

College of Agricultural Sciences Agricultural Research and Cooperative Extension

# 2013 Pennsylvania Soybean Performance Report

Soybean tests are conducted annually to provide information regarding the performance of soybeans grown in Pennsylvania. This report summarizes performance results for 2013. The shorter season varieties (Groups II and III) were tested at the Russell E. Larson Agricultural Research Center at Rock Springs in Centre County and on a private farm near Martinsburg in Blair County. The longer maturing varieties (Groups III and IV) were tested at the Southeast Agricultural Research and Extension Center located in Lancaster County. Both Glyphosate-resistant (Roundup Ready) varieties as well as non-Roundup Ready varieties were tested at the Centre and Lancaster County locations. At the Blair County location, only Roundup Ready varieties were tested. The following soybean variety trials were implemented for the 2013 season: Early (MG 3.3 and earlier) full-season Roundup Ready in Lancaster County; Late (MG 3.4 and later) full-season Roundup Ready in Lancaster County; Early (MG 3.0 and earlier) full-season Roundup Ready in Centre and Blair Counties; late (MG 3.1 and later) full-season Roundup Ready in Centre and Blair Counties; late (MG 3.1 and later) full-season Roundup Ready in Centre and Blair Counties; late (MG 3.1 and later) full-season Roundup Ready trials had two commonly grown Roundup Ready entries which were used as a check for comparison against the other varieties. Individual trial results were measured separately and therefore it is highly recommended that comparisons among varieties be limited to within-trial comparisons and not across the different trials.

#### Procedures

The private seed company entries in this test were those chosen by the companies for testing. The plots in all locations had 5 rows, each planted 20 feet long. Rows were spaced 15 inches apart. Each plot was trimmed to 18 feet and the 3 middle rows were harvested. The trials in Lancaster and Centre Counties were planted in tilled ground and the Blair County trial was no-tilled. The Blair County trials were planted on May 3<sup>rd</sup>, the Centre County trials were planted on May 7<sup>th</sup>, and the Lancaster County trials were planted on May 17<sup>th</sup>. Seeding rates of all trials were adjusted to obtain approximately 150,000 plants per acre. Varieties in each trial were replicated four times.

The following observations were made for some or all of the trials:

Yield was based on 60 lbs. per bushel and adjusted to 13 percent moisture.

Maturity is the date when approximately 95 percent of pods had reached their mature color.

Height is the average length of plants from the ground to the tip of the main stem.

Lodging was rated in all tests as follows:

- 1 = almost all plants erect.
- 2 = all plants leaning slightly or a few plants down.
- 3 = all plants leaning moderately, or 25-50 percent of the plants down.
- 4 = all plants leaning considerably, or 50-80 percent of the plants down.
- 5 = almost all plants down.

Seed quality was rated according to the following scale:

- 1 = very good
- 2 = good
- 3 = fair
- 4 = poor
- 5 = very poor

Seed size represents the approximate number of seeds in one pound.

Crude Protein (CP) is expressed as a percent of the soybean at 13% moisture.

Oil is expressed as a percent of the soybean at 13% moisture.

#### Interpretation of results

Variety performance differences are caused partially by genetic differences and partially by soil variation and other environmental variations which cannot be adequately controlled. Thus, small differences in performance may have no significance. Multiple-year averages are a more valid indication of the performance of a specific variety than are data for a single year. Statistical procedures have been used for the most important characteristics to allow meaningful comparisons of variety averages at a particular location. A standard least significant difference (LSD) value is provided for comparing varieties. Any difference between two variety averages that exceeds the LSD value is considered significant and not simply a result of uncontrolled environmental variation.

Traditionally, LSD values have been calculated at the 0.05 level of confidence, which means that when differences between varieties exceed the LSD, we can be 95% confident that the differences are not due to chance. The downside of this approach is that it leads to the conclusion that many varieties in the test have similar yield performance, when there really may be differences in the yield potential. Many universities have switched to a less conservative 0.25 level for the LSD, thus reducing the chance of concluding that varieties are not different, when a true difference exists among the lines. In this report, we present the LSD values at both the 0.05 level and the 0.25 level for your consideration.

The value of coefficient of variation (CV) is a measure of relative variation useful in evaluating the precision achieved in an experiment. In grain and forage trials, for example, the CV value for yield is often between 5 and 15 percent. Confidence in the reliability of the experimental results declines as the CV value increases. Uncontrollable or immeasurable variations in soil fertility, soil drainage, and other environmental factors contribute to increased CV values.

#### Results

During the 2013 season, the average yield of the 29 entries in the Centre County Roundup Ready Late MG trial was 58.3 bushels per acre. The Early MG trial consisted of 19 entries and averaged 49.3 bushels per acre. These yields were down somewhat compared to the 2012 yields in the same trials, especially in the early MG trial, which averaged almost 12 bushels higher in 2012. The non-Roundup Ready trial in Centre County averaged 57.1 bushels per acre, which was slightly lower when compared to 2012 trial. Growing conditions in Centre County were unusually cold and windy for the first few weeks after planting, which caused some soil crusting and subsequent thin stands in places. June and July had near normal growing conditions, but by early August, the weather turned dryer than normal and continued to be unusually dry through much of September. This dry weather most likely affected pod-fill for many soybean varieties.

The Blair County Roundup Ready Late MG trial, which consisted of 30 entries, averaged 52.3 bushels per acre. The Roundup Ready Early MG trial in Blair County had 16 entries and averaged 54.2 bushels per acre. Yields in both trials were down when compared to the 2012 yields in the same trials, especially the Late MG trial, which averaged over 15 bushels higher in 2012. Growing conditions at the Blair County trials were similar to the Centre County trials, including the unusually cold weather soon after planting and the late season dry period.

