2019 University of Delaware Flat Snap Bean Variety Trials

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Introduction

The 2018 Snap Bean Variety Trials included fourteen flat-podded varieties from five participating companies. Varieties in the trial are listed below. Early and late-season trials were planted. The purpose of the trials was to evaluate snap bean varieties for yield, quality characteristics, and heat tolerance in a once-over harvest situation.

Name	Entering Company	Name	Entering Company
Poseidon	Crites Seed	Asya	Brotherton
Alonso	Crites Seed	Velero	Harris Moran
Navajo	Crites Seed	Wav 19	Pure Line
Platini	Crites Seed	Wav 6732	Pure Line
Tapia	Seminis	Forrester	Pure Line
Ribera	Seminis	Roma II (PLS)	Pure Line
Usambara	Seminis	Roma II (DM)	Pure Line

Materials and Methods

Location

Field 1-E (May-planted) and field 21-A1 (July-planted) at the University of Delaware Research and Education Center Farm, Georgetown, DE.

Cultural Practices

May 21-Planted Trial

The early trial was planted on May 21, 2019. Varieties were planted in single-row plots arranged in a randomized complete block design with four replications. Plots were 28 feet long. Border rows of the standard variety 'Velero' were planted on the outside of the plot. The seeding rate was 8 seeds/foot, for an in-row spacing of 1.5 inches. Between row spacing was 30 inches.

The field was fertilized with potassium (0-0-63-29S-7B) before planting according to soil test results. An application of 1.5 pt/A Dual Magnum for weed control as well as 15 gpa N SUL 33 (27-0-0-6S) was made pre-emergence. Plots were cultivated and sidedressed with 10 gpa 30% UAN. Additional hand weeding was done as necessary. Weed control in the trial was excellent. Warrior II at 2 oz/A was applied on June 14 to control potato leafhopper.

The plot was overhead irrigated as necessary with a traveling linear system.

July 11-Planted Trial

The late trial was planted on July 11, 2019. Varieties were planted in single-row plots arranged in a randomized complete block design with four replications. Plots were 28 feet long. Border rows of the standard variety 'Velero' were planted on the outside of the plot. The seeding rate was 6 seeds/foot, for an in-row spacing of 2 inches. Between row spacing was 30 inches.

The field was fertilized with potassium (0-0-63-29S-7B) before planting according to soil test results. An application of 1.5 pt/A Dual II Magnum for weed control as well as 20 gpa N SUL 33 (27-0-0-6S) was made pre-emergence. Plots were cultivated and sidedressed with 10 gpa 30% UAN. Additional hand weeding was done as necessary. Weed control in the trial was excellent. Warrior II at 2 oz/A was applied on July 29 and August 9to control potato leafhopper, stink bugs and whitefly.

The plot was overhead irrigated as necessary with a traveling linear system.

Harvest

To determine a variety's maturity, ten plants were pulled from the plot and the most mature pod removed from each plant. The center seed from each of the ten pods was removed and lined up. A variety was considered ready for harvest when the line of seeds measured 9-II.2 cm (i.e. average seed length of 9 to 11.2 mm). Seed length leading up to and including harvest for the May 21-planted trial is given in Table 1.

Harvest of the May 21-planted trial began on July 11 (51 DAP) and was completed on July 17, 2019 (57 DAP). Plants were pulled from a 15-foot section of each 28-foot plot and all pods were removed by hand. All pods were weighed to determine yield and then a 1000 g sub-sample of pods was evaluated for quality based on the USDA standard and graded as U.S. Fancy, U.S. No. 1 or Cull. Pod length, pod width and length of the center seed was recorded for 10 marketable pods. Pod dimensions were measured with a ruler, seed length with digital calipers.

Harvest of the July 11-planted trial began on September 10 (61 DAP) and was completed on September 13 (64 DAP). Plants were pulled from a 5-foot section of each 28-foot plot and all pods were removed by hand. All pods were weighed to determine yield and then a 1000 g sub-sample of pods was evaluated for quality based on the USDA standard and graded as U.S. Fancy, U.S. No. 1 or Cull. Pod length, pod width and length of the center seed was recorded for 10 marketable pods. Pod dimensions were measured with a ruler, seed length with digital calipers.

