit						
Rating Date						
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg Code
1	Untreated Check				0.0 a	0.0 a
2	Chateau.....flumioxazin Curbit.....ethalfluralin	51 WG 3 E	lb ai/A 0.56 lb ai/A	0.096 lb ai/A Dir-PRE Dir-PRE	A A	
3	Chateau.....flumioxazin Curbit.....ethalfluralin	51 WG 3 E	lb ai/A 0.56 lb ai/A	0.127 lb ai/A Dir-PRE Dir-PRE	A A	
4	Fierce Premix	76 WG		0.214 lb ai/A	Dir-PRE	A
5	Chateau.....flumioxazin Curbit.....ethalfluralin	51 WG 3 E	lb ai/A 1.12 lb ai/A	0.096 lb ai/A Dir-PRE Dir-PRE	A A	
6	Reflex.....fomesafen Curbit.....ethalfluralin	2 L 3 E		0.375 lb ai/A 0.56 lb ai/A	Dir-PRE Dir-PRE	A A
7	Sharpen.....saflufenacil Curbit.....ethalfluralin	2.85 SC 3 E		0.067 lb ai/A 0.56 lb ai/A	Dir-PRE Dir-PRE	A A
8	Sharpen.....saflufenacil Curbit.....ethalfluralin	2.85 SC 3 E		0.111 lb ai/A 0.56 lb ai/A	Dir-PRE Dir-PRE	A A
9	Chateau.....flumioxazin Curbit.....ethalfluralin Gramoxone SL....paraquat Nonionic Surfactant	51 WG 3 E 2 SL 100 L		0.096 lb ai/A 0.56 lb ai/A 0.75 lb ai/A 0.25 % v/v	Dir-POST Dir-POST Dir-POST Dir-POST	B B B B
10	Reflex.....fomesafen Curbit.....ethalfluralin Gramoxone SL....paraquat Nonionic Surfactant	2 L 3 E 2 SL 100 L		0.375 lb ai/A 0.56 lb ai/A 0.75 lb ai/A 0.25 % v/v	Dir-POST Dir-POST Dir-POST Dir-POST	B B B B
LSD (P=.05)		0.00	9.82	2.27	1.98	12.53
Standard Deviation		0.00	4.33	1.32	1.16	7.30
CV		0.0	169.57	22.26	18.55	547.72
Replicate F		0.000	1.000	0.936	0.474	1.000
Replicate Prob(F)		1.0000	0.4444	0.4104	0.6302	0.3874
Treatment F		0.000	3.130	0.841	2.163	1.000
Treatment Prob(F)		1.0000	0.1520	0.5897	0.0781	0.4742
						0.000
						1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	Crop Code	AMAPA	CHEAL	ERAME	ELEIN	CITLA	CITLA
Weed or Crop Name	Weed or Crop Name	Palmer	Common	Stink-	Goose-	Water-	Water-
Rating Data Type	Rating Unit	Amaranth	Lambqtrs	grass	grass	melon	melon
Rating Date		%	%	%	%	Harv1Yld	#/plot
08/06/12	08/06/12	08/06/12	08/06/12	08/06/12	08/06/12	08/02/12	08/02/12
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code
1	Untreated Check						
2	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-PRE	A	100.0 a	100.0 a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A		
3	Chateau.....flumioxazin	51 WG	0.127 lb ai/A	Dir-PRE	A	100.0 a	100.0 a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A		
4	Fierce Premix	76 WG	0.214 lb ai/A	Dir-PRE	A	100.0 a	100.0 a
5	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-PRE	A	100.0 a	100.0 a
	Curbit.....ethalfluralin	3 E	1.12 lb ai/A	Dir-PRE	A		
6	Reflex.....fomesafen	2 L	0.375 lb ai/A	Dir-PRE	A	100.0 a	96.7 b
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A		
7	Sharpen.....saflufenacil	2.85 SC	0.067 lb ai/A	Dir-PRE	A	100.0 a	100.0 a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A		
8	Sharpen.....saflufenacil	2.85 SC	0.111 lb ai/A	Dir-PRE	A	100.0 a	100.0 a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A		
9	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-POST	B	100.0 a	100.0 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		
10	Reflex.....fomesafen	2 L	0.375 lb ai/A	Dir-POST	B	100.0 a	100.0 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)				0.00	3.13	30.39	9.29
Standard Deviation				0.00	1.83	17.71	5.41
CV				0.0	2.04	21.69	6.27
Replicate F				0.000	1.000	0.124	1.216
Replicate Prob(F)				1.0000	0.3874	0.8841	0.3196
Treatment F				0.000	894.333	8.727	95.557
Treatment Prob(F)				1.0000	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code		CITLA	CITLA	CITLA	CITLA	CUMMC	CUMMC
Crop Code		Water-melon	Water-melon	Water-melon	Water-melon	Canta-lope	Canta-lope
Weed or Crop Name		Harv2Yld	Harv2Yld	TotalYld	TotalYld	Harv1Yld	Harv1Yld
Weed or Crop Name		lbs/plot	#/plot	lbs/plot	#/plot	lbs/plot	#/plot
Rating Data Type		08/09/12	08/09/12			07/23/12	07/23/12
Rating Unit							
Rating Date							
Trt	Treatment	Form	Form	Rate	Grow	Appl	
No.	Name	Conc	Type	Rate	Unit	Stg	Code
1	Untreated Check			20.3	a	114.3	a
2	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-PRE	A	36.2	a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A	2.3	a
3	Chateau.....flumioxazin	51 WG	0.127 lb ai/A	Dir-PRE	A	19.9	a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A	1.3	a
4	Fierce Premix	76 WG	0.214 lb ai/A	Dir-PRE	A	16.7	a
						1.3	a
5	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-PRE	A	20.4	a
	Curbit.....ethalfluralin	3 E	1.12 lb ai/A	Dir-PRE	A	1.3	a
6	Reflex.....fomesafen	2 L	0.375 lb ai/A	Dir-PRE	A	36.5	a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A	2.3	a
7	Sharpen.....saflufenacil	2.85 SC	0.067 lb ai/A	Dir-PRE	A	30.9	a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A	2.0	a
8	Sharpen.....saflufenacil	2.85 SC	0.111 lb ai/A	Dir-PRE	A	24.4	a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A	1.7	a
9	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-POST	B	14.2	a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-POST	B	1.0	a
	Gramoxone SL....paraquat	2 SL	0.75 lb ai/A	Dir-POST	B	72.6	a
	Nonionic Surfactant	100 L	0.25 % v/v	Dir-POST	B	6.3	a
10	Reflex.....fomesafen	2 L	0.375 lb ai/A	Dir-POST	B	25.6	a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-POST	B	2.0	a
	Gramoxone SL....paraquat	2 SL	0.75 lb ai/A	Dir-POST	B	101.1	a
	Nonionic Surfactant	100 L	0.25 % v/v	Dir-POST	B	8.3	a
LSD (P=.05)			27.38	1.81	52.56	4.05	8.84
Standard Deviation			15.96	1.06	30.21	2.33	5.15
CV			65.14	62.11	28.54	27.79	200.69
Replicate F			1.260	1.166	0.479	0.374	1.596
Replicate Prob(F)			0.3075	0.3340	0.6284	0.6945	0.2301
Treatment F			0.712	0.561	2.531	2.248	1.438
Treatment Prob(F)			0.6916	0.8107	0.0540	0.0796	0.2442
							0.3313