Yields in the 2013 Lancaster County Roundup Ready Late MG trial, consisting of 59 entries, averaged 62.7 bushels per acre. The Early MG trial, which had 27 entries, averaged 63.8 bushels per acre. The non-Roundup Ready trial averaged 68.4 bushels per acre. The 2013 yields in all three trials were slightly higher compared to the same trials in 2012. Growing conditions in Lancaster County were excellent during the month of June, with warm temperatures and a total of 5.7 inches of rain. July was a little dryer than June, with a total of 2.6 inches of rain for the month. August had near normal temperatures, with a little over 4 inches of timely rainfall for the month, which undoubtedly had a positive effect on pod-fill for many of the entries.

#### **Source of Entries**

Company	Brand	Company	Brand
Channel Bio Corp. https://www.channelbio.com	Channel	Keystone Seeds http://www.stineseed.com/	Stine
Chemgro Seeds http://chemgroseeds.com	Chemgro	Mid Atlantic Seeds, Inc. Mas-office@comcast.net	Mid Atlantic
New Covenant Farm LLC jdcriss@hotmail.com	Crissinger Seeds	Mycogen Seeds <u>http://mycogen.com</u>	Mycogen
Doebler's PA Hybrids Inc. http://doeblers.com	Doebler's	Schillinger Genetics http://emergegenetics.com/	eMerge
Dyna-Gro Seed (CPS) http://dynagroseed.com	Dyna-Gro	Seedway LLC http://seedway.com/	Seedway
Growmark FS <u>http://home.growmarkfs.com</u>	Hisoy	Steyer Seeds http://steyerseeds.com	Steyer
Hubner Seed https://www.hubnerseed.com	Hubner	Syngenta Seeds Inc. http://syngenta.com	NK Brand
		T.A. Seeds http://taseeds.com	T.A. Seeds

# Table 1. Late Roundup Ready Soybean Variety Performance in Centre County, 2013 (MG 3.1 and later)

	·	, , , , , , , , , , , , , , , , , , ,						Seed	Crude		2 Yr Avg.	
			NC - 1-1	I I a Sachar		l a data a	0		Protein %			Yield,
Source	Entry	Seed Treatment	Yield, bu/A	(in.)	Maturity Date	Lodging (1-5, 1=best	Seeds	N 1	@ 13% H2O	@ 13% H2O		bu/A (2011-13)
Chemgro	C3346R2	Encase	63.9	36	25-Sep	2.0	per lo.	1-10000	1120	1120	61.8	(2011 10)
Seedway	SG3413	CruiserMaxx	63.4	36	24-Sep	2.0					65.2	
Seedway	SG3612	CruiserMaxx	62.8	38	28-Sep	3.0					64.5	
Mycogen	5N385R2	CruiserMaxx	62.3	38	29-Sep	1.5						
Hisoy	HS 37A12	CruiserMaxx	62.2	39	27-Sep	2.0					64.4	
Hisoy	HS 33A14	CruiserMaxx	61.8	39	26-Sep	2.3					64.2	67.2
Mycogen	5N312R2	CruiserMaxx	61.6	36	23-Sep	2.0						
Pioneer	93M11		61.0	32	22-Sep	1.0						
Seedway	SG3515	CruiserMaxx	60.7	38	24-Sep	2.0						
Hisoy	HS 32A14	CruiserMaxx	60.4	40	25-Sep	2.5					62.8	65.6
Mycogen	5N342R2	CruiserMaxx	60.2	36	25-Sep	1.8					60.2	
NK Brand	S35-C3	CruiserMaxx	58.7	40	27-Sep	2.5						
Hisoy	HS 31A03	CruiserMaxx	58.6	39	24-Sep	2.8					63.3	66.5
Dyna-Gro Seed	S34RY36	Acceleron/Imidacloprid	58.6	36	25-Sep	2.3					62.6	65.7
Hisoy	HS 35A12	CruiserMaxx	58.5	39	24-Sep	2.0					64.0	
Dyna-Gro Seed	S36RY24	Acceleron/Imidacloprid	58.3	36	27-Sep	2.3						
Doebler's	RPM® DB3513RR™	Gaucho/Evergol /Allegiance	57.3	33	27-Sep	2.3						
Pioneer	93Y84		57.2	36	27-Sep	1.5						
Hisoy	HS 38A02	CruiserMaxx	57.2	38	29-Sep	2.3					62.5	65.7
Dyna-Gro Seed	S31RY93	Acceleron/Imidacloprid	57.1	33	26-Sep	2.0					58.5	
Chemgro	C3247R2	Encase	56.4	35	23-Sep	2.0						
Hisoy	HS 34A16	CruiserMaxx	56.3	37	25-Sep	2.0						
Dyna-Gro Seed	S35RY83	Acceleron/Imidacloprid	56.3	37	24-Sep	2.5					60.1	
Doebler's	RPM® DB3312RR™	Gaucho/Evergol /Allegiance	56.2	40	25-Sep	2.0					57.8	
Chemgro	C3647R2	Starburst IM	55.7	34	27-Sep	2.3						
NK Brand	S34-N3	CruiserMaxx	53.8	38	26-Sep	2.0					54.8	58.0
NK Brand	S34-Z1	CruiserMaxx	53.4	36	24-Sep	2.5						
Chemgro	C3546R2	Encase	52.2	33	25-Sep	2.0					54.8	
Doebler's	RPM® DB3813RR™	Gaucho/Evergol /Allegiance	48.9	36	27-Sep	2.0						
Mean			58.3	37	25-Sep	2.1					61.3	64.8
LSD (.05)			5.3		•							
LSD (.25)			3.1									
CV %			6.5									