Results

Yields from the May 21-planted trial are reported in Table 2 and yields from the July 11-planted trial are reported in Table 3. These tables show days to harvest, total yield, marketable yield (Fancy and No. 1 grades), U.S. Fancy grade yield, U.S. No. 1 grade yield, cull yield and seed length for marketable pods.

The percent of total yield in each quality grade is reported in Tables 4 and 5. Pod length and diameter and average seed length at harvest is reported in Table 6. Plant canopy height and width is reported in Table 7.

Discussion

Stand establishment and plant growth were good in both trials and average yield for both trials was similar (11,223 lbs/a for May trial and 11,630 lbs/a for July trial). Both trials experienced some high temperatures in the early flowering period (30-40 DAP) which likely resulted in low yield and/or a high percentage of culls for varieties that are not heat tolerant.

There were statistically significant differences in total and marketable yields between varieties in both trials. In the May-planted trial, Usambara produced the highest total yield and the highest marketable yield. In this trial, Usambara had significantly higher marketable yield than all other varieties except Forrester. In the July-planted trial Usambara again produced the highest total yield and the highest marketable yield. In terms of marketable yield, Platini, Ribera, Tapia, Wav 19 and Poseidon were not significantly different that Usambara.

Varieties differed in the percent marketable pods they produced (Tables 4 and 5). Platini and Usambara produced greater than 80% marketable pods in both trials. For other varieties, the percent marketable pods varied between trials.

There were statistically significant differences in pod length and width between varieties (Table 6). Wav 19 and Wav 6732 produced the longest pods while Poseidon, Roma II and Velero produced the shortest. The varieties with the widest pods were Wav 6732, Navaho and Platini.

There were not statistically significant differences in plant size between the varieties although there were observable differences in plant architecture, which are noted in Table 7.

Appendix A contains some photographs from the trials.

Appendix B contains temperature and rainfall data from the Georgetown REC weather station corresponding to the period from planting to final harvest of both of the trials, and graphs of this data.

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	Average Seed Length (mm) by Days After Planting/Date								
	49	50	51	52	55	56	57		
Variety	9-Jul	10-Jul	11-Jul	12-Jul	15-Jul	16-Jul	17-Jul		
Wav 19	8.2	9.0	9.04*						
Ribera	8.4	8.0		9.7	11.67				
Wav 6732	7.0			10.0	11.11				
Roma II (PLS)	6.5			9.5	10.24				
Navajo	6.2			9.9	10.21				
Alonso	6.9			7.2	10.0	10.86			
Roma II (DM)	5.7				10.7	9.87			
Poseidon	5.9				10.8	9.72			
Asya (Flat bean)	6.5			7.0	9.9	9.68			
Usambara	5.7				10.4	9.61			
Velero	6.6			6.5	9.7	9.03			
Tapia	5.9				9.6	8.82			
Platini	5.8				8.4	9.0	8.67		
Forrester	4.8				7.9	7.9	7.89		

Table 1. Average Seed Length in Millimeters Leading Up to and Including Harvest Date for the May 21

 Planted Trial

*Bold and highlighted lengths are the average of all four replications from the day of harvest.

Variate Name	DTH	Total Yie	eld	Mkt Y	ield	Fancy	Yield	No. 1 Y	ield	Cull Y	(ield	Averag	e Seed
variety Name	DIH	(IDS/a)		(IDS/	a)	(IDS	s/a)	(1DS/2	i)	(IDS	(a)	Size (I	$\frac{1}{1}$
Usambara	56	15,194	а	12,196	а	4,490	а	7,706	а	2,998	abcd	9.61	def
Forrester	57	12,791	ab	9,856	ab	3,521	abcdef	6,335	ab	2,935	bcd	7.89	h
Wav 19	51	12,664	abc	9,199	bc	2,793	bcdef	6,407	ab	3,464	abc	9.04	efg
Velero	56	11,081	bcd	8,994	bc	4,647	а	4,347	cd	2,088	de	9.03	fg
Asya	56	11,422	bcd	8,771	bc	4,331	ab	4,441	cd	2,650	cde	9.68	def
Tapia	56	11,279	bcd	8,550	bcd	4,169	abc	4,381	cd	2,729	cd	8.82	g
Platini	57	9,757	cd	8,175	bcd	3,992	abcd	4,182	cd	1,582	e	8.67	g
Alonso	56	10,658	bcd	8,013	bcd	2,684	cdef	5,330	bc	2,645	cde	10.86	bc
Navajo	55	11,643	bcd	7,702	bcd	2,386	ef	5,316	bc	3,941	ab	10.21	cd
Ribera	55	10,612	bcd	7,246	cd	2,121	ef	5,125	bc	3,366	abc	11.67	а
Poseidon	56	10,521	bcd	6,994	cd	2,495	def	4,500	cd	3,527	abc	9.72	de
Roma II (DM)	56	9,482	d	6,917	cd	2,804	bcdef	4,113	cd	2,565	cde	9.87	d
Wav 6732	55	9,815	cd	6,249	d	1,991	f	4,258	cd	3,567	abc	11.11	ab
Roma II (PLS)	55	10,063	bcd	6,054	d	2,607	def	3,448	d	4,009	а	10.24	cd
I	o-value	0.0307		0.0019		0.0041		0.0004		0.0013		<0.0001	
Fisher	s LSD ²	2949		2499		1540		1637		1111		0.69	
	CV	18.1		21.1		33.0		22.8		25.2		16.0	

