

Pennsylvania On-Farm Network Report 2017



Supported and directed by the PA Soybean Board

Prepared by: Del Voight - Senior Extension Agent - Penn State Extension



PennState Extension

PENN STATE Crop Management
CMEG Extension Group



PI: Delbert G. Voight, Greg W. Roth

Over the past several years the Pa On Farm Network has been conducting both on station small plot design research and on farm large validation demonstration plots. The goal on farm is to establish 4 replications of treatments at full field length. Growers work closely with Extension Crop Team members to gather assessment data and arrive at meaningful results. This report details the results of the 2017 trials. Below are the participants that have been involved in the Pa On Farm Network. For this season we have variable results with trials. The 2017 Results are included within this report. As with any trials please observe if the project is conducted at SEAREC that is small plot design station work completed at the Southeast Agriculture Research and Extension Center. The On Farm projects are conducted on cooperating farms and seek to validate small plot research.

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Dave McLaughlin	Perry County





FIELD TRIAL REPORT

2017 Soybean Double Crop Population Trial

Delbert G. Voight, John Bray, Alyssa Collins and Greg Roth, Penn State University

Field Information

Location: Southeast Research and Extension Center, Landisville Field

Name: YN

Acres: 0.91

2016 Crop: Corn

Tillage: No-till

Planting Date: 12 July 2017

Variety: P31T77R Seed

Treatment: Pioneer Premium?

Planter: White Planter/Drill

Planting Depth: 1 inch

Seeding rate: variable

Harvest Date: -

Plot size: 10 x 200 Feet

Replications: 6

Treatments:

1- 160,000 Drill

2- 160,000 Planter

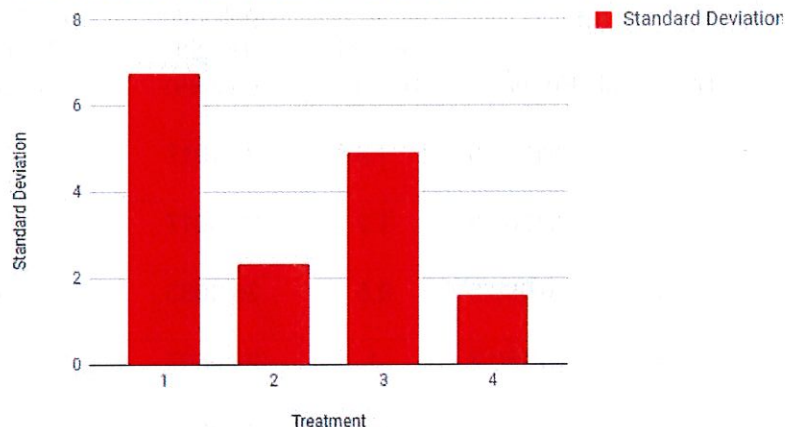
3- 200,000 Drill

4-200,000 Planter

Results:



SEAREC Double Crop Population Trial Standard Deviation vs. Treatment



Treatment	Population	Standard Deviation	Yield
1	136294	6.75	49.5b
2	115230	2.33	45.1c
3	162004	4.9	53.8a
4	147368	1.6	46.0c
Avg.	139,474	3.90	48.6
CV	8.58	24.07	5.67
LSD	14805	1.15	2.79

Comments: The data suggest even with more ideal deviation of stands with the planter the yields were significantly different for the drill over the planter.





FIELD TRIAL REPORT

2017 Soybean Fungicide Insecticide Trial

Delbert G. Voight, John Bray, Alyssa Collins and Greg Roth, Penn State University

Field Information

Location: Southeast Research and Extension Center, Landisville

Field Name: YC Acres: 1.1

2016 Crop: Corn Tillage: No-till

Planting Date: 04 May 2017 Variety: P36T86

Seed Treatment: - Planter: White Planter

Planting Depth: 1 inch

Seeding rate: 140,000 ppa

Herbicide: Gramazone, Sharpen

Harvest Date: -10-6-2017 Plot size: 10 x 25 Feet

Replications: 6

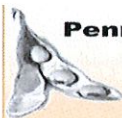
TREATMENTS EVALUATED

1. Untreated
2. Topguard
3. Hero
4. Hero + Topguard
5. Acropolis
6. Rgalia
7. Rgalia + Topguard
8. Topguard + SEALION
9. SEALION
10. Toggle