#### Table 2. Early Roundup Ready Soybean Variety Performance in Centre County, 2013 (MG 3.0 and earlier).

									Crude Protein %		2 Yr Avg. Yield,	Yield,
Source	Entry	Seed Treatment	Yield, bu/A	Height (in.)	Maturity Date	Lodging (1-5, 1=best)	Seeds per lb.	(1-5, 1=best)	@ 13% H2O	@ 13% H2O		bu/A (2011-13)
Seedway	SG2813	CruiserMaxx	53.0	36	21-Sep	2.3	2735	1.5	H2O	H20	56.3	(2011-13)
NK Brand	S28-U7	CruiserMaxx	52.9	36	21-Sep 22-Sep	2.0	2565	2.0			52.1	
NK Brand	S30-E9	CruiserMaxx	52.8	34	20-Sep	1.0	2768	1.5			52.1	
Doebler's	RPM® DB2812RR™	Gaucho/Evergol /Allegiance	52.0	34	19-Sep	1.0	2768	2.0			55.9	
Doebler's	RPM® DB2612RR™	Gaucho/Evergol /Allegiance	51.8	32	20-Sep	1.5	2855	1.5			54.1	
Hisoy	HS 28A12	CruiserMaxx	51.1	33	19-Sep	1.5	2929	2.0			56.8	
Pioneer	92Y91	Craiconnaix	50.7	37	22-Sep	2.0	2624	1.5			00.0	
Dyna-Gro Seed	SX13827R	Acceleron/Imidacloprid	50.4	31	19-Sep	1.5	2838	2.0				
Hubner	H30-13R2		50.3	36	23-Sep	2.5	3047	1.5				
Seedway	SG3011	CruiserMaxx	50.2	36	23-Sep	1.5	2838	1.5			61.7	
Hubner	H28-10R2		48.7	34	21-Sep	2.0	2987	2.0			55.1	59.3
Mycogen	5N304R2	CruiserMaxx	48.6	38	23-Sep	2.0	2820	1.0				
Dyna-Gro Seed	S38RY28	Acceleron/Imidacloprid	48.0	36	19-Sep	2.0	3290	1.5			55.8	57.5
Chemgro	C3044R2	Encase	47.0	35	23-Sep	1.5	2910	1.5			56.5	61.9
Chemgro	C2747R2	Untreated	46.7	32	19-Sep	1.5	2694	2.0				
Mycogen	5N292R2	CruiserMaxx	46.4	37	22-Sep	2.0	2838	1.5				
Dyna-Gro Seed	S29RY74	Acceleron/Imidacloprid	46.2	35	22-Sep	2.0	2929	1.5				
Doebler's	RPM® DB3012RR™	Gaucho/Evergol /Allegiance	44.9	36	21-Sep	1.5	3088	1.5			53.1	
Mycogen	5N284R2	CruiserMaxx	44.1	37	22-Sep	2.5	3110	1.5			55.4	
Mean			49.3	35	21-Sep	1.8	2875	1.6			55.7	59.6
LSD (.05)			5.8									
LSD (.25)			3.4									
CV %			8.4									

### Table 3. Late Roundup Ready Soybean Variety Performance in Blair County, 2013 (MG 3.1 and later)

		boybean valiety i ent		-		,	Seed	Crude		2 Yr Avg.
			Min Lal	Helekt	l e dete e	0 and a		Protein %		Yield,
Source	Entry	Seed Treatment	Yield, bu/A	Height (in.)	Lodging (1-5, 1=best)	Seeds	· · · · ·	@ 13% H2O	@ 13% H2O	bu/A (2012-13)
Mycogen	5N342R2	CruiserMaxx	59.2	38	2.0	per ib.	1-0030	1120	1120	64.4
Channel	3306R2	Aceleron	58.5	36	1.5					01.1
Hisoy	HS 35A12	CruiserMaxx	58.0	38	2.5					63.7
Hisoy	HS 31A03	CruiserMaxx	57.0	37	2.0					62.2
NK Brand	S34-N3	CruiserMaxx	55.7	39	1.5					59.4
NK Brand	S35-C3	CruiserMaxx	55.3	37	2.0					0011
Chemgro	C3546R2	Encase	55.3	36	1.5					61.9
Pioneer	93M11		54.5	31	1.5					0110
Mycogen	5N312R2	CruiserMaxx	54.4	35	1.0					
Hisoy	HS 37A12	CruiserMaxx	53.3	38	2.0					61.5
Hisoy	HS 34A16	CruiserMaxx	53.1	34	2.0					
Hisoy	HS 32A14	CruiserMaxx	53.0	39	2.0					61.7
Chemgro	C3247R2	Encase	52.7	34	2.5					-
Dyna-Gro Seed	S34RY36	Acceleron/Imidacloprid	52.5	39	2.0					61.9
Chemgro	C3346R2	Encase	52.2	36	2.0					60.2
Hisoy	HS 38A02	CruiserMaxx	52.2	42	2.0					61.0
Dyna-Gro Seed	S35RY83	Acceleron/Imidacloprid	51.1	37	2.0					59.8
Chemgro	C3647R2	Starburst IM	51.1	35	1.5					
Doebler's	RPM® DB3513RR™	Gaucho/Evergol /Allegiance	50.9	33	2.0					
Hisoy	HS 33A14	CruiserMaxx	50.1	36	2.0					58.3
Channel	3207R2	Aceleron	50.0	37	2.0					
Doebler's	RPM® DB3312RR™	Gaucho/Evergol /Allegiance	50.0	37	2.0					58.1
Mycogen	5N385R2	CruiserMaxx	49.5	39	2.0					
Dyna-Gro Seed	S31RY93	Acceleron/Imidacloprid	49.5	32	1.5					58.8
Hisoy	HS 39A14	CruiserMaxx	49.5	38	2.5					59.4
NK Brand	S34-Z1	CruiserMaxx	49.1	38	2.0					
Channel	3506R2	Aceleron	48.9	37	1.5					
Pioneer	93Y84		48.9	35	2.0					
Dyna-Gro Seed	S36RY24	Acceleron/Imidacloprid	48.3	39	2.0					
Doebler's	RPM® DB3813RR™	Gaucho/Evergol /Allegiance	44.7	34	2.0					
Mean			52.3	36	1.9					60.8
LSD (.05)			8.5							
LSD (.25)			5.0							
CV %			10.0							