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	CUMMC	CUMMC	CUMMC	CUMMC	CUMMC	CUMMC
Crop Code	Canta-lope	Canta-lope	Canta-lope	Canta-lope	Canta-lope	Canta-lope
Weed or Crop Name	Harv2Yld	Harv2Yld	Harv3Yld	Harv3Yld	Harv4Yld	Harv4Yld
Weed or Crop Name	lbs/plot	#/plot	lbs/plot	#/plot	lbs/plot	#/plot
Rating Data Type	07/26/12	07/26/12	07/30/12	07/30/12	08/02/12	08/02/12
Rating Unit						
Rating Date						
Trt Treatment No.	Form Conc	Form Type	Rate Rate	Grow Stg	Appl Code	
1 Untreated Check						
2 Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-PRE	A	11.2 a	3.3 a
Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A		
3 Chateau.....flumioxazin	51 WG	0.127 lb ai/A	Dir-PRE	A	1.3 a	0.3 a
Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A		
4 Fierce Premix	76 WG	0.214 lb ai/A	Dir-PRE	A	2.6 a	0.3 a
5 Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-PRE	A	3.0 a	0.3 a
Curbit.....ethalfluralin	3 E	1.12 lb ai/A	Dir-PRE	A		
6 Reflex.....fomesafen	2 L	0.375 lb ai/A	Dir-PRE	A	24.8 a	4.0 a
Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A		
7 Sharpen.....saflufenacil	2.85 SC	0.067 lb ai/A	Dir-PRE	A	12.3 a	1.7 a
Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A		
8 Sharpen.....saflufenacil	2.85 SC	0.111 lb ai/A	Dir-PRE	A	17.6 a	2.3 a
Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A		
9 Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-POST	B	12.2 a	1.7 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		
10 Reflex.....fomesafen	2 L	0.375 lb ai/A	Dir-POST	B	7.5 a	1.0 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)		18.54	2.56	12.39	1.54	40.51
Standard Deviation		10.81	1.49	7.22	0.90	23.61
CV		93.28	89.52	43.44	41.47	79.13
Replicate F		1.165	1.183	3.188	2.147	1.380
Replicate Prob(F)		0.3344	0.3291	0.0653	0.1458	0.2770
Treatment F		1.776	2.163	2.733	3.050	0.394
Treatment Prob(F)		0.1432	0.0782	0.0332	0.0211	0.9223
						0.389

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code	CUMMC	CUMMC	CUMMC	CUMMC							
Crop Code	Canta-lope	Canta-lope	Canta-lope	Canta-lope							
Weed or Crop Name	Harv5Yld	Harv5Yld	TotalYld	TotalYld							
Rating Data Type	lbs/plot	#/plot	lbs/plot	#/plot							
Rating Unit											
Rating Date	08/07/12										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	Code				
1	Untreated Check							16.0a	2.0a	79.7a	11.0a
2	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-PRE	A			19.7a	2.3a	77.1a	9.2a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A						
3	Chateau.....flumioxazin	51 WG	0.127 lb ai/A	Dir-PRE	A			25.6a	3.0a	89.0a	11.2a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A						
4	Fierce Premix	76 WG	0.214 lb ai/A	Dir-PRE	A			36.2a	4.0a	70.0a	7.7a
5	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-PRE	A			27.9a	3.0a	88.8a	10.0a
	Curbit.....ethalfluralin	3 E	1.12 lb ai/A	Dir-PRE	A						
6	Reflex.....fomesafen	2 L	0.375 lb ai/A	Dir-PRE	A			14.5a	2.0a	83.6a	11.3a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A						
7	Sharpen.....saflufenacil	2.85 SC	0.067 lb ai/A	Dir-PRE	A			19.1a	2.7a	83.1a	12.3a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A						
8	Sharpen.....saflufenacil	2.85 SC	0.111 lb ai/A	Dir-PRE	A			7.4a	1.0a	82.0a	11.0a
	Curbit.....ethalfluralin	3 E	0.56 lb ai/A	Dir-PRE	A						
9	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Dir-POST	B			19.4a	2.0a	90.2a	11.0a
	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						
10	Reflex.....fomesafen	2 L	0.375 lb ai/A	Dir-POST	B			6.2a	0.7a	85.8a	10.0a
	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)					29.91	3.59	43.33	5.32			
Standard Deviation					17.44	2.09	25.03	3.07			
CV					90.87	92.27	30.18	29.32			
Replicate F					2.798	1.974	2.012	2.455			
Replicate Prob(F)					0.0875	0.1679	0.1661	0.1175			
Treatment F					0.819	0.657	0.184	0.546			
Treatment Prob(F)					0.6068	0.7358	0.9930	0.8200			