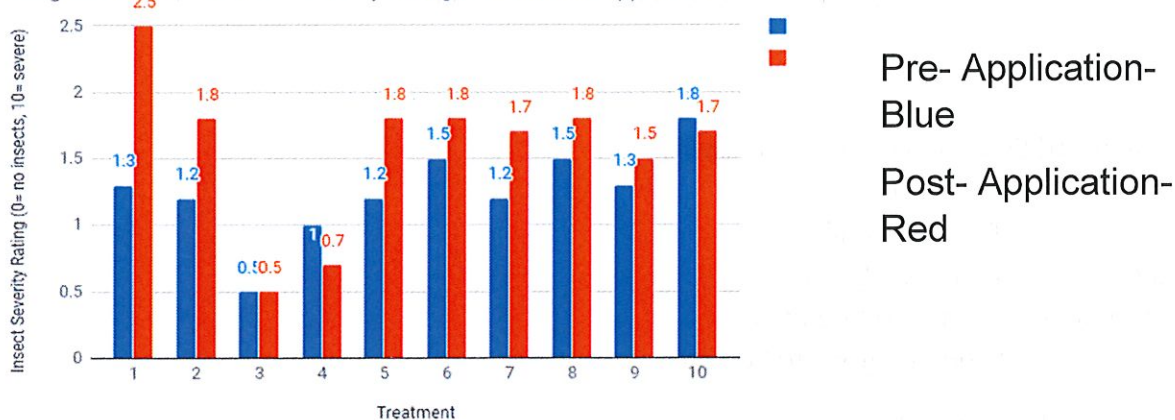
Treatment	Population	Insect Severity	Application Height (inches)	Insect Severity 2 Weeks Post-Application	Height 2 Weeks Post-Application	Yield
1	51342.8	1.3	25.1917	2.5*	39.5	75.8a
2	51265.5	1.2	25.0917	1.8	40.067	76.2a
3	59396.5	0.5	26.3083	0.5*	41.492	76.9a
4	57150.8	1	26.0667	0.7*	42.333	79.7a
5	64507.3	1.2	27.2042	1.8	42.775	88.8a
6	63346	1.5	27.625	1.8	42.558	86.2a
7	58622.2	1.2	26.625	1.7	41.6	81.2a
8	48554.8	1.5	24.8417	1.8	39.467	85.5a
9	45922	1.3	25.0083	1.5	40.175	83.2a
10	64275.2	1.8	27.0958	1.7	41.583	85.4a
Average	56438.31	1.25	26.10584	1.58	41.155	82.5a
CV	29.01	50.81	7.78	46.84	6.39	11
LSD	19101.75	0.74	2.36863	0.87	3.0665	8.98

*Significant

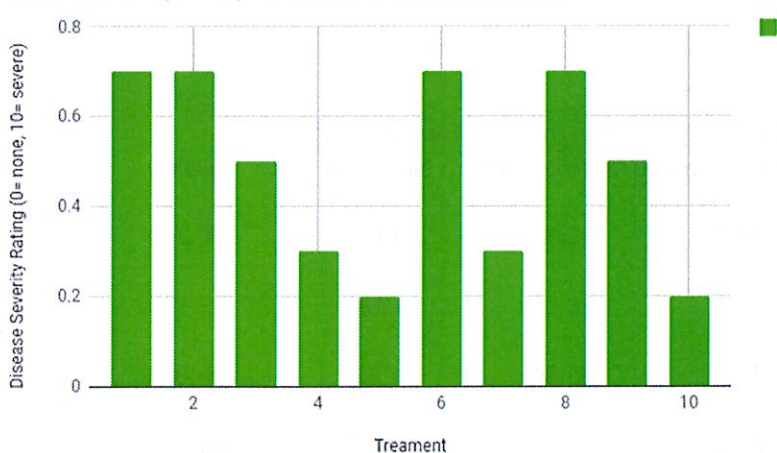




Fungicide Insecticide Insect Severity Rating Pre- and Post-Application



Disease Severity Rating vs. Treatment Post-Application



Comments: It appears the Hero treatments 3 and 4 reduced the insect severity the most. Few diseases were found both pre- and post- application (no significance). There were no statistical differences in yields however there were large differences in yields but not great enough statistically.





2017 Soybean Gibberellic Acid Trial

Delbert G. Voight, John Bray, Alyssa Collins and Greg Roth, Penn State University

Background: Ryz Up is a Gibberellic acid product and is a growth hormone that increases cell elongation.