# Table 4. Early Roundup Ready Soybean Variety Performance in Blair County, 2013 (MG 3.0 and earlier)

			V:-I-I	11-1-1-1-4	l e deiner		 Crude Protein %		2 Yr Avg. Yield,
Source	Entry	Seed Treatment	Yield, bu/A	Height (in.)	Lodging (1-5, 1=best)	Seeds per lb.	@ 13% H2O	@ 13% H2O	bu/A (2012-13)
Doebler's	RPM® DB2812RR™	Gaucho/Evergol /Allegiance	61.7	32	1.0				59.5
Hisoy	31A03	CruiserMaxx	57.6	40	2.1				
Doebler's	RPM® DB2612RR™	Gaucho/Evergol /Allegiance	57.5	31	1.5				
NK Brand	S30-E9	CruiserMaxx	57.3	36	1.5				
Mycogen	5N304R2	CruiserMaxx	56.8	37	2.0				
Dyna-Gro Seed	SX13827R	Acceleron/Imidacloprid	56.7	33	1.5				
Mycogen	5N292R2	CruiserMaxx	54.7	31	1.5				
Chemgro	C3044R2	Encase	54.5	37	2.5				61.6
Channel	2903R2	Aceleron	53.8	39	2.5				
Hisoy	HS 28A12	CruiserMaxx	53.8	34	2.5				57.1
Dyna-Gro Seed	S38RY28	Acceleron/Imidacloprid	53.6	32	1.5				60.7
Dyna-Gro Seed	S29RY74	Acceleron/Imidacloprid	53.3	36	2.0				
Pioneer	92Y91		52.8	34	2.0				
Mycogen	5N284R2	CruiserMaxx	50.6	36	1.5				58.6
Chemgro	C2747R2	Untreated	47.3	33	2.0				
Doebler's	RPM® DB3012RR™	Gaucho/Evergol /Allegiance	44.9	37	1.5				55.1
Mean			54.2	35	1.8				58.8
LSD (.05)			10.7						
LSD (.25)			6.1						
CV %			12.0						

## Table 5. Early Roundup Ready Soybean Variety Performance in Lancaster County, 2013 (MG 3.3 and earlier)

			,				Seed Quality	Crude		2 Yr Avg.	3Yr Avg.
			Yield,	Height	Lodging	Seeds	(1-5,	Protein %	@ 13%	Yield, bu/A	Yield, bu/A
Source	Entry	Seed Treatment	bu/A	(in.)	(1-5, 1=best)	per lb.	1=best)	@ 13% H2O	H2O	(2012-13)	(2011-13)
Dyna-Gro Seed	S37RY33	Acceleron/Imidacloprid	69.2	36	1.3	2365	1.0			60.1	66.6
Dyna-Gro Seed	S31RY93	Acceleron/Imidacloprid	68.8	34	1.3	2794	2.0			63.5	
Hisoy	HS 31A03	CruiserMaxx	68.4	38	2.8	2428	2.0			59.6	69.2
Chemgro	C3346R2	Encase	67.9	36	2.3	2508	2.0			59.6	
Hisoy	HS 33A14	CruiserMaxx	65.6	42	3.0	2253	1.5			60.8	66.8
Doebler's	RPM® DB2812RR™	Gaucho/Evergol /Allegiance	65.1	30	1.0	2892	2.0				
Hisoy	HS 28A12	CruiserMaxx	64.6	35	1.3	2624	2.0			63.2	
Dyna-Gro Seed	S29RY74	Acceleron/Imidacloprid	64.5	33	1.5	2609	2.5				
Hubner	H32-13R2		64.5	37	2.0	2743	1.0				
Steyer	2702R2	Steyer SureStand	64.4	39	3.3	2276	2.0				
Chemgro	C3247R2	Encase	64.2	37	2.0	2785	1.0				
Doebler's	RPM® DB3312RR™	Gaucho/Evergol /Allegiance	64.1	39	2.0	2655	1.5			56.1	
Stine	26RD02		64.1	31	1.3	2735	2.5				
Hubner	H30-13R2		64.1	31	1.5	2802	1.0				
Steyer	3103R2	Steyer SureStand	63.7	37	1.5	2415	1.5				
TA	TS2849R2S		63.5	35	1.8	2624	1.5				
Pioneer	93M11		63.4	34	1.0	2838	2.0				
Chemgro	C3044R2	Encase	63.3	37	2.0	2488	1.5			61.2	
Doebler's	RPM® DB3012RR™	Gaucho/Evergol /Allegiance	63.3	35	1.3	3266	2.0			58.2	
Hubner	H28-10R2		63.1	35	2.0	2434	1.5			59.2	63.9
Steyer	3205R2	Steyer SureStand	62.9	37	2.0	2551	1.5				
Hisoy	HS 32A14	CruiserMaxx	61.8	35	1.3	2501	1.5			58.1	65.7
Stine	33RD02		61.1	33	1.3	2873	1.0				
Pioneer	92Y91		61.0	31	1.0	2572	1.0				
Dyna-Gro Seed	S38RY28	Acceleron/Imidacloprid	60.9	35	1.5	3027	1.0			58.9	
Stine	29RD22		60.9	32	1.8	2838	2.0				
Dyna-Gro Seed	SX13827R	Acceleron/Imidacloprid	55.5	31	1.3	2873	1.5				
Mean			63.8	35	1.7	2658	1.6			59.9	66.4
LSD (.05)			6.5								
LSD (.25)			3.8								
CV %			7.3								