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(MELN3-12)

University of Delaware

Experimental Herbicides for Watermelons and Cantalopes

Crop Safety Evaluations

Trial ID: MELN3-12 Cooperator:

Location: Dill 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

Crop 1: Watermelon	CITLA	Variety: Distinction
Planting Date: 06/07/12	Planting Method: Transplanted- Machine	
Rate: 1 pl/3row-ft	Row Spacing: 8 ft	Seed Bed: plasticulture
Soil Temperature: 79 F	Soil Moisture: Moist	

Crop 2: Cantalope	CUMMC	Variety: Aphrodite
Planting Date: 06/07/12	Planting Method: Transplanted- Machine	
Rate: 1 pl/3row-ft	Row Spacing: 8 ft	Seed Bed: plasticulture
Soil Temperature: 79 F	Soil Moisture: Moist	

SITE AND DESIGN

Plot Width, Unit: 7 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: 0.9	Texture: loamy sand
% Silt: 10	pH: 5.9	
% Clay: 9	CEC: 5.1	Fert. Level: Optimum

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: 1 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	06/18/12
Time of Day:	12:30 pm
Application Method:	Spray
Application Timing:	Post-Dir
Applic. Placement:	Brdcst
Air Temp., Unit:	71 F
% Relative Humidity:	55
Wind Velocity, Unit:	1 mph
Wind Direction:	East
Dew Presence (Y/N):	N
Soil Temp., Unit:	70 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	75

CROP STAGE AT EACH APPLICATION	
	A
Crop 1 Code:	CITLA
Growth Stage:	vining
Height, Unit:	18 in
Crop Health:	Good
Crop 2 Code:	CUMMC
Growth Stage:	vining
Height, Unit:	18 in
Crop Health:	Good

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Tractor
Operating Pressure:	25 psi
Nozzle Type:	XRTEEJET
Nozzle Size:	95015E
Nozzle Spacing, Unit:	8 in
Band Width, Unit:	32 in
Boom Length, Unit:	6 nozl
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	19.6 gpa
Propellant:	Comp. Air

Trial Comments

06-18-12: Flaps were removed from sprayer hoods to promote additional herbicide drift.

Watermelon Comments:

plot 302 second rating = missing one plant
 plot 305 first rating = 1/2 plot damaged by something else
 plot 305 second rating = missing one plant, another severely stunted
 plot 307 fourth rating = disease?
 plot 305 fourth rating = disease?

Canalope Comments:

plot 301 second rating.= missing one plant
 plot 306 second rating. = stunted.

Experimental Herbicides for Watermelons and Cantalopes

Crop Safety Evaluations

Trial ID: MELN3-12 Cooperator:

Location: Dill Investigator: Mark VanGessel

Crop Code		CITLA Water-melon Injury %	CUMMC Canta-lope Injury %	CITLA Water-melon Injury %	CUMMC Canta-lope Injury %	CITLA Water-melon Injury %	CUMMC Canta-lope Injury %
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg	
1	Untreated Check			0.0 a	0.0 a	0.0 a	0.0 a
2	Reflex.....fomesafen	2 L	0.375 lb ai/A	Post-Dir	1.7 a	0.0 a	0.0 a
	Gramoxone SL....paraquat	2 SL	0.6 lb ai/A	Post-Dir			
	Nonionic Surfactant	100 L	0.25 % v/v	Post-Dir			
3	Chateau.....flumioxazin	51 WG	0.096 lb ai/A	Post-Dir	2.7 a	10.0 a	0.0 a
	Gramoxone SL....paraquat	2 SL	0.6 lb ai/A	Post-Dir			
	Nonionic Surfactant	100 L	0.25 % v/v	Post-Dir			
4	Dual II.....metolachlor	7.8 E	1.22 lb ai/A	Post-Dir	0.0 a	9.0 a	0.0 a
	Gramoxone SL....paraquat	2 SL	0.6 lb ai/A	Post-Dir			
	Nonionic Surfactant	100 L	0.25 % v/v	Post-Dir			
5	Sandea.....halosulfuron	75 DF	0.0314 lb ai/A	Post-Dir	0.0 a	1.7 a	0.0 a
	Gramoxone SL....paraquat	2 SL	0.6 lb ai/A	Post-Dir			
	Nonionic Surfactant	100 L	0.25 % v/v	Post-Dir			
6	Sinbar.....terbacil	80 W	0.2 lb ai/A	Post-Dir	0.0 a	4.7 a	0.0 a
	Gramoxone SL....paraquat	2 SL	0.6 lb ai/A	Post-Dir			
	Nonionic Surfactant	100 L	0.25 % v/v	Post-Dir			
7	Sharpen.....saflufenacil	2.85 SC	0.0445 lb ai/A	Post-Dir	4.0 a	1.7 a	2.7 a
	Gramoxone SL....paraquat	2 SL	0.6 lb ai/A	Post-Dir			
	Nonionic Surfactant	100 L	0.25 % v/v	Post-Dir			
8	No residual				0.0 a	2.3 a	0.0 a
	Gramoxone SL....paraquat	2 SL	0.6 lb ai/A	Post-Dir			
	Nonionic Surfactant	100 L	0.25 % v/v	Post-Dir			
LSD (P=.05)				5.30	7.32	2.86	7.74
Standard Deviation				3.03	4.18	1.63	4.42
CV				290.56	113.93	489.9	107.07
Replicate F				1.478	0.296	1.000	0.468
Replicate Prob(F)				0.2615	0.7483	0.3927	0.6358
Treatment F				0.805	2.608	1.000	2.177
Treatment Prob(F)				0.5969	0.0601	0.4706	0.1020