Field Information

Location: Southeast Research and Extension Center, Landisville

Field Name: YC

Acres: 0.66

2016 Crop: Corn

Tillage: No-till

Planting Date: May 1, 2017

Variety: P33T77

Seed Treatment: Pioneer Premium

Planter: White Planter

Planting Depth: 1 inch

Seeding rate: 140,000 ppa

Herbicide: Gramoxone, Sharpen, Authority MTZ

Harvest Date: - 10-6-2017

Plot size: 10 x 50 Feet w/ 30 ft alleyways

Replications:

TREATMENTS EVALUATED

- 1 Untreated
2. GAA in VE
3. GAA in V1
4. GAA in V2
5. GAA in V3
6. GAA in VE followed by V3

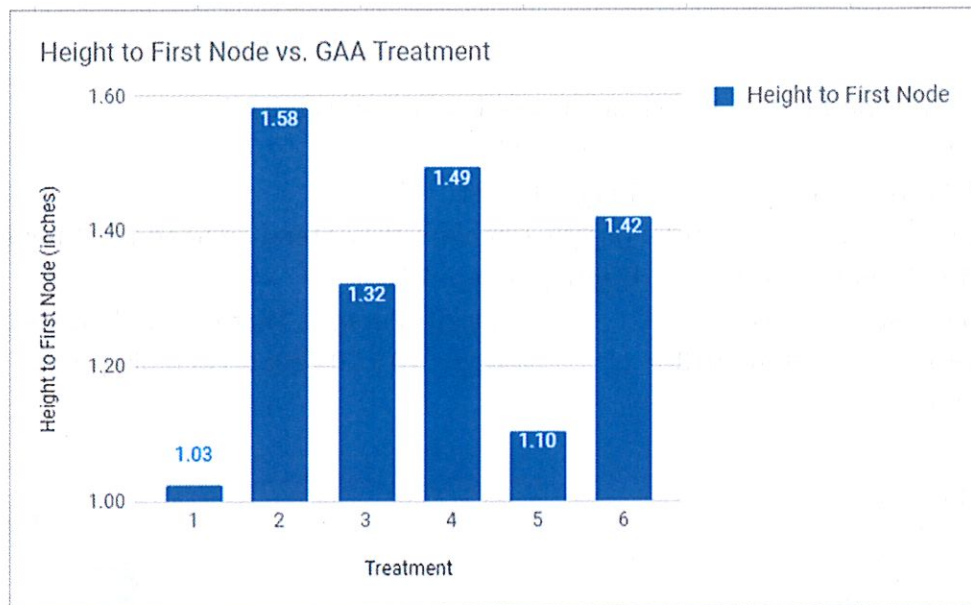
Treatment	Height 07/05/2017(in)	Height 2 07/10/2017(in)	Height to First Node (in)	Yield
1	20.55	25.62	1.03	82.7a
2	20.64	25.66	1.58*	86.7a
3	21.84	25.96	1.32	88.0a
4	22.78	27.02	1.49*	81.7a
5	20.70	26.87	1.10	82.0a
6	21.99	27.30	1.42*	85.1a
Average	21.41	26.41	1.33	84.4
CV	7.24	6.47	22.04	9.2
LSD	3.98	2.03	0.34	7.6

*Significant





FIELD TRIAL REPORT



06/26/2017 (above)- Plots just before application

07/20/2017 (below)- Plot 201. Treatment at VE showed
greatest height to first bean



Comments: The height from the ground to the first bean was the highest when GAA was applied at VE. However, yields indicated a response to this height variation but not great enough to be statistically significant. The product did move the height to first pod, but the yields were not great enough this season.