Table 2. May 21 Planted Trial: Days to Harvest; Total, Marketable, Fancy, No.1 and Cull Yield in Pounds Per Acre; Seed Size at Harvest

¹Target seed size is 9.0 to 11.2 mm. Blue highlight indicates smaller than target size, green indicates target size and yellow indicates larger than target size.

² Means followed by the same letter are not significantly different according to Fisher's LSD.

Variety Name	DTH	Total Y (lbs/:	'ield a)	Mkt Yi (lbs/a	eld	Fancy (lbs	Yield s/a)	No. 1 Y (lbs/a	ield a)	Cull Y (lbs/	'ield 'a)	Averag Size (1	ge Seed mm) ¹
Usambara	62	14,050	a	11,525	a	4,090	ab	7,436	a	2,525	bcd	11.62	cd
Platini	62	13,422	abc	11,278	a	4,244	ab	7,034	ab	2,143	cde	9.38	f
Ribera	61	13,770	ab	11,022	ab	4,743	a	6,279	abcd	2,749	bcd	12.85	а
Tapia	62	13,983	а	10,826	abc	4,172	ab	6,654	abc	3,156	bc	10.50	e
Wav 19	61	12,748	abcd	9,311	abcd	2,842	bcde	6,469	abcd	3,437	b	11.82	bc
Poseidon	62	11,269	abcde	9,294	abcd	3,419	abc	5,876	abcd	1,974	de	13.07	а
Roma II (DM)	62	11,353	abcde	8,747	bcd	2,634	cde	6,112	abcd	2,607	bcd	12.46	abc
Wav 6732	61	10,739	cde	8,474	cd	2,436	cde	6,038	abcd	2,265	cde	12.65	ab
Navajo	61	13,873	ab	8,365	cd	1,547	e	6,818	ab	5,508	a	11.85	bc
Forrester	64	11,025	bcde	8,188	cd	2,599	cde	5,589	bcde	2,837	bcd	10.65	e
Velero	62	10,499	de	7,888	de	2,965	bcd	4,923	de	2,610	bcd	10.29	ef
Asya	64	9,697	ef	7,499	de	2,527	cde	4,971	cde	2,199	cde	11.87	bc
Roma II (PLS)	61	9,532	ef	7,094	de	2,030	cde	5,064	cde	2,439	bcde	13.01	а
Alonso	62	6,861	f	5,548	e	1,592	de	3,956	e	1,313	e	10.85	de
	p-value	0.0001		0.0004		0.0003		0.0131		<0.0001		<0.0001	
Fisher	s LSD ²	2863		2497		1413		1730		1132		0.93	
	CV	17.2		19.5		33.1		20.3		29.4		18.4	

Table 3. July 11 Planted Trial: Days to Harvest; Total, Marketable, Fancy, No.1 and Cull Yield in Pounds Per Acre; Seed Size at Harvest

¹Target seed size is 9.0 to 11.2 mm. Blue highlight indicates smaller than target size, green indicates target size and yellow indicates larger than target size.

² Means followed by the same letter are not significantly different according to Fisher's LSD.