		dy Soybean Variety I			III Earload		Seed	Crude		2 Yr Avg.	
								Protein %	Oil %	Yield,	Yield,
			Yield,	Height	Lodging	Seeds	(1-5,	@ 13%	@ 13%		bu/A
Source	Entry	Seed Treatment	bu/A		(1-5, 1=best)			H2O	H2O	(2012-13)	
Mycogen	5N385R2	CruiserMaxx	69.5	38	1.0		,			67.9	
Seedway	SG3714	CruiserMaxx	69.3	29	1.0						
Seedway	SG3515	CruiserMaxx	68.6	36	2.0						
Hisoy	HS 39A22	CruiserMaxx	68.2	33	1.0						
Seedway	SG3813	CruiserMaxx	68.1	34	1.0					61.0	
Dyna-Gro Seed	S35RY83	Acceleron/Imidacloprid	67.8	40	2.0					61.8	
Mid Atlantic	MA3689NRR2		67.7	34	1.0						
Mycogen	5N342R2	CruiserMaxx	67.1	35	1.0					63.1	
Seedway	SG3413	CruiserMaxx	67.1	35	1.0					62.9	
Hisoy	HS 37A12	CruiserMaxx	66.3	41	2.5					61.7	
NK Brand	S38-W4	CruiserMaxx	66.2	41	2.0						
NK Brand	S35-C3	CruiserMaxx	66.2	38	2.0						
Mycogen	5N393R2	CruiserMaxx	66.1	36	2.0					62.3	
Mycogen	5N386R2	CruiserMaxx	65.8	44	2.0					62.5	
NK Brand	S41-J6	CruiserMaxx	65.7	37	2.0						
Dyna-Gro Seed	S34RY36	Acceleron/Imidacloprid	65.5	37	1.0					61.8	65.5
Channel	3806R2/STS	Aceleron	65.1	35	2.0					59.6	
Chemgro	C3546R2	Encase	64.8	37	1.0					59.6	
Dyna-Gro Seed	S39RY33	Acceleron/Imidacloprid	64.6	39	2.0					65.7	
Channel	3701R2	Aceleron	64.5	33	1.0					60.7	62.6
Seedway	SG3963	CruiserMaxx	64.5	39	1.0						
Channel	3607R2	Aceleron	64.0	40	2.0						
Doebler's	RPM® DB4013RR™		63.7	34	2.0						
Stine	38RD02		63.4	34	1.0						
NK Brand	S34-N3	CruiserMaxx	63.2	37	2.0					57.0	63.5
Hisoy	HS 35A12	CruiserMaxx	63.2	37	1.0					58.7	
Chemgro	C3647R2	Starburst IM	63.2	36	1.0						
Steyer	3403R2	Stever SureStand	63.1	35	2.0						
NK Brand	S39-U2	CruiserMaxx	62.9	38	2.0					60.4	63.9
Mid Atlantic	MA3889NRR2	Chalconnax	62.8	38	2.0					00.1	00.0
Pioneer	93Y84		62.6	36	1.0						
Mid Atlantic	MA3599RR		62.6	38	2.0					61.0	66.7
Chemgro	C4347R2	untreated	62.4	39	2.0						
Mycogen	5N404R2	CruiserMaxx	62.4	37	2.0						
Hisoy	HS 38A02	CruiserMaxx	62.3	39	2.0					61.0	64.3
Mid Atlantic	MA3511RR2Y	Chalconnax	62.3	40	2.0					60.7	66.3
Mid Atlantic	MA3933N/RR2/STS		62.2	36	1.0					59.8	00.0
Seedway	SG3612	CruiserMaxx	61.8	33	2.0					61.0	
Steyer	3702R2	Stever SureStand	61.7	44	2.5					01.0	
Dyna-Gro Seed	S36RY24	Acceleron/Imidacloprid	61.3	36	2.5						
Channel	3907R2	Aceleron	61.1	43	2.0						
Hisoy	HS 39A14	CruiserMaxx	60.9	35	2.0					57.4	
Hisoy	HS 34A16	CruiserMaxx	60.7	35	1.0					01.4	
Mid Atlantic	MA3955RR	OrdiSchildax	60.6	36	2.0						
Channel	3506R2	Aceleron	60.0	35	1.0					59.3	
Hubner	H37-14R2/STS	Aceleion	59.7	43	2.0					00.0	
Hubner	H40-13R2		59.7	34	1.0						
Steyer	4401R2	Steyer SureStand	59.7 59.4	34	1.0						
Stine	37RD22	Steyer SureStand			2.0						
Doebler's	RPM® DB3513RR™	Gaucho/Evergol /Allegiance	59.3 59.1	34 31	2.0						
TA Seeds		Gaucilo/ L vergor / Allegialice	59.1 58.6		2.0						
Dyna-Gro Seed	TS3849R2S S38RY84	Acceleron/Imidacloprid	58.6 58.4	35 31							
-				40	2.0 2.0					59.6	64.4
Mid Atlantic Steyer	MA3802NRR2Y 4203R2	Stever SureStand	58.3 58.1		2.0					59.0	64.4
		•		33 44							
Steyer	4501R2	Steyer SureStand	56.6		2.0					FFF	E0 0
Hubner	H34-11R2		55.9	33	2.0					55.5	58.8
Stine	35RA02		55.5	35	2.0						
NK Brand	S34-Z1	CruiserMaxx	55.0	36	2.0						
Doebler's	RPM® DB3813RR™	Gaucho/Evergol /Allegiance	52.2	32	1.0					<b>60</b> 6	
Mean			62.7	37	1.6					60.9	64.0
LSD (.05)			6.9								
LSD (.25)			4.0								
CV %			7.9								