2017 Soybean Population Trial

Delbert G. Voight, Alyssa Collins Penn State University

Field Information

Location: Southeast Research and Extension Center, Landisville

Field Name: YC Acres: 0.55

2016 Crop: Corn Tillage: No-till

Planting Date: 01 May 2017 Variety: Doeblers 3617 Xtend w/ Seed Treatment

Planter: White Planter Planting Depth: 1 inch

Seeding rate: variable Herbicide: Paragut, Sharpen, Authority MTZ

Harvest Date: - 10-6-2018 Plot size: 10 x 50 Feet w/30 ft alleyways

Reps: 6

Treatments-

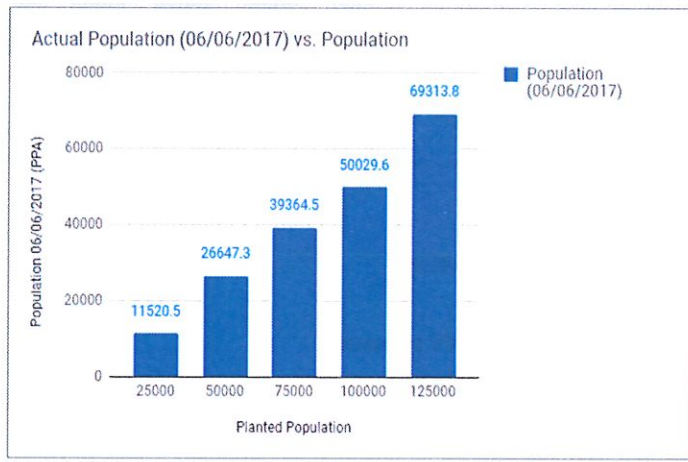
1- 25,000

2- 50,000

3- 75,000

4- 100,000

5- 125,000

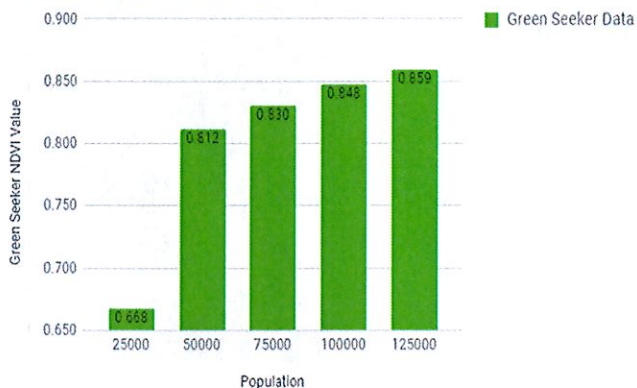


Dropped Population	Population (ppa on 06/06/2017)	Mid-Season Heights (in)	Greenseeker Data (NDVI)	Yield
25,000	11520.5*	25.24	0.66*	50.8 c
50,000	26647.3*	26.32	0.81	65.8b
75,000	39364.5*	26.63	0.83	82.6a
100,000	50029.6*	27.19	0.84	81.1a
125,000	69313.8*	28.86	0.85	84.4a
Average	39375.14	26.85	0.80	72.9
CV	10.55	8.18	0.072	14
LSD	21,000	2.64	7.48	10.1

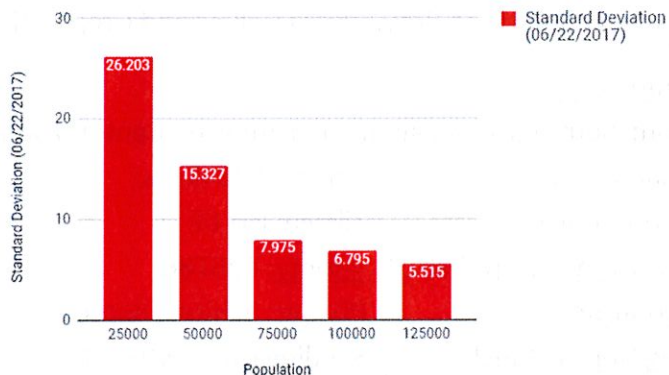


SEAREC FIELD TRIAL REPORT

Green Seeker Data vs. Population



Standard Deviation (06/22/2017) vs. Population

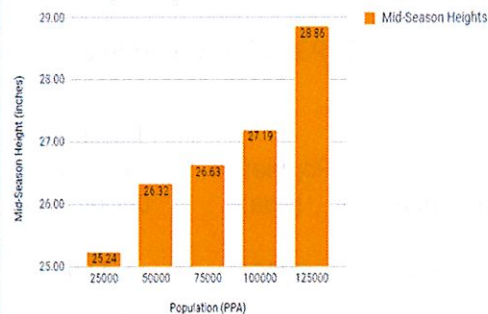


Low Population on 06/26/2017



Low Population on 07/20/2017

Mid-Season Heights vs. Population



Comments: The actual population of the trial is about half the dropped population in all treatments due to heavy rain following planting. The 25,000 ppa initially had a hard time trying to canopy and showed significantly less vegetation than the other populations measured by ndvi. However, 50,000 ppa is not significantly lower in standard deviation, height, or ndvi but was significantly less than 75,000 ppa.