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(MELN4-12)

University of Delaware

Preplant PPO Herbicides over Plastic for Watermelons

Trial ID: MELN4-12 Cooperator:
 Location: Dill 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

Crop 1: Watermelon	CITLA	Variety: Sangrea
Planting Date: 06/01/12	Planting Method: Transplanted- Machine	
Rate: 1 pl/3row-ft	Row Spacing: 8 ft	Seed Bed: plasticulture
Soil Temperature: 85 F	Soil Moisture: Moist	
Crop 2: Cantalope	CUMMC	Variety: Aphrodite
Planting Date: 06/01/12	Planting Method: Transplanted- Machine	
Rate: 1 pl/3row-ft	Row Spacing: 8 ft	Seed Bed: plasticulture
Soil Temperature: 85 F	Soil Moisture: Moist	

SITE AND DESIGN

Plot Width, Unit: 8 FT Plot Length, Unit: 55 FT Reps: 4
 Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK
 Tillage Type: Conventional Tillage

SOIL DESCRIPTION

% Sand: 81 % OM: 0.9 Texture: loamy sand
 % Silt: 10 pH: 5.9
 % Clay: 9 CEC: 5.1 Fert. Level: Optimum

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: 1 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	05/31/12
Time of Day:	3:00 pm
Application Method:	Spray
Application Timing:	Preplant
Applic. Placement:	Brdcst
Air Temp., Unit:	84 F
% Relative Humidity:	47
Wind Velocity, Unit:	3 mph
Wind Direction:	Northeast
Dew Presence (Y/N):	N
Soil Temp., Unit:	82 F
Soil Surf. Moisture:	Moist
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	N/A
% Cloud Cover:	30

APPLICATION EQUIPMENT	
Appl. Equipment:	A
Operating Pressure:	31 psi
Nozzle Type:	AIR MIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	4 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Preplant PPO Herbicides over Plastic for Watermelons

Trial ID: MELN4-12 Cooperator:

Location: Dill Investigator: Mark VanGessel

Crop Code	CITLA Water-melon Injury %	CUMMC Canta-lope Injury %	CITLA Water-melon Injury %	CUMMC Canta-lope Injury %	CITLA Water-melon Injury %	CUMMC Canta-lope Injury %
Weed or Crop Name	06/04/12	06/04/12	06/07/12	06/07/12	06/13/12	06/13/12
Weed or Crop Name						
Rating Data Type						
Rating Unit						
Rating Date						
Trt Treatment No.	Form Conc	Form Type	Rate Rate	Grow Stg		
1 Chateau.....flumioxazin	51 WG	0.127 lb ai/A	0.127 lb ai/A	Preplant	78.3 a	95.8 a
2 Sharpen.....saflufenacil	2.85 SC	0.111 lb ai/A	0.111 lb ai/A	Preplant	57.0 b	93.5 a
3 Untreated Check					0.0 c	0.0 b
LSD (P=.05)			3.90	11.28	6.93	8.99
Standard Deviation			2.25	6.52	4.00	5.20
CV			5.0	10.33	7.85	7.97
Replicate F			0.279	0.541	0.610	1.000
Replicate Prob(F)			0.8391	0.6717	0.6327	0.4547
Treatment F			1288.344	281.209	524.293	472.605
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001
						1561.000

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

(MELN5-12)

University of Delaware

Preplant PPO Herbicides over Plastic for Watermelons

Second Run

Trial ID: MELN5-12 Cooperator:

Location: Dill 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

Crop 1: Watermelon	CITLA	Variety: #7187
Planting Date: 06/22/12	Planting Method: Transplanted- Hand	
Rate: 1 pl/3row-ft	Row Spacing: 8 ft	Seed Bed: plasticulture
Soil Temperature: 95 F	Soil Moisture: Moist	

SITE AND DESIGN

Plot Width, Unit: 8 FT Plot Length, Unit: 35 FT Reps: 3

Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK

Tillage Type: Conventional Tillage

SOIL DESCRIPTION

% Sand: 81	% OM: 0.9	Texture: loamy sand
% Silt: 10	pH: 5.9	
% Clay: 9	CEC: 5.1	Fert. Level: Optimum

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: 1 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	06/18/12
Time of Day:	1:30 pm
Application Method:	Spray
Application Timing:	Preplant
Appli. Placement:	Brdcst
Air Temp., Unit:	72 F
% Relative Humidity:	57
Wind Velocity, Unit:	2 mph
Wind Direction:	East
Dew Presence (Y/N):	N
Soil Temp., Unit:	72 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	85

Trial Comments

06-28-12: Plot 206 = Heavy soil all over this plastic.

APPLICATION EQUIPMENT	
	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIRMIX
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 in
Boom Length, Unit:	4 nozl
Boom Height, Unit:	20 in
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	20 gpa
Propellant:	CO2

Preplant PPO Herbicides over Plastic for Watermelons

Second Run

Trial ID: MELN5-12 Cooperator:

Location: Dill Investigator: Mark VanGessel

Crop Code	Weed or Crop Name	Weed or Crop Name	Rating Data Type	Rating Unit	Rating Date	CITLA Water-melon Injury %	CITLA Water-melon Injury %	CITLA Water-melon Injury %	CITLA Water-melon Injury %
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	06/28/12	07/02/12	07/16/12	07/26/12
1	Untreated Check					0.0 a	0.0 a	0.0 a	0.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	Preplant				
	Gramoxone Inteon..paraquat	2 SL		0.75 lb ai/A	Preplant				
	Crop Oil Concentrate	100 L		1.25 % v/v	Preplan				
2	Chateau.....flumioxazin	51 WG		0.127 lb ai/A	Preplant	0.0 a	9.7 a	6.3 a	0.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	Preplant				
	Crop Oil Concentrate	100 L		1.25 % v/v	Preplan				
3	Chateau.....flumioxazin	51 WG		0.064 lb ai/A	Preplant	0.0 a	0.0 a	2.3 a	0.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	Preplant				
	Crop Oil Concentrate	100 L		1.25 % v/v	Preplan				
4	Sharpen.....saflufenacil	2.85 SC		0.111 lb ai/A	Preplant	0.0 a	11.3 a	0.0 a	0.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	Preplant				
	Crop Oil Concentrate	100 L		1.25 % v/v	Preplan				
5	Sharpen.....saflufenacil	2.85 SC		0.067 lb ai/A	Preplant	0.0 a	5.0 a	4.0 a	0.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	Preplant				
	Crop Oil Concentrate	100 L		1.25 % v/v	Preplan				
6	Chateau.....flumioxazin	51 WG		0.064 lb ai/A	Preplant	0.0 a	10.7 a	4.0 a	0.0 a
	Dual Magnum.....s-metolachlor	7.62 E		1.19 lb ai/A	Preplant				
	Gramoxone Inteon..paraquat	2 SL		0.75 lb ai/A	Preplant				
	Crop Oil Concentrate	100 L		1.25 % v/v	Preplan				
LSD (P=.05)						0.00	9.79	8.63	0.00
Standard Deviation						0.00	5.38	4.75	0.00
CV						0.0	88.1	170.85	0.0
Replicate F						0.000	2.555	0.047	0.000
Replicate Prob(F)						1.0000	0.1270	0.9544	1.0000
Treatment F						0.000	2.827	0.833	0.000
Treatment Prob(F)						1.0000	0.0761	0.5550	1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

POST Weed Control in Peas

Trial ID: Pea01-12 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

Crop 1: Pea	PIBSS	Variety: June
Planting Date: 03/22/12	Planting Method: Drilled	Depth: 1 in
Rate: 250 lb/A	Row Spacing: 7 in	Seed Bed: Medium
Soil Temperature: 68 F	Soil Moisture: Moist	Emergence Date: 04/04/12

SITE AND DESIGN

Plot Width, Unit: 20 FT Plot Length, Unit: 25 FT Reps: 3

Site Type: Field Study Design: RANDOMIZED COMPLETE BLOCK

Tillage Type: mixed

SOIL DESCRIPTION

% Sand: 83 % OM: 1.2 Texture: loamy sand

% Silt: 10 pH: 6.1

% Clay: 7 CEC: 5.1 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: 0.5 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	04/28/12
Application Method:	Spray
Application Timing:	POST
Applic. Placement:	Brdcst

APPLICATION EQUIPMENT

	A
Appl. Equipment:	Backpack
Operating Pressure:	31 psi
Nozzle Type:	AIR MIX
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

This trial was sprayed in the borders of the vegetable rotation trial. No plot data was recorded.

05-11-12: None of the treatments provided control of common lambsquarters or common ragweed.

05-17-12: Little to no differences between treatments 4 and 5 for common ragweed. NIS appears to improve Basagran over no NIS, but Basagran is poor on primrose.

Raptor plus Basagran was fair control to good suppression of primrose; but very poor on common lambsquarters and common ragweed. Hard to tell if there was any stunting with this treatment because there was some stunting in the area.

Basagran: treatment 2 (low rate and no NIS) was very poor on everything. Treatment 5 (1 pt. plus NIS) there was no injury observed either within 3 days of spraying or at harvest. Treatment 5 was suppression to poor control of common lambsquarters and common ragweed (~50 to 60%).

POST Weed Control in Peas

Treatment List

Trial ID: Pea01-12 Cooperator:

Location: Field #18 Investigator: Mark VanGessel

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Product Rate	Product Rate Unit	Grow Stg
1	Untreated Check							
2	Basagran.....bentazon	4L		0.5	lb ai/A	1	pt/A	POST
3	Basagran.....bentazon	4L		0.75	lb ai/A	1.5	pt/A	POST
4	Basagran.....bentazon Nonionic Surfactant	4L 100L		0.5 0.25%	lb ai/A v/v	1 32	pt/A oz/100 gal	POST
5	Basagran.....bentazon Nonionic Surfactant	4L 100L		0.5 0.125%	lb ai/A v/v	1 16	pt/A oz/100 gal	POST
6	Raptor.....imazamox Nonionic Surfactant Basagran.....bentazon	1AS 100L 4L		.0234 0.25% 0.187	lb ai/A v/v lb ai/A	3 0.4 6	fl oz/A pt/A fl oz/A	POST POST POST
7	Basagran.....bentazon Thistrol.....MCPB	4L 2L		0.5	lb ai/A	1	pt/A	POST
8	Basagran.....bentazon Thistrol.....MCPB	4L 2L		0.5 0.75	lb ai/A	1 3	pt/A	POST

Pea Tolerance to Experimental Herbicides

Trial ID: Pea02-12 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

Crop 1: Pea	PIBSS	Variety: Bolero
Planting Date: 05/07/12	Planting Method: Drilled	Depth: 1 in
Rate: 250 lb/A	Row Spacing: 7 in	Seed Bed: Medium
Soil Temperature: 68 F	Soil Moisture: Moist	Emergence Date: 05/15/12

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: 83	% OM: 1.2	Texture: loamy sand
% Silt: 10	pH: 6.1	
% Clay: 7	CEC: 5.1	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: 0.5 **Unit:** mi

APPLICATION DESCRIPTION

	A	B
Application Date:	05/08/12	Application
Time of Day:	3:00 pm	Not
Application Method:	Spray	Made
Application Timing:	PRE	
Applic. Placement:	Brdcst	
Air Temp., Unit:	76 F	
% Relative Humidity:	46	
Wind Velocity, Unit:	7 mph	
Wind Direction:	South	
Dew Presence (Y/N):	N	
Soil Temp., Unit:	75 F	
Soil Surf. Moisture:	Dry	
Root Zone Moisture:	Moist	
Leaf Surf. Moisture:	N/A	
% Cloud Cover:	65	

Trial Comments

06-21-12: None of the treatments provided over 50% control of jimsonweed or common ragweed.