## Table 6. Late Roundup Ready Soybean Variety Performance in Lancaster County, 2013 (MG 3.4 and later)

#### Table 7. Non-RR Soybean Variety Performance in Centre County, 2013

								Seed	0	0.1 0/	•	3 Yr Avg.
			Yield,	Height		Lodging	Seeds	Quality (1-5,	Crude Protein %	Oil % @ 13%	Yield, bu/A	Yield, bu/A
Source	Entry	Seed Treatment	bu/A	(in.)	Maturity Date	(1-5, 1=best)	per lb.	1=best)	@ 13% H2O	H2O	(2012-13)	(2011-13)
Crissinger Seeds	360 SB	Rancona, MetaStar, Storcide II, Macho 600ST	62.2	33	23-Sep	2.0	2987	1.5			61.3	62.2
Hisoy*	34A16	CruiserMaxx	57.5	39	24-Sep	2.0	2855	1.5				
Ohio State University	FG5	Untreated	56.6	35	25-Sep	2.3	1798	1.5				
Crissinger Seeds	FG1	Rancona, MetaStar, Storcide II, Macho 600ST	54.7	36	24-Sep	2.5	1932	2.0				
Chemgro*	Chemgro 3044	Encase	54.5	32	22-Sep	1.5	2752	1.5			60.9	
Mean			57.1	35	23-Sep	2.1	2465	1.6			61.1	62.2
LSD (.05)			7.2									
LSD (.25)			4.2									
CV %			8.2									
*PP Variaty used as at	aak											

