2018 Ohio Soybean Seed Treatment Trial

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INTRODUCTION

The purpose of the Ohio Soybean Seed Treatment trial is to evaluate soybean seed treatments for stand and yield. This evaluation gives soybean producers comparative information for selecting soybean products for their unique production system.

FIELD PLOT DESIGN

The entries for each test site were planted in a randomized complete-block design. Each entry was replicated four times and planted in plots 28 ft. long and 5 ft. wide containing four rows seeded at 15-inch row width. Seeding rate was 150,000 seeds/acre. All sites had corn as the previous crop except N1 which had winter wheat as the previous crop. All sites and were no-tillage except N1 which was conventionally tilled. Weeds were controlled with pre-emergence and post emergence herbicides

METHOD OF CONDUCTING TRIALS

Entries in Trials. All 2018 entries were submitted voluntarily by companies. Entry fee charges were paid per treatment. Application protocol and product rate were provided by the company. All products were tested on Seed Consultants SCS2328RR soybean with a 3.2 relative maturity. Companies designated their treatments to be applied to treated (fungicide + insecticide) or untreated seed. There were two controls of treated seed (treated check) and untreated seed (untreated check). Results of products applied to treated seed should be compared to the treated check while products applied to untreated seed should be compared to the untreated check.

Product Type. Each company was asked to specify product type(s): biological, fertilizer, inoculant, growth regulator, fungicide and/or insecticide. Product type is shown in each table.

Statistical comparison. Contrasts were used to compare treated seed to the treated check. A single asterisk (*) next to stand count or yield result indicates a statistically significant higher result compared to the check treatment at 70% confidence level (i.e., 70% confident that yield was greater due to seed treatment). An double asterisk (**) next to stand count or yield result indicates a statistically significant higher result compared to the check treatment at 90% confidence level (i.e., 90% confident that yield was greater due to seed treatment).

MEASUREMENTS AND RECORDS

Stand count is reported as the number of 1,000 plants per acre. Stand counts were conducted for each plot and location in the spring approximately 21 days after planting.

Yield. Soybeans were harvested when the moisture content was between 8 and 13% and yields reported in bushels per acre at 13% moisture.

DATA USE. Inclusion of entries in the Ohio seed treatment trial does not constitute an endorsement of a particular entry by the Ohio State University, Ohio Agricultural Research and Development Center, or Ohio State University Extension.

Table 1: The 2018 Soybean Seed Treatment Trial, Site Descriptions						
	N1	N2	C1	C2	S1	S2
	Henry Co.	Sandusky Co.	Mercer Co.	Marion Co.	Preble Co.	Clinton Co.
Soil texture	Clay	Sandy loam	Clay	Clay	Clay loam	Silt loam
Soil pH	6.5	6.8	7.2	6.3	6.3	6.7
Soil Test P-Mehlich (ppm)	21	23	88	31	158	51
Soil Test K (ppm)	191	79	192	175	169	134
Plant date	May 29	June 4	May 24	May 17	May 14	May 11
Harvest date	Oct. 19	Oct. 23	Oct. 21	Oct. 12	Oct. 3	Oct. 1

Table 2. The 2018 Ohio Soybean Seed Treatment Trial, North Region.

Treatment Name	Company Name	Product Type	Type of Seed	Stand Count–N1	Stand Count–N2	Yield–N1	Yield–N2
				1000 plants/acre	1000 plants/acre	Bu/acre	Bu/acre
BunchaBugs ST	Concept Ag	Biological	Treated	139.0	136.5	64.2	59.6
Exceed SAR	Visjon Biologics	Inoculant	Treated	141.0*	125.0	64.1	58.7
18OH_04056WP	Advanced Biological Marketing	Biological	Treated	141.3*	128.0	65.8*	58.0
18OH_02052LQ	Advanced Biological Marketing	Biological	Treated	141.0*	132.5	66.7**	58.7
EXP 1			Treated	140.5*	127.8	68.1**	56.4
18OH_06681LQ	Advanced Biological Marketing	Biological	Treated	145.0**	137.8	61.8	56.9
EXP 3			Treated	148.3**	136.5	68.8**	58.8
18OH_05850LQ	Advanced Biological Marketing	Biological	Treated	142.3*	126.0	61.9	60.1
EXP 2			Treated	140.5*	118.0	62.7	56.7
MicroKing	Agra Solutions	Fungicide, Biological, Fertilizer	Untreated	137.8	127.5	67.6	62.3**
Untreated Check		Untreated	**Untreated**	134.8	127.0	66.6	59.1
Treated Check		Fungicide + Insecticide	**Treated**	135.3	139.3	62.1	59.9

**Indicates statistically significant higher value compared to the check treatment at 90% confidence level.
*Indicates statistically significant higher value compared to the check treatment at 70% confidence level.