2017 Soybean Fungicide Seed Treatment Trial

Delbert G. Voight, John Bray, Alyssa Collins and Greg Roth, Penn State University

Field Information

Location: Southeast Research and Extension Center, Landisville

Field Name: 2S Acres: 0.33 acres

2016 Crop: Corn Tillage: No-till

Planting Date: 28 April 2017 Variety: P36T86

Seed Treatment: - Planter: White Planter

Planting Depth: 1 inch Seeding rate: 140,000

Herbicide: Paraquat, Sharpen, Authority MTZ

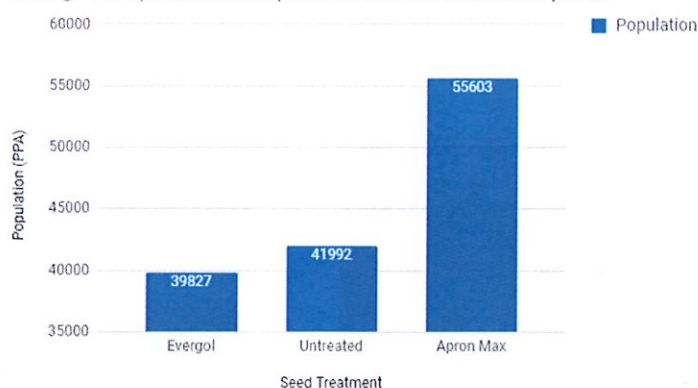
Harvest Date: -10-6-2018

Plot size: 10 x 50 Feet w/ 30 ft alleyways

Replications: 6



Average V1 Populations in Response to Seed Treatments in Soybeans



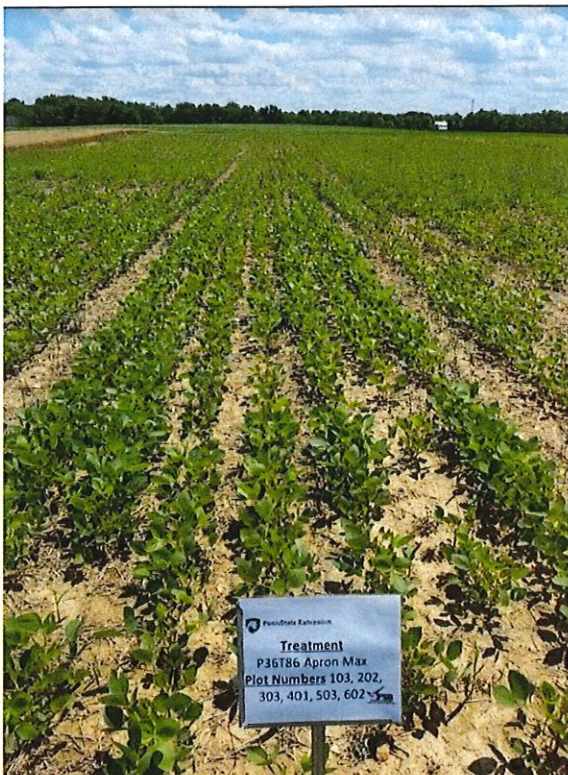
TREATMENTS EVALUATED

1. Pt36T86 evergol
2. P35T86 untreated
3. P36T86 Apron Max

Treatment	Population (ppa)	Heights (in inches on 06/09/2017)	Mid-Season Heights (in inches at R2)	Yield
Evergol	39827	14.77	23.95*	70.5b
Untreated	41992	15.08	24.68*	69.5b
Apron Max	55603*	15.96*	25.38*	78.2a
Average	45807	15.27	24.67	72.76
CV	10.95	4.40	3.34	7
LSD	6451.12	0.86	1.05	5.39

***Significant**





Comments: 06/26/2017- Apron Max had the highest established population and height this season. This plot received a severe amount of crusting.

End of Season Comments: Apron Max had a statistically higher yield overall and stand height as well as final population. Seeds treated with Apron Max were significantly taller than the untreated and the Evergol.





FIELD TRIAL REPORT

2017 Soybean Response to Application of Fungicide and Insecticide Applications

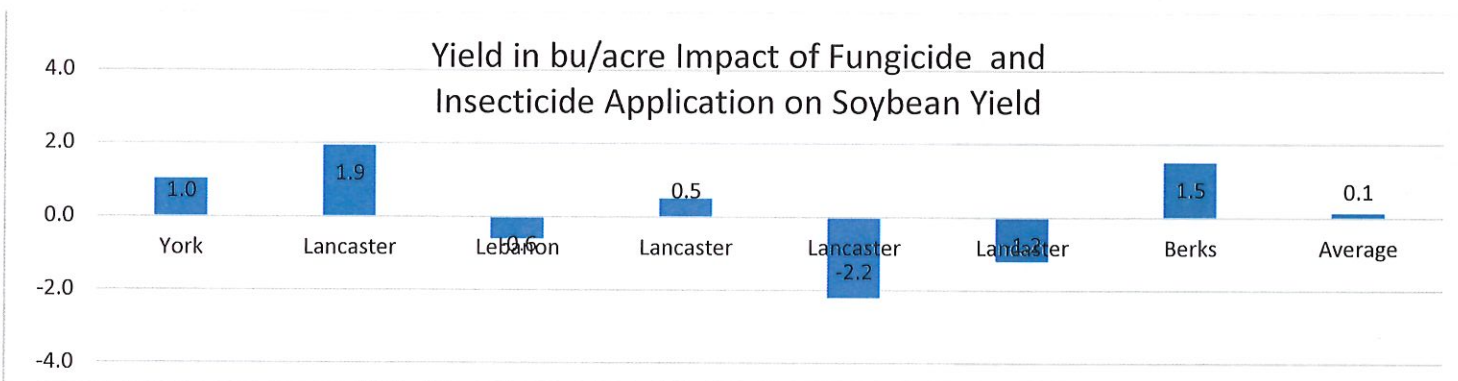
Delbert G. Voight, Alyssa Collins and Greg Roth, Penn State University