Postemergence treatments were not applied.

APPLICATION EQUIPMENT							
	A	B					
Appl. Equipment:	Tractor	Application					
Operating Pressure:	40 psi	Not					
Nozzle Type:	AIRMIX	Made					
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						

Pea Tolerance to Experimental Herbicides										
Trial ID: Pea02-12	Cooperator:									
Location: Field #18	Investigator: Mark VanGessel									
Weed Code										
Crop Code										
Weed or Crop Name										
Weed or Crop Name										
Rating Data Type										
Rating Unit										
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Appl Stg	AMASS Code			
1	Untreated Check									
2	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE	A	13.0 b	0.0 d	88.3 bc	40.0 c	88.3 a
3	KIH-485.....pyroxasulfone	85 WG	0.053 lb ai/A	PRE	A	1.7 c	2.3 cd	100.0 a	58.2 bc	88.3 a
4	Sharpen.....saflufenacil	2.85 SC	0.0165 lb ai/A	PRE	A	1.7 c	6.7 bc	63.3 d	83.2 ab	46.7 b
5	Sharpen.....saflufenacil	2.85 SC	0.0334 lb ai/A	PRE	A	0.0 c	9.7 ab	78.3 c	100.0 a	50.0 b
6	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE	A	18.3 a	12.3 a	96.7 ab	100.0 a	81.7 a
	Sharpen.....saflufenacil	2.85 SC	0.0165 lb ai/A	PRE	A					
7	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE	A	17.0 a	12.3 a	100.0 a	100.0 a	100.0 a
	Reflex.....fomesafen	2 L	0.25 lb ai/A	PRE	A					
8	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE	A	11.3 b	11.3 ab	96.7 ab	91.7 a	91.7 a
	Pursuit.....imazethapyr	2 AS	0.0234 lb ai/A	PRE	A					
9	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE	A	13.0 b	10.3 ab			
	Basagran.....bentazon	4 L	1 lb ai/A	POST	B					
	Nonionic Surfactant	100 L	0.25 % v/v	POST	B					
10	Dual Magnum.....s-metolachlor	7.62 E	0.95 lb ai/A	PRE	A	13.0 b	9.7 ab			
	Basagran.....bentazon	4 L	0.75 lb ai/A	POST	B					
	Thistrol.....MCPB	2 L	0.75 lb ai/A	POST	B					
	Nonionic Surfactant	100 L	0.25 % v/v	POST	B					
LSD (P=.05)						3.34	5.25	11.16	28.06	28.57
Standard Deviation						1.95	3.06	6.37	15.77	16.31
CV						21.88	36.18	8.18	22.02	23.87
Replicate F						0.316	0.025	2.026	1.013	0.485
Replicate Prob(F)						0.7327	0.9755	0.1688	0.3923	0.6254
Treatment F						41.661	5.663	85.143	15.955	12.886
Treatment Prob(F)						0.0001	0.0009	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Influence of Straw Mulch on Weed Control in Cucurbits

Trial ID: Pmkn1-12 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

Crop 1: Pumpkin	CUUPE	Variety: Magician
Planting Date: 07/11/12	Planting Method: Row- Push Planter	Depth: 1 in
Rate: 2.5 ft/plant		Seed Bed: Smooth
Soil Temperature: 85 F	Soil Moisture: Moist	Emergence Date: 07/16/12

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 and Field Cultivated

Trial Initiation Comments: Straw treatments were applied on 7-12-12 prior to the herbicide application. Actual rate of straw cover was 2,225 lb/A and 4,450 lb/A. The plots were irrigated with 0.9 inch of water immediately after the herbicide application.

MAINTENANCEField Prep./Maintenance: Straw in a 1 m² area was removed for each plot prior to the next watering.**SOIL DESCRIPTION**

% Sand: 75 % OM: 1.3 Texture: sandy loam

% Silt: 14 pH: 5.9

% Clay: 11 CEC: 5.4 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: 0.3 Unit: mi

APPLICATION DESCRIPTION

	A
Application Date:	07/12/12
Time of Day:	1:15 pm
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	Brdcst
Air Temp., Unit:	83 F
% Relative Humidity:	45
Wind Velocity, Unit:	4 mph
Wind Direction:	East
Dew Presence (Y/N):	N
Soil Temp., Unit:	81 F
Soil Surf. Moisture:	Dry
Root Zone Moisture:	Moist
Leaf Surf. Moisture:	Dry
% Cloud Cover:	60

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

07-28-12: All treatments are providing excellent pigweed control.

08-05-12: Lower weed density and less growth when straw was placed on plots and later removed. Treatment 1 compared to treatment 2 & 3. Sandea caused stunting in all plots where it was used, but Sandea injury was worse in the presence of straw compared to bare ground applications.

12-06-12: All remaining pumpkins in treatments 4, 5, 6 were removed and put in an unheated, dry outbuilding shortly after Halloween. Fruit was observed for handle quality, presence of diseases and cleanliness. "Dirty" fruit is based on how many would have required a washing to remove dirt as compared to only needing to brush off the dirt. Those that melted down may have done so due to mouse damage.