Variety Name	% Mar	ketable	% F	ancy	% No. 1		
Platini	84	а	41	а	43	abcde	
Velero	81	ab	42	а	40	bcde	
Usambara	81	ab	30	bcd	50	а	
Forrester	77	abc	27	cdef	50	а	
Asya	77	abcd	38	ab	39	bcde	
Alonso	75	abcde	25	def	50	а	
Tapia	74	bcde	36	abc	38	cde	
Roma II (DM)	73	bcde	30	bcde	44	abcde	
Wav 19	73	bcdef	22	def	51	а	
Ribera	68	cdefg	20	ef	48	ab	
Navajo	67	defg	20	def	46	abc	
Poseidon	66	efg	24	def	43	abcde	
Wav 6732	63	fg	19	f	45	abcd	
Roma II (PLS)	60	g	25	def	34	e	
p-value	<.0001		<.0001		0.0092		
Fishers LSD ¹	10.1		10.2		9.9		
CV	9.9		25.4		15.9		

Table 4. May 21 Planted Trial Percent of Yield in Each Quality Grade

¹Means followed by the same letter are not significantly different according to Fisher's LSD.

Table 5. July 11-Planted Trial Percent of Yield in Each Ou	uality Grade
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Variety Name	% Mar	ketable	% F	ancy	% No. 1		
Platini	84	а	31	ab	53	а	
Poseidon	83	ab	30	abc	52	а	
Usambara	81	abc	28	abcd	53	а	
Ribera	80	abc	35	а	45	а	
Wav 6732	79	abc	23	bcd	56	а	
Alonso	79	abc	21	d	58	а	
Tapia	78	abc	30	abcd	48	а	
Asya	77	abc	26	abcd	51	а	
Roma II (DM)	77	abc	24	bcd	54	а	
Velero	75	bc	28	abcd	48	а	
Forrester	75	bc	23	bcd	52	а	
Roma II (PLS)	74	с	21	cd	53	а	
Wav 19	73	с	22	bcd	51	а	
Navajo	60	d	11	e	49	а	
p-value	0.0003		0.0031		0.2861		
Fishers LSD ¹	8.1		9.4		NA		
CV	7.4		26.1		11.8		

¹Means followed by the same letter are not significantly different according to Fisher's LSD.

Variety Name	Average I	od Length (cm)	Average Po	d Width (cm)	Average Seed Length (mm)		
	May 21 Trial	July 11 Trial	May 21 Trial	July 11 Trial	May 21 Trial	July 11 Trial	
Wav 19	15.1 a	15.7 a	1.7 de	2.0 b	9.04 efg	11.82 bc	
Wav 6732	14.2 b	15.4 ab	1.8 a	2.0 b	11.11 ab	12.65 ab	
Ribera	13.5 c	14.5 cd	1.8 bc	1.9 c	11.67 a	12.85 a	
Alonso	13.4 c	13.9 ef	1.5 gh	1.7 e	10.86 bc	10.85 de	
Navajo	13.0 cd	14.0 def	1.8 ab	2.0 b	10.21 cd	11.85 bc	
Forrester	12.1 fg	14.9 bc	1.4 hi	1.7 f	7.89 h	10.65 e	
Usambara	12.7 de	13.9 ef	1.6 f	1.8 d	9.61 def	11.62 cd	
Asya	12.1 fg	14.4 cde	1.4 i	1.7 ef	9.68 def	11.87 bc	
Platini	11.7 gh	14.7 c	1.8 ab	2.1 a	8.67 g	9.38 f	
Tapia	12.4 ef	14.0 def	1.7 cd	2.0 b	8.82 g	10.50 e	
Poseidon	11.1 i	13.0 g	1.7 de	1.9 c	9.72 de	13.07 a	
Roma II (DM)	11.3 hi	12.6 g	1.6 f	1.9 c	9.87 d	12.46 abc	
Roma II (PLS)	10.9 i	12.8 g	1.6 ef	1.9 c	10.24 cd	13.01 a	
Velero	10.8 i	12.7 g	1.4 i	1.7 ef	9.03 fg	10.29 ef	
p-value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Fishers LSD	0.54	0.59	0.07	0.06	0.69	0.93	
CV	9.82	9.58	9.25	7.15	16	18.4	

Table 6. Pod Lengths and Diameters and Average Seed Length at Harvest for Both Trials

¹Target seed size is 9.0 to 11.2 mm. Blue highlight indicates smaller than target size, green indicates target size and yellow indicates larger than target size.

²Means followed by the same letter are not significantly different according to Fisher's LSD.