Background: Hero is a pyrethroid insecticide marketed to manage insect pests in soybeans. Topguard is a fungicide marketed to manage pathogens in soybeans.

Treatments

1. Untreated
2. 5 oz Hero combined with 5 oz Topguard

Results



Producer	Location	Reps	Untreated		Topguard+Hero		Timing	Deviation	P=.10
			YLD	Moisture	YLD	Moisture			
Glenn Krall	Lebanon	4	61.2	13.55	68.9	13.5	Post	7.7	LSD=7.6 CV 5.6%
David Wolfskill	Berks	3	52.3	11.1	56.6	11.7	Post	4.3	LSD= 2.2 CV 1.7%
Matt Ahern	Bradford	1	46.6	12	48	12	Post	1.4	NS
Richard and Randy Bruckhart	Lancaster	4	65.2	14.2	65.7	14.3	Post	0.5	NS
SEAREC	Lancaster	6	96.4	13.7	94.2	13.6	Pre	-2.2	NS
SEAREC	Lancaster	6	96.4	13.7	95.2	13.5	Post	-1.2	NS
David Wolfskill	Berks	4	64.9	11.8	66.4	11.8	Post	1.5	NS
	Average	31	76.3	13.6	76.5	13.5		0.1	NS

Comments: Over 31 replications there does not appear to be a yield response due to treatment for this growing season. However, in two locations yields were significant indicating the need for IPM.



FIELD TRIAL REPORT

2017 Soybean Herbicide Trial

Delbert G. Voight, Penn State University

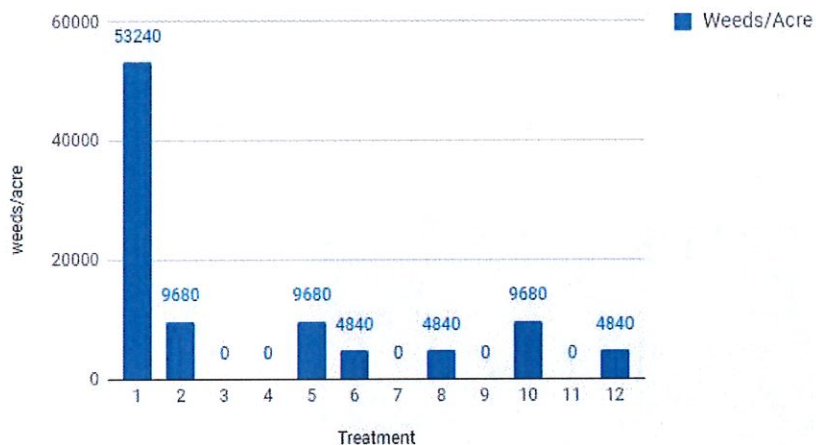
Field Information

Location: Krall's Farm (Route 419 and Willow Street)



Cooperator	County	Date of Application	Reps
Glen Krall	Lebanon	May 12, 2017	1

2017 On-Farm Krall's Herbicide Trial Final Weed Count



TREATMENTS EVALUATED

1. Untreated	10. 2 pt/a Prowl H2O
2. 5 oz/a Canopy	4 fl oz/a Pussit
1.33 pt/a Dual Magnum	0.25% v/v NIS
3. 6 fl oz/a Zidua Pro	11. 1.25 pt/a Boundary
5 oz/a Metribuzin	0.89 oz/a Python
4. 25 fl oz/a BroadAxe XC	1 pt/a Reflex
6 oz/a Metribuzin	10 fl oz/a Select
5. 5 oz/a Sonic	1% v/v COC
1 qt/acre Glyphosate (loaded)	2 qt/a UAN
6. 14 oz/a Authority MTZ	12. 1.25 pt/a Boundary
1 qt/a Glyphosate (loaded)	0.375 oz/a Synchrony XP
7.25 fl oz/a Marvel	10 fl oz/a Select
7. 4 oz/a Fierce	1% v/v COC
1 qt/acre Glyphosate (loaded)	2 qt/a UAN
8. 1.25 pt/a Boundary	
3.5 pt/a Flexstar GT 3.5	
0.4 pt/a NIS	
9. 2 pt/a Prowl H2O	
6 oz/a Metribuzin	
1 qt/a Glyphosate (loaded)	