Influence of Straw Mulch on Weed Control in Cucurbits										
Trial ID: Pmkn1-12		Cooperator: Location: Field #18 Investigator: Mark VanGessel								
Weed Code		CUUPE	CUUPE	AMASS	AMASS	CUUPE	AMASS	AMASS	AMASS	
Crop Code		Pumpkin	Pumpkin	Pigweed	Pigweed	Pumpkin	Pigweed	Pigweed	Pigweed	
Weed or Crop Name		Stunting	Stunting	w/oStraw	w/Straw	Stunting	w/oStraw	w/Straw	w/Straw	
Weed or Crop Name		%	%	Control	Control	%	Control	%	Control	
Rating Data Type		07/28/12	08/05/12	%	08/05/12	08/28/12	%	08/28/12	%	
Rating Unit										
Rating Date										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg				
1	Untreated Check			0.0e	0.0e		33.3 b	33.3 b	0.0d	0.0d
	None									
2	Untreated Check			3.3 de	10.0de		71.7 a	76.7 a	5.7 cd	70.0 c
	2500 lbs/A									
3	Untreated Check			20.0 bc	23.3 cd		76.7 a	81.7 a	21.7 abc	69.3 c
	5000 lbs/A									
4	Curbit.....ethalfluralin	3 E	0.94 lb ai/A	PRE	7.3 cde	10.0de	100.0 a	100.0 a	4.7 cd	100.0 a
	None									
5	Curbit.....ethalfluralin	3 E	0.94 lb ai/A	PRE	13.3 bcd	16.7 cd	87.7 a	95.0 a	18.3 bcd	81.7 abc
	2500 lbs/A									
6	Curbit.....ethalfluralin	3 E	0.94 lb ai/A	PRE	20.0 bc	20.0 cd	80.0 a	99.3 a	12.3 bcd	76.7 bc
	5000 lbs/A									
7	Strategy Premix	2.1 E	0.79 lb ai/A	PRE	5.7 de	8.3 de	100.0 a	100.0 a	10.0 bcd	89.3 ab
	Curbit.....ethalfluralin	3 E	0.34 lb ai/A	PRE						
	None									
8	Strategy Premix	2.1 E	0.79 lb ai/A	PRE	10.7 b-e	8.3 de	96.7 a	93.3 a	3.3 cd	90.0 ab
	Curbit.....ethalfluralin	3 E	0.34 lb ai/A	PRE						
	2500 lbs/A									
9	Strategy Premix	2.1 E	0.79 lb ai/A	PRE	20.7 b	20.0 cd	85.3 a	97.7 a	16.7 bcd	83.3 abc
	Curbit.....ethalfluralin	3 E	0.34 lb ai/A	PRE						
	5000 lbs/A									
10	Curbit.....ethalfluralin	3 E	0.94 lb ai/A	PRE	56.7 a	30.0 bc	100.0 a	100.0 a	16.7 bcd	100.0 a
	Sandea.....halosulfuron	75 DF	0.0313 lb ai/A	PRE						
	None									
11	Curbit.....ethalfluralin	3 E	0.94 lb ai/A	PRE	63.3 a	43.3 ab	91.7 a	100.0 a	26.7 ab	90.7 ab
	Sandea.....halosulfuron	75 DF	0.0313 lb ai/A	PRE						
	2500 lbs/A									
12	Curbit.....ethalfluralin	3 E	0.94 lb ai/A	PRE	66.7 a	56.7 a	90.0 a	100.0 a	40.0 a	90.0 ab
	Sandea.....halosulfuron	75 DF	0.0313 lb ai/A	PRE						
	5000 lbs/A									
LSD (P=.05)					13.12	15.56	33.01	31.94	19.56	18.67
Standard Deviation					7.75	9.19	19.49	18.86	11.55	11.02
CV					32.33	44.7	23.09	21.01	78.76	14.06
Replicate F					0.272	1.440	0.826	0.950	0.870	0.104
Replicate Prob(F)					0.7641	0.2584	0.4507	0.4019	0.4329	0.9020
Treatment F					29.001	9.304	2.745	3.174	2.878	17.531
Treatment Prob(F)					0.0001	0.0001	0.0211	0.0102	0.0168	0.0001
										0.0215

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code		GGGAN	GGGAN					
Crop Code								
Weed or Crop Name		AnualGrs w/Straw	AnualGrs w/Straw					
Weed or Crop Name		Control	Control					
Rating Data Type		%	%					
Rating Unit		08/28/12	08/28/12					
Rating Date								
Trt Treatment No.	Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg		
1 Untreated	Check None			0.94 lb ai/A	PRE	100.0 a		
2 Untreated	Check 2500 lbs/A			0.94 lb ai/A	PRE	85.0 b	88.3 a	
3 Untreated	Check 5000 lbs/A			0.94 lb ai/A	PRE	88.3 b	95.0 a	
4 Curbit.....ethalfuralin	None	3 E		0.94 lb ai/A	PRE			
5 Curbit.....ethalfuralin	2500 lbs/A	3 E		0.94 lb ai/A	PRE	100.0 a	100.0 a	
6 Curbit.....ethalfuralin	5000 lbs/A	3 E		0.94 lb ai/A	PRE	96.7 a	96.7 a	
7 Strategy Premix	2.1 E			0.79 lb ai/A	PRE	100.0 a		
Curbit.....ethalfuralin	3 E			0.34 lb ai/A	PRE			
None								
8 Strategy Premix	2.1 E			0.79 lb ai/A	PRE	100.0 a	100.0 a	
Curbit.....ethalfuralin	3 E			0.34 lb ai/A	PRE			
2500 lbs/A								
9 Strategy Premix	2.1 E			0.79 lb ai/A	PRE	98.3 a	100.0 a	
Curbit.....ethalfuralin	3 E			0.34 lb ai/A	PRE			
5000 lbs/A								
10 Curbit.....ethalfuralin	3 E			0.94 lb ai/A	PRE	98.3 a		
Sandeal.....halosulfuron	75 DF			0.0313 lb ai/A	PRE			
None								
11 Curbit.....ethalfuralin	3 E			0.94 lb ai/A	PRE	100.0 a	100.0 a	
Sandeal.....halosulfuron	75 DF			0.0313 lb ai/A	PRE			
2500 lbs/A								
12 Curbit.....ethalfuralin	3 E			0.94 lb ai/A	PRE	96.7 a	98.3 a	
Sandeal.....halosulfuron	75 DF			0.0313 lb ai/A	PRE			
5000 lbs/A								
LSD (P=.05)				7.07		8.25		
Standard Deviation				4.16		4.71		
CV				4.69		4.84		
Replicate F				0.615		2.020		
Replicate Prob(F)				0.5501		0.1695		
Treatment F				137.604		2.248		
Treatment Prob(F)				0.0001		0.0933		