RR Variety used as check

## Table 8. Non-RR Soybean Variety Performance in Lancaster County, 2013

		Yield,	Height	Lodging	Seeds	Seed Quality (1-5,	Crude Protein %	Oil % @ 13%	2 Yr Avg. Yield, bu/A	3Yr Avg. Yield, bu/A
Entry	Seed Treatment	bu/A	(in.)	(1-5, 1=best)	per lb.	1=best)	@ 13% H2O	H2O	(2012-13)	(2011-13)
31LD23		79.3	26	1.0	2248	2.5				
e3692S	CruiserMaxx	73.2	34	1.5	2624	3.0			68.4	
389F.YC	CruiserMaxx	70.6	34	1.5	2522	2.5			63.8	
e3782S	CruiserMaxx	70.3	29	2.0	2242	2.5			64.8	
e3792	CruiserMaxx	70.2	27	1.0	2467	2.5				
e3553	CruiserMaxx	68.9	36	1.5	2352	2.0				
S42LL63	Acceleron/Imidacloprid	68.7	32	1.5	2752	2.5				
440 STS SB	Rancona, MetaStar, Storcide II, Macho 600ST	68.4	27	1.5	2820	2.0			65.0	62.2
34A16	CruiserMaxx	67.2	32	1.0	2495	2.5				
S38LL54	Acceleron/Imidacloprid	67.0	32	1.5	2310	3.0				
S39LL03	Acceleron/Imidacloprid	66.8	31	1.0	2594	2.0				
FG5	Untreated	66.2	33	2.0	1753	2.5				
30LC28		66.1	34	1.5	2794	2.5				
C3044R2	Encase	66.1	27	1.5	2316	2.5			65.2	
S34LL73	Acceleron/Imidacloprid	64.6	31	1.0	2558	3.0				
390 SB	Rancona, MetaStar, Storcide II, Macho 600ST	64.5	32	1.0	1920	2.5			62.7	59.3
27LD00		64.2	28	1.5	2428	3.0				
		68.4	31	1.4	2423	2.5			65.0	60.7
		7.1								
		4.1								
		7.7								
	31LD23 e3692S 389F.YC e3782S e3792 e3553 S42LL63 440 STS SB 34A16 S38LL54 S39LL03 FG5 30LC28 C3044R2 S34LL73 390 SB	31LD23   e3692S CruiserMaxx   389F.YC CruiserMaxx   e3782S CruiserMaxx   e3782S CruiserMaxx   e3792 CruiserMaxx   e3553 CruiserMaxx   s42LL63 Acceleron/Imidacloprid   440 STS SB Rancona, MetaStar, Storcide II, Macho 600ST   34A16 CruiserMaxx   S38LL54 Acceleron/Imidacloprid   S39LL03 Acceleron/Imidacloprid   S39LL03 Acceleron/Imidacloprid   S30LC28 Untreated   C3044R2 Encase   S34LL73 Acceleron/Imidacloprid   390 SB Rancona, MetaStar, Storcide II, Macho 600ST   27LD00 Image: State State Store State State Store Store State Store Store Store State Stor	Entry   Seed Treatment   bu/A     31LD23   79.3     e3692S   CruiserMaxx   73.2     389F.YC   CruiserMaxx   70.6     e3782S   CruiserMaxx   70.3     e3792   CruiserMaxx   70.3     e3792   CruiserMaxx   70.2     e3553   CruiserMaxx   68.9     S42LL63   Acceleron/Imidacloprid   68.7     440 STS SB   Rancona, MetaStar, Storcide II, Macho 600ST   68.4     3A416   CruiserMaxx   67.2     S38LL54   Acceleron/Imidacloprid   66.8     FG5   Untreated   66.2     30LC28   66.1   C3044R2   Encase   66.1     C3044R2   Encase   66.1   534LL73   Acceleron/Imidacloprid   64.5     27LD00   64.2   68.4   7.1   4.1   7.1	Entry   Seed Treatment   bu/A   (in.)     31LD23   79.3   26     e3692S   CruiserMaxx   73.2   34     389F.YC   CruiserMaxx   70.3   29     e3782S   CruiserMaxx   70.3   29     e3782S   CruiserMaxx   70.3   29     e3792   CruiserMaxx   70.2   27     e3553   CruiserMaxx   68.9   36     S42LL63   Acceleron/Imidacloprid   68.7   32     440 STS SB   Rancona, MetaStar, Storcide II, Macho 600ST   68.4   27     34A16   CruiserMaxx   67.2   32     S38LL54   Acceleron/Imidacloprid   66.8   31     FG5   Untreated   66.2   33     30LC28   Encase   66.1   34     C3044R2   Encase   66.1   27     S34LL73   Acceleron/Imidacloprid   64.6   31     390 SB   Rancona, MetaStar, Storcide II, Macho 600ST   64.2   28     68.4 <td< td=""><td>Entry   Seed Treatment   bu/A   (in.)   (1-5, 1=best)     31LD23   79.3   26   1.0     e3692S   CruiserMaxx   73.2   34   1.5     389F.YC   CruiserMaxx   70.6   34   1.5     e3782S   CruiserMaxx   70.3   29   2.0     e3792   CruiserMaxx   70.2   27   1.0     e3553   CruiserMaxx   68.9   36   1.5     S42LL63   Acceleron/Imidacloprid   68.7   32   1.5     440 STS SB   Rancona, MetaStar, Storcide II, Macho 600ST   68.4   27   1.5     34A16   CruiserMaxx   67.2   32   1.0     S38LL54   Acceleron/Imidacloprid   66.8   31   1.0     FG5   Untreated   66.2   33   2.0     30LC28   Encase   66.1   27   1.5     S34LL73   Acceleron/Imidacloprid   64.6   31   1.0     390 SB   Rancona, MetaStar, Storcide II, Macho 600ST   64</td><td>Entry   Seed Treatment   bu/A   (in.)   (1-5, 1=best)   per lb.     31LD23   79.3   26   1.0   2248     e3692S   CruiserMaxx   73.2   34   1.5   2624     389F.YC   CruiserMaxx   70.6   34   1.5   2522     e3782S   CruiserMaxx   70.3   29   2.0   2242     e3792   CruiserMaxx   68.9   36   1.5   2352     S42LL63   Acceleron/Imidacloprid   68.7   32   1.5   2752     440 STS SB   Rancona, MetaStar, Storcide II, Macho 600ST   68.4   27   1.5   2360     34A16   CruiserMaxx   67.2   32   1.0   2495     S38LL54   Acceleron/Imidacloprid   67.0   32   1.5   2310     S39L03   Acceleron/Imidacloprid   66.1   34   1.0   2594     FG5   Untreated   66.1   34   1.5   2794     C3044R2   Encase   66.1   27</td><td>Chiral Control   Vield, bu/A   Height (in.)   