Variety	Plant 1	Height	Plant	Width	Plant
	May 21 Trial	July 11 Trial	May 21 Trial	July 11 Trial	Arch
Poseidon	18.3 a	17.4 a	21.3 a	17.6 a	Upright
Alonso	18.3 a	15.1 a	19.3 a	15.0 a	Upright
Navajo	19.5 a	16.9 a	22.0 a	18.6 a	Upright
Platini	19.8 a	17.9 a	19.8 a	17.9 a	Wide
Tapia	18.3 a	17.1 a	18.8 a	18.4 a	Wide
Ribera	16.5 a	15.8 a	19.5 a	16.1 a	Upright
Usambara	19.3 a	15.9 a	19.5 a	15.5 a	Upright
Asya	19.0 a	16.0 a	24.5 a	17.9 a	Wide
Velero	20.3 a	17.5 a	18.3 a	17.7 a	Upright
Wav 19	18.0 a	16.9 a	17.3 a	17.2 a	Upright
Wav 6732	18.5 a	15.8 a	17.8 a	16.0 a	Upright
Forrester	19.0 a	18.0 a	22.5 a	19.4 a	Wide
Roma II (PLS)	16.5 a	15.5 a	21.8 a	18.9 a	Upright
Roma II (DM)	17.8 a	17.0 a	20.5 a	18.6 a	Wide
p-value	0.533	0.0545	0.1729	0.0687	
Fishers LSD	NA	NA	NA	NA	
CV	12.0	8.6	16.1	12.1	

 Table 7. Average Plant Height and Width and Plant Architecture for Both Trials



May 21 planted trial photographed on July 9, 2019. Harvest began on July 11.



July 11 planted trial on September 10, the first day of harvest.



Measuring seeds from a 10-pod sample to determine maturity.



A sample of Fancy (left), No.1 (center) and cull (right) graded pods.

Appendix B: Weather Conditions During the Trials

Daily Maximum and Minimum Temperatures and Rainfall for Period of May 21, 2019 (first planting) to	D
September 13, 2019 (final harvest) for Snap Bean Trials at Georgetown, Delaware	

Date	Days Afte	er Planting	Max Temp	Min Temp	Rainfall
	May 21 Planting	July 11 Planting	(°F)	(°F)	(in)
21-May	0		73.4	57.3	0.00
22-May	1		74.0	47.6	0.00
23-May	2		83.3	55.5	0.24
24-May	3		80.9	65.7	0.00
25-May	4		73.6	59.9	0.00
26-May	5		88.6	68.0	0.03
27-May	6		81.7	64.6	0.17
28-May	7		85.9	62.1	0.57
29-May	8		91.3	68.1	0.00
30-May	9		89.2	67.6	0.45
31-May	10		83.8	67.1	0.00
1-Jun	11		80.3	66.4	0.00
2-Jun	12		85.8	62.7	0.06
3-Jun	13		75.5	53.9	0.00
4-Jun	14		74.6	48.9	0.00
5-Jun	15		85.3	62.1	0.34
6-Jun	16		86.8	71.4	0.10
7-Jun	17		79.3	66.6	0.00
8-Jun	18		75.5	62.8	0.00
9-Jun	19		72.4	65.0	0.13
10-Jun	20		84.6	66.1	0.74
11-Jun	21		77.5	60.2	0.28
12-Jun	22		73.9	57.3	0.00
13-Jun	23		76.8	62.0	0.71
14-Jun	24		73.6	58.0	0.04
15-Jun	25		81.3	55.1	0.00
16-Jun	26		85.9	66.5	0.00
17-Jun	27		90.9	70.2	0.26
18-Jun	28		87.1	69.8	0.62
19-Jun	29		86.3	71.3	0.04
20-Jun	30		88.9	70.4	0.54
21-Jun	31		79.9	68.4	0.31
22-Jun	32		80.1	60.9	0.00
23-Jun	33		82.2	56.7	0.00
24-Jun	34		87.8	63.3	0.00
25-Jun	35		86.8	72.9	0.00
26-Jun	36		89.0	68.1	0.00
27-Jun	37		91.8	68.2	0.00
28-Jun	38		93.2	68.2	0.00
29-Jun	39		92.4	71.7	0.05
30-Jun	40		89.2	70.2	0.00
1-Jul	41		83.7	60.7	0.00
2-Jul	42		89.7	63.5	0.00
3-Jul	43		91.4	69.3	0.00
4-Jul	44		90.8	71.9	0.00
5-Jul	45		90.5	75.0	0.06
6-Jul	46		90.3	74.4	0.04
7-Jul	47		84.6	72.6	0.00
8-Jul	48		78.5	66.7	0.25