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Weed Code									
Crop Code									
Weed or Crop Name									
Weed or Crop Name									
Rating Data Type									
Rating Unit									
Rating Date									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Grow Unit	Stg			
4	Curbit.....ethalfluralin None	3 E	0.94 lb ai/A	0.94 lb ai/A	ai/A	PRE	4.4 a	0.4 a	-0.2 a
5	Curbit.....ethalfluralin 2500 lbs/A	3 E	0.94 lb ai/A	0.94 lb ai/A	ai/A	PRE	6.3 a	0.3 a	0.0 a
6	Curbit.....ethalfluralin 5000 lbs/A	3 E	0.94 lb ai/A	0.94 lb ai/A	ai/A	PRE	6.0 a	0.0 a	0.7 a
LSD (P=.05)							7.71	0.97	0.87
Standard Deviation							2.97	0.37	0.33
CV							53.15	149.07	200.0
Replicate F							1.351	2.850	2.250
Replicate Prob(F)							0.3816	0.2025	0.2530
Treatment F							0.357	1.050	5.250
Treatment Prob(F)							0.7258	0.4512	0.1048

Means followed by same letter do not significantly differ ($P=.05$, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Influence of Straw Mulch on Weed Control in Cucurbits

Trial ID: Pmkn1-12 Cooperator:

Location: Field #18 Investigator: Mark VanGessel

Influence of Straw Mulch on Weed Control in Cucurbits

Trial ID: Pmkn1-12 Cooperator:
 Location: Field #18 Investigator: Mark VanGessel

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin Stunting % 07/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	20512.972222				
R	2	32.722222	16.361111	0.272	0.7641	6.6
A	3	17723.638889	5907.879630	98.369	0.0001	7.6
B	2	1277.722222	638.861111	10.637	0.0006	6.6
AB	6	157.611111	26.268519	0.437	0.8459	13.1
ERROR	22	1321.277778	60.058081			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin Stunting % 08/05/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	10738.888889				
R	2	243.055556	121.527778	1.440	0.2584	7.8
A	3	6322.222222	2107.407407	24.967	0.0001	9.0
B	2	1943.055556	971.527778	11.510	0.0004	7.8
AB	6	373.611111	62.268519	0.738	0.6249	15.6
ERROR	22	1856.944444	84.406566			

FACTORIAL/POOLED ERROR AOV For AMASS Pigweed w/oStraw Control % 08/05/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	20464.750000				
R	2	628.166667	314.083333	0.826	0.4507	16.5
A	3	6966.083333	2322.027778	6.110	0.0035	19.1
B	2	113.166667	56.583333	0.149	0.8625	16.5
AB	6	4396.833333	732.805556	1.928	0.1210	33.0
ERROR	22	8360.500000	380.022727			

FACTORIAL/POOLED ERROR AOV For AMASS Pigweed w/Straw Control % 08/05/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	20920.750000				
R	2	676.166667	338.083333	0.950	0.4019	16.0
A	3	8066.972222	2688.990741	7.559	0.0012	18.4
B	2	811.166667	405.583333	1.140	0.3379	16.0
AB	6	3540.611111	590.101852	1.659	0.1785	31.9
ERROR	22	7825.833333	355.719697			

FACTORIAL/POOLED ERROR AOV For CUUPE Pumpkin Stunting % 08/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	7392.000000				
R	2	232.166667	116.083333	0.870	0.4329	9.8
A	3	2096.000000	698.666667	5.236	0.0070	11.3
B	2	1344.666667	672.333333	5.038	0.0158	9.8
AB	6	783.333333	130.555556	0.978	0.4631	19.6
ERROR	22	2935.833333	133.446970			

FACTORIAL/POOLED ERROR AOV For AMASS Pigweed w/oStraw Control % 08/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	26126.750000				
R	2	25.166667	12.583333	0.104	0.9020	9.3
A	3	12547.194444	4182.398148	34.425	0.0001	10.8
B	2	729.500000	364.750000	3.002	0.0703	9.3
AB	6	10152.055556	1692.009259	13.927	0.0001	18.7
ERROR	22	2672.833333	121.492424			

FACTORIAL/POOLED ERROR AOV For AMASS Pigweed w/Straw Control % 08/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	70438.88889				
R	2	272.22222	136.11111	1.878	0.1766	7.2
A	3	1594.44444	531.481481	7.333	0.0014	8.3
B	2	66005.55556	33002.77778	455.369	0.0001	7.2
AB	6	972.22222	162.037037	2.236	0.0778	14.4
ERROR	22	1594.44444	72.474747			

FACTORIAL/POOLED ERROR AOV For GGGAN AnualGrs w/oStraw Control % 08/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	26601.070451				
R	2	21.289599	10.644799	0.644	0.5349	3.4
A	3	11315.993574	3771.997858	228.146	0.0001	4.0
B	2	3506.894733	1753.447367	106.056	0.0001	3.4
AB	6	11393.161490	1898.860248	114.851	0.0001	6.9
ERROR	22	363.731056	16.533230			

FACTORIAL/POOLED ERROR AOV For GGGAN AnualGrs w/Straw Control % 08/28/12

Source	DF	Sum of Squares	Mean Square	F	Prob(F)	LSD (.05)
Total	35	76474.305556				
R	2	59.722222	29.861111	1.931	0.1689	3.3
A	3	174.305556	58.101852	3.756	0.0256	3.8
B	2	75726.388889	37863.194444	2447.972	0.0001	3.3
AB	6	173.611111	28.935185	1.871	0.1314	6.7
ERROR	22	340.277778	15.467172			