Greenseeker Data (NDVI) from 07/24/2017

Plot	Measurement 1	Measurement 2	Average
1	0.87	0.88	0.875
2	0.87	0.86	0.865
3	0.87	0.88	0.875
4	0.86	0.88	0.87
5	0.86	0.87	0.865
6	0.87	0.86	0.865
7	0.86	0.89	0.875
8	0.87	0.87	0.87
9	0.87	0.88	0.875
10	0.87	0.87	0.87
11	0.87	0.86	0.865
12	0.89	0.85	0.87

Comments: Treatment 9 showed the fewest amount of initial weeds in the 9 sq. ft. sampled area on June 27th.



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FIELD TRIAL REPORT

2017 Soybean Fungicide Seed Treatment On-Farm Trial

Delbert G. Voight, John Bray, Alyssa Collins and Greg Roth, Penn State University

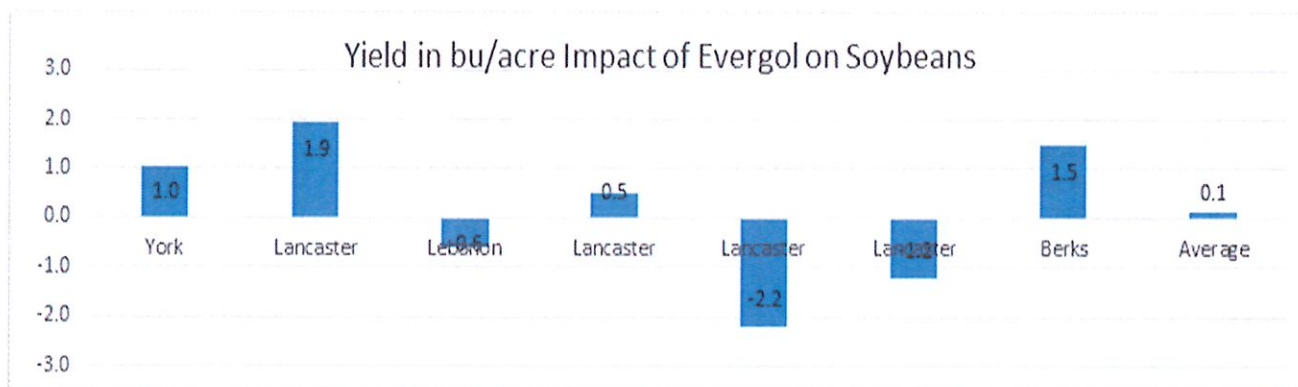
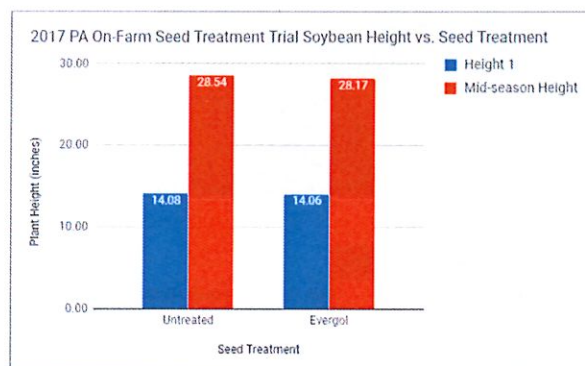
Field Information

Location: various

Reps: 33

Seed Treatments:

- 1 Untreated
- 1 Evergol 5 oz per 100 lbs of seed



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FIELD TRIAL REPORT

				Untreated			Treated		
				Population (ppa)	Height (in)	Yield	Populations (ppa)	Height (in)	Yield
<u>Cooperator</u>	<u>County</u>	<u>Date Planted</u>	<u>Reps</u>						
Glen Krall	Lebanon		6	62,505	29.73	73.1	78,524	30.34	72.1
SEAREC	Lancaster	28 April	6	42,050	24.68	70.5	39,881	23.95	69.5
Dean Miller	York	09 May	6	189,728	34.72	60	219,000	34.63	59
Walter Ocker	Franklin	10 May	4	106,750	32.25	66.4	113,500	30.2	64.2
Paul Stubrick	Westmoreland	18 May	5	94,601	21.34	62.8	95,995	21.23	61.58
Matt Ahern	Bradford	18 May	6	114,205	23.4	38.6	115,192	23.17	36.7
		Average	33	103442*	28.54		110592*	28.17	
		CV		11.56	3.55		11.56	3.55	
		LSD		6220.0901	0.56371		6220.0901	0.56371	