Lodging (1-5, 1=best)   Seeds (1-5, 1=best)     31LD23   79.3   26   1.0   2248   2.5     e3692S   CruiserMaxx   73.2   34   1.5   2622   2.5     e3782S   CruiserMaxx   70.6   344   1.5   2522   2.5     e3782S   CruiserMaxx   70.3   29   2.0   2242   2.5     e3792   CruiserMaxx   70.2   27   1.0   2467   2.5     e3553   CruiserMaxx   68.9   36   1.5   2352   2.0     s440 STS SB   Rancona, MetaStar, Storcide II, Macho 600ST   68.4   27   1.5   2820   2.0     s38LL54   Acceleron/Imidacloprid   67.2   32   1.0   2495   2.5     s38LL54   Acceleron/Imidacloprid   66.8   31   1.0   2594   2.0     FG5   Untreated   66.2   33   2.0   1.5   2316   2.5     S30LC28<td>Image: constraint of the section of the sec</td><td>Entry   Seed Treatment   Yield, bu/A   Height (in,)   Lodging (1-5, 1=best)   Seeds (1-5, 1=best)   Crude Protein % (1-5, 1=best)   Oil % Protein % (1-5, 1=best)     31LD23   70.3   26   1.0   2248   2.5   H2O     e3692S   CruiserMaxx   70.6   34   1.5   2624   3.0   H2O     e3782S   CruiserMaxx   70.6   34   1.5   2522   2.5   H2O     e3782S   CruiserMaxx   70.6   34   1.5   2522   2.5   H2O     e3782S   CruiserMaxx   70.2   27   1.0   2467   2.5   H2O     e3553   CruiserMaxx   68.9   36   1.5   2352   2.0   H2O     S42LL63   Acceleron/Imidacloprid   68.7   32   1.0   2495   2.5   H2O     440 STS SB   Rancona, MetaStar, Storcide II, Macho 600ST   68.4   31   1.0   2594   2.0   H2O     S38LL54   Acceleron/Imidacloprid   66.8   31   1.0</td><td>Entry   Seed Treatment   Yield, bu/A   Heigh (in.)   Lodging (1-5, 1=best)   Seeds (1-5, 1=best)   Crude (1-5, 1=best)   Oil % (1-5, 1=best)<!--</td--></td></td></td<>	Entry   Seed Treatment   bu/A   (in.)   (1-5, 1=best)     31LD23   79.3   26   1.0     e3692S   CruiserMaxx   73.2   34   1.5     389F.YC   CruiserMaxx   70.6   34   1.5     e3782S   CruiserMaxx   70.3   29   2.0     e3792   CruiserMaxx   70.2   27   1.0     e3553   CruiserMaxx   68.9   36   1.5     S42LL63   Acceleron/Imidacloprid   68.7   32   1.5     440 STS SB   Rancona, MetaStar, Storcide II, Macho 600ST   68.4   27   1.5     34A16   CruiserMaxx   67.2   32   1.0     S38LL54   Acceleron/Imidacloprid   66.8   31   1.0     FG5   Untreated   66.2   33   2.0     30LC28   Encase   66.1   27   1.5     S34LL73   Acceleron/Imidacloprid   64.6   31   1.0     390 SB   Rancona, MetaStar, Storcide II, Macho 600ST   64	Entry   Seed Treatment   bu/A   (in.)   (1-5, 1=best)   per lb.     31LD23   79.3   26   1.0   2248     e3692S   CruiserMaxx   73.2   34   1.5   2624     389F.YC   CruiserMaxx   70.6   34   1.5   2522     e3782S   CruiserMaxx   70.3   29   2.0   2242     e3792   CruiserMaxx   68.9   36   1.5   2352     S42LL63   Acceleron/Imidacloprid   68.7   32   1.5   2752     440 STS SB   Rancona, MetaStar, Storcide II, Macho 600ST   68.4   27   1.5   2360     34A16   CruiserMaxx   67.2   32   1.0   2495     S38LL54   Acceleron/Imidacloprid   67.0   32   1.5   2310     S39L03   Acceleron/Imidacloprid   66.1   34   1.0   2594     FG5   Untreated   66.1   34   1.5   2794     C3044R2   Encase   66.1   27	Chiral Control   Vield, bu/A   Height (in.)   Lodging (1-5, 1=best)   Seeds (1-5, 1=best)     31LD23   79.3   26   1.0   2248   2.5     e3692S   CruiserMaxx   73.2   34   1.5   2622   2.5     e3782S   CruiserMaxx   70.6   344   1.5   2522   2.5     e3782S   CruiserMaxx   70.3   29   2.0   2242   2.5     e3792   CruiserMaxx   70.2   27   1.0   2467   2.5     e3553   CruiserMaxx   68.9   36   1.5   2352   2.0     s440 STS SB   Rancona, MetaStar, Storcide II, Macho 600ST   68.4   27   1.5   2820   2.0     s38LL54   Acceleron/Imidacloprid   67.2   32   1.0   2495   2.5     s38LL54   Acceleron/Imidacloprid   66.8   31   1.0   2594   2.0     FG5   Untreated   66.2   33   2.0   1.5   2316   2.5     S30LC28 <td>Image: constraint of the section of the sec</td> <td>Entry   Seed Treatment   Yield, bu/A   Height (in,)   Lodging (1-5, 1=best)   Seeds (1-5, 1=best)   Crude Protein % (1-5, 1=best)   Oil % Protein % (1-5, 1=best)     31LD23   70.3   26   1.0   2248   2.5   H2O     e3692S   CruiserMaxx   70.6   34   1.5   2624   3.0   H2O     e3782S   CruiserMaxx   70.6   34   1.5   2522   2.5   H2O     e3782S   CruiserMaxx   70.6   34   1.5   2522   2.5   H2O     e3782S   CruiserMaxx   70.2   27   1.0   2467   2.5   H2O     e3553   CruiserMaxx   68.9   36   1.5   2352   2.0   H2O     S42LL63   Acceleron/Imidacloprid   68.7   32   1.0   2495   2.5   H2O     440 STS SB   Rancona, MetaStar, Storcide II, Macho 600ST   68.4   31   1.0   2594   2.0   H2O     S38LL54   Acceleron/Imidacloprid   66.8   31   1.0</td> <td>Entry   Seed Treatment   Yield, bu/A   Heigh (in.)   Lodging (1-5, 1=best)   Seeds (1-5, 1=best)   Crude (1-5, 1=best)   Oil % (1-5, 1=best)<!--</td--></td>	Image: constraint of the section of the sec	Entry   Seed Treatment   Yield, bu/A   Height (in,)   Lodging (1-5, 1=best)   Seeds (1-5, 1=best)   Crude Protein % (1-5, 1=best)   Oil % Protein % (1-5, 1=best)     31LD23   70.3   26   1.0   2248   2.5   H2O     e3692S   CruiserMaxx   70.6   34   1.5   2624   3.0   H2O     e3782S   CruiserMaxx   70.6   34   1.5   2522   2.5   H2O     e3782S   CruiserMaxx   70.6   34   1.5   2522   2.5   H2O     e3782S   CruiserMaxx   70.2   27   1.0   2467   2.5   H2O     e3553   CruiserMaxx   68.9   36   1.5   2352   2.0   H2O     S42LL63   Acceleron/Imidacloprid   68.7   32   1.0   2495   2.5   H2O     440 STS SB   Rancona, MetaStar, Storcide II, Macho 600ST   68.4   31   1.0   2594   2.0   H2O     S38LL54   Acceleron/Imidacloprid   66.8   31   1.0	Entry   Seed Treatment   Yield, bu/A   Heigh (in.)   Lodging (1-5, 1=best)   Seeds (1-5, 1=best)   Crude (1-5, 1=best)   Oil % (1-5, 1=best) </td

RR Variety used as check

Prepared by: Mark Antle, Research Support Technologist and Greg Roth, Professor of Agronomy.

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