Date	Days Aft	er Planting	Max Temp	Min Temp	Rainfall
	May 21 Planting	July 11 Planting	(°F)	(°F)	(in)
9-Jul	49		85.9	61.7	0.00
10-Jul	50		87.3	63.4	0.00
11-Jul	51	0	91.0	65.4	0.46
12-Jul	52	1	88.5	72.4	0.00
13-Jul	53	2	87.8	69.5	0.00
14-Jul	54	3	92.7	71.5	0.00
15-Jul	55	4	89.0	68.1	0.00
16-Jul	56	5	93.3	69.8	0.00
17-Jul	57	6	95.3	73.8	0.07
18-Jul		7	91.0	74.8	0.01
19-Jul		8	94.8	74.7	0.00
20-Jul		9	97.0	79.7	0.00
21-Jul		10	98.2	78.8	0.00
22-Jul		11	94.4	74.3	0.01
23-Jul		12	80.8	67.3	0.83
24-Jul		13	82.0	65.7	0.09
25-Jul		14	84.8	61.7	0.00
26-Jul		15	86.2	61.2	0.00
27-Jul		16	87.3	62.6	0.00
28-Jul		17	91.1	65.9	0.00
29-Jul		18	93.6	70.1	0.00
30-Jul		19	93.3	70.7	0.00
31-Jul		20	90.8	68.0	0.22
1-Aug		21	89.0	65.9	0.72
2-Aug		22	81.8	69.2	0.60
3-Aug		23	86.1	68.4	0.00
4-Aug		24	87.4	69.2	0.00
5-Aug		25	87.6	71.4	0.02
6-Aug		26	87.3	71.4	0.00
7-Aug		27	89.2	69.9	0.29
8-Aug		28	88.3	67.3	0.00
9-Aug		29	87.9	69.9	0.00
10-Aug		30	81.7	63.2	0.00
11-Aug		31	84.0	61.0	0.00
12-Aug		32	86.8	59.2	0.00
13-Aug		33	84.3	71.1	0.61
14-Aug		34	88.3	72.3	0.00
15-Aug		35	81.6	69.5	0.00
16-Aug		36	86.4	69.4	0.00
17-Aug		37	89.5	72.9	0.46
18-Aug		38	89.7	74.4	0.00
19-Aug		39	95.3	73.7	0.57
20-Aug		40	89.5	72.8	0.00
21-Aug		41	89.1	71.4	0.02
22-Aug		42	91.2	70.9	0.18
23-Aug		43	80.4	64.3	0.62
24-Aug		44	76.3	62.3	0.00
25-Aug		45	75.7	56.6	0.06
26-Aug		46	73.6	62.7	0.00
27-Aug		47	76.4	60.1	0.00
28-Aug		48	82.7	68.6	0.00
29-Aug		49	82.7	61.5	0.00
30-Aug		50	87.5	58.4	0.00

Date	Days After Planting		Max Temp	Min Temp	Rainfall
	May 21 Planting	July 11 Planting	(°F)	(°F)	(in)
31-Aug		51	85.6	64.7	0.00
1-Sep		52	80.4	65.6	0.00
2-Sep		53	88.8	66.3	0.00
3-Sep		54	83.6	66.6	0.00
4-Sep		55	88.5	66.9	0.00
5-Sep		56	77.4	70.4	0.00
6-Sep		57	70.8	61.7	0.60
7-Sep		58	79.6	55.8	0.00
8-Sep		59	83.0	59.1	0.00
9-Sep		60	83.6	62.7	0.00
10-Sep		61	83.0	60.8	0.00
11-Sep		62	88.8	64.0	0.00
12-Sep		63	93.6	71.3	0.00
13-Sep		64	72.5	60.5	0.00



Temperature and Rainfall for the May 21 Planted Snap Bean Trial from May 21 (planting) July 17 (final harvest)



Temperature and Rainfall for the July 11 Planted Snap Bean Trial from June 11 (planting) September 13 (final harvest)