*Significant



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FIELD TRIAL REPORT

<u>Overall</u>	<u>Treated</u>	<u>UT</u>	<u>Significant?</u>	<u>LSD</u>	<u>CV</u>
Root Infection Rating (0 is none, 10 is severe) (12 reps)	1.2	1.3	No	0.3346	40.36
Green- seeker (12 reps)	0.82	0.82	No	0.01834	2.47

Comments: The seeds treated with Evergol have had significantly higher populations so far. Plant heights were not affected by the seed treatment. Root infection ratings showed that treated seeds were less prone to disease.

2017 Soybean Population Trial

Penn State University Extension Crop Team

Field Information

Location: various

Reps: 30

Treatments:

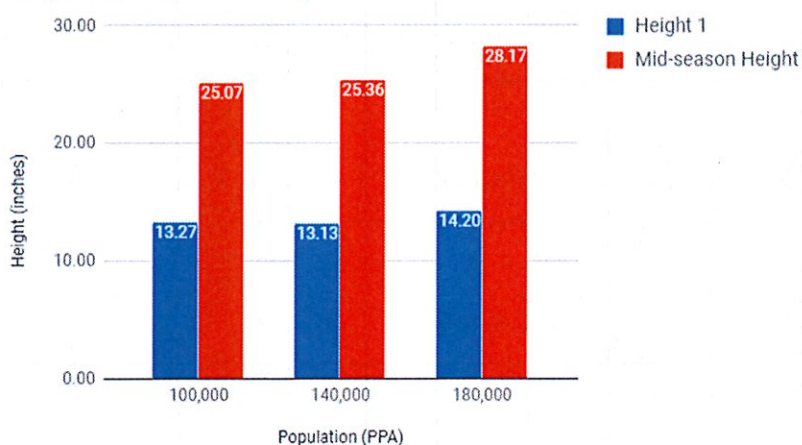
1 - 100,000 PPA

2 - 140,000 PPA

3 - 180,000 PPA



Height 1 and Mid-season Height



Comments: Midseason plant height is significantly taller in 180,000 ppa than than the two lower populations. 180k drop on farm resulted in statistically different yields in 2017.



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					<u>100,000 PPA</u>			<u>140,000 PPA</u>			<u>180,000 PPA</u>		
<u>Cooperator</u>	<u>County</u>	<u>Planter Type</u>	<u>Date Planted</u>	<u>Reps</u>	<u>Pop (ppa)</u>	<u>Height (in)</u>	<u>Yield</u>	<u>Pop ppa</u>	<u>Height (in)</u>	<u>Yield</u>	<u>Pop (ppa)</u>	<u>Height (in)</u>	<u>Yield</u>
Glen Krall	Lebanon	Drill	5/1/17	4	51,923	27	67.6	67,721	28	69.3	90,605	31	72.6
Dave McLaughlin	Perry	Drill	3/23/17	4	109,583	27.95	50.2	145,800	31.1	52.2	177,399	31	52.2
Russel Larson	Centre	Planter		4	--	--	--	96,485	31.2	56.4	127,849	32.9	55.8
Ross Grooms	Westmoreland		5/22/17	2	93,324	21		106,867	19		144,968	23	
Lesher's Poultry	Franklin	Planter	5/10/17	4	97,279	-	65.8	130,880	-	74.3	166,302	-	77.6
Walter Ocker	Franklin	Planter	5/16/17	4	96,063	44	74.5	135,438	45	71.6	176,813	44	80.5
Dale Frankenfield	Montgomery	Drill	6/13/2017	4	92,535	40	57	109,954	42	55.5	157,921	44	55.9
Darren Brubaker	Blair	Planter	5/23/17	4	55,052	26	66.6	82,183	27	66	106,983	28	67.3
			Average	30	79,919	30.6	65.8b	105,300	31.1	67.3b	140,201	32.6*	70.8a
				CV	13.93	4.43	15	13.93	4.43	15	13.93	4.43	15
				LSD	10862	1.08	2.6	10862	1.08	2.6	10862	1.08	2.6

*Significant



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Penn State Extension

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