Table 3. The 2018 Ohio Soybean Seed Treatment Trial, Central Region.

Treatment Name	Company Name	Product Type	Type of Seed	Stand Count–C1	Stand Count–C2	Yield–C1	Yield–C2
				1000 plants/acre	1000 plants/acre	Bu/acre	Bu/acre
BunchaBugs ST	Concept Ag	Biological	Treated	131.5	114.3**	47.0	51.6
Exceed SAR	Visjon Biologics	Inoculant	Treated	132.3	108.0*	45.1	55.1*
18OH_04056WP	Advanced Biological Marketing	Biological	Treated	131.8	99.5	46.8	52.1
18OH_02052LQ	Advanced Biological Marketing	Biological	Treated	136.3	117.8**	43.9	51.9
EXP 1			Treated	131.5	102.0	47.6	47.1
18OH_06681LQ	Advanced Biological Marketing	Biological	Treated	132.5	103.3	51.0*	56.0*
EXP 3			Treated	135.8	88.3	44.8	49.4
18OH_05850LQ	Advanced Biological Marketing	Biological	Treated	139.0*	92.8	48.1	54.0
EXP 2			Treated	132.5	91.5	46.1	46.7
MicroKing	Agra Solutions	Fungicide, Biological, Fertilizer	Untreated	138.8	66.6	44.2	42.3
Untreated Check		Untreated	**Untreated**	137.8	67.0	46.1	43.8
Treated Check		Fungicide + Insecticide	**Treated**	134.8	88.0	46.7	48.8

**Indicates statistically significant higher value compared to the check treatment at 90% confidence level.
*Indicates statistically significant higher value compared to the check treatment at 70% confidence level.

Table 4. The 2018 Ohio Soybean Seed Treatment Trial, South Region.

Treatment Name	Company Name	Product Type	Type of Seed	Stand Count–S1	Stand Count–S2	Yield–S1	Yield–S2
				1000 plants/acre	1000 plants/acre	Bu/acre	Bu/acre
BunchaBugs ST	Concept Ag	Biological	Treated	110.0	119.8	44.0	44.1
Exceed SAR	Visjon Biologics	Inoculant	Treated	113.3	130.5	46.9	43.5
18OH_04056WP	Advanced Biological Marketing	Biological	Treated	97.7	123.0	48.3	48.1
18OH_02052LQ	Advanced Biological Marketing	Biological	Treated	107.3	126.8	43.2	44.6
EXP 1			Treated	108.3	126.3	37.3	49.6
18OH_06681LQ	Advanced Biological Marketing	Biological	Treated	110.0	127.8	46.2	45.9
EXP 3			Treated	114.3	127.5	45.2	48.1
18OH_05850LQ	Advanced Biological Marketing	Biological	Treated	86.3	128.8	41.3	52.6
EXP 2			Treated	98.3	130.8	40.3	51.4
MicroKing	Agra Solutions	Fungicide, Biological, Fertilizer	Untreated	91.0	134.5	41.0	62.7**
Untreated Check		Untreated	**Untreated**	83.0	127.5	46.1	45.5
Treated Check		Fungicide + Insecticide	**Treated**	104.0	128.5	45.7	54.1

**Indicates statistically significant higher value compared to the check treatment at 90% confidence level.
*Indicates statistically significant higher value compared to the check treatment at 70% confidence level.

Table 5. The 2018 Ohio Soybean Seed Treatment Trial, All Regions.

Treatment Name	Company Name	Product Type	Type of Seed	Stand Count	Yield
				1000 plants/acre	Bu/acre
BunchaBugs ST	Concept Ag	Biological	Treated	125.1	51.7
Exceed SAR	Visjon Biologics	Inoculant	Treated	124.8	52.2
18OH_04056WP	Advanced Biological Marketing	Biological	Treated	120.4	53.3
18OH_02052LQ	Advanced Biological Marketing	Biological	Treated	127.0*	51.6
EXP 1			Treated	122.6	51.0
18OH_06681LQ	Advanced Biological Marketing	Biological	Treated	126.0*	52.8
EXP 3			Treated	124.8	52.7
18OH_05850LQ	Advanced Biological Marketing	Biological	Treated	119.9	52.9
EXP 2			Treated	118.7	50.7
MicroKing	Agra Solutions	Fungicide, Biological, Fertilizer	Untreated	117.5	54.3*
Untreated Check		Untreated	**Untreated**	113.4	51.5
Treated Check		Fungicide + Insecticide	**Treated**	121.7	52.9

**Indicates statistically significant higher value compared to the check treatment at 90% confidence level.
*Indicates statistically significant higher value compared to the check treatment at 70% confidence level.