

Study ID: 048053201501

County: Dodge

Soil Type: Moody silty clay loam;

Planting Date: 5/21/2015

Harvest Date: 10/6/15

Population: 152,000

Row Spacing (in.) 30

Hybrid: Asgrow 2834

Reps: 4

Previous Crop: Corn

Tillage: Fall Disk and Spring Field Cultivation

Herbicides: *Pre:* 3 oz/ac Valor, 1/3 lbs/ac Metribuzen, Aim on 5/23/15. *Post:* Powermax at 24 oz/ac and Warrant at 1.5 qts/ac on 6/15/15.

Seed Treatment: None other than those being studied.

Foliar Insecticides: None

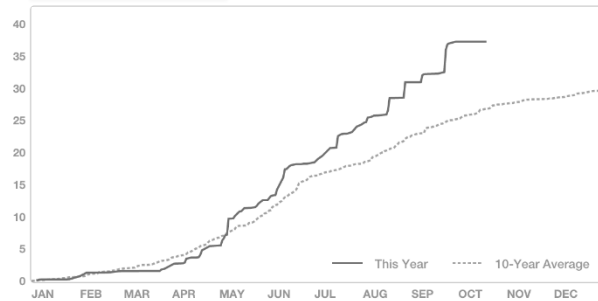
Soil Sample Results:

Foliar Fungicides: Aerial application of Priaxor (4 oz/ac) and Insecticide on 8/1/15.

Fertilizer: None

Irrigation: Pivot, Total: 0.75"

Rainfall (in.):



ID	Soil pH 1:1	Modified WDRF BpH	Soluble Salts 1:1 mmho/cm	Excess Lime Rating	FIA Nitrate ppm N	Nitrate Lbs N/A for 0-8 in.	M-P3 ppm P	---Ammonium Acetate--- ppm---				Sum of Cations me/100g	% Base Saturation				
								K	Ca	Mg	Na		H	K	Ca	Mg	Na
Rep 1	6.8		0.27	NONE	9.2	22	45	365	2698	310	13	17.1	0	5	79	15	0
Rep 2	6.4	6.9	0.26	NONE	11.4	27	54	385	2615	314	16	18.1	7	5	72	15	0
Rep 3	6.9		0.28	NONE	14.3	34	59	379	2799	323	19	17.7	0	5	79	15	0
Rep 4	6.7		0.31	NONE	12.4	30	54	376	2851	346	18	18.2	0	5	78	16	0

Introduction: Sudden Death Syndrome (SDS) is caused by the soil-borne fungus *Fusarium solani* f. sp. glycines. While this is a relatively new disease for Nebraska soybean farmers, there are several locations in the state where significant percentages of fields are being affected. In a field where SDS is present and soybean cyst nematode is also present, the disease can be more severe. There are not clear guidelines to determine at what point a field will have enough increase in yield to justify treatment and therefore, on-farm research projects like this one are needed.

ILeVO® is a seed treatment marketed by Bayer Crop Science for SDS and also has nematode activity (label at right). This field was selected due to the presence of SDS in the 2013 soybean crop. Three treatments were selected to test the efficacy of the ILeVO seed treatment.

GROUP 7 FUNGICIDE	
A systemic seed treatment for use on soybean for the protection against damage caused by early season plant pathogenic nematodes. As a soybean seed treatment provides protection from seedling infections by <i>Fusarium virguliforme</i> , the causal agent of Sudden Death Syndrome.	
ACTIVE INGREDIENT:	
FLUOPYRAM: N-[2-[3-chloro-5-(trifluoromethyl)-2-pyridinyl]ethyl]-2-(trifluoromethyl)benzamide*	48.4%
OTHER INGREDIENTS:	51.6%
Contains 5 lbs FLUOPYRAM per gallon (600 g FLUOPYRAM per liter)	
TOTAL: 100.0%	
*(CAS Number 658066-35-4)	
EPA Reg. No. 264-1167	

A: Untreated check

B: Standard soybean treatment (for this study Acceleron + Poncho/VOTiVO were used)

C: Standard soybean treatment plus ILeVO® at a rate of 1.18 fl oz/140,000 seed unit

Phosphorus samples (above) were taken because low phosphorus has been linked to higher severity of SDS. Soybean cyst nematode (SCN) samples were also taken early in the growing season in each treatment and rep because of the relationship between SDS and SCN. Any variation in SCN population density was not due to treatment as this was prior to any effect. The variation observed is typical of the variation in population density observed when a field is randomly sampled. This information is intended to provide an base population level for the trial.

Soybean Cyst Nematode (SCN) - (# eggs/100 cc soil)	
Check - Untreated Seed	720 A
Acceleron + Poncho/VOTiVO + Seed Coating	830 A
Acceleron + Poncho/VOTiVO + ILeVO® + Seed Coating	1,800 A
P-Value	0.4082

Foliar disease symptoms were also assessed using Southern Illinois University at Carbondale's Method of SDS scoring. The disease symptoms were assessed using a 1 to 9 scoring system, with a score of 1 indicating the least symptoms and 9 indicating premature death. In addition, the overall incidence of affected plants was determined. These two scores were combined to create the disease index (DX). DX = disease incidence x disease severity/9. Disease assessments were conducted on 8/20/15 and 9/1/15.

Results:

	Disease Severity	Disease Incidence (%)	Disease Index (DX)	Disease Severity	Disease Incidence (%)	Disease Index (DX)
	-----Aug. 20, 2015-----			-----Sept. 1, 2015-----		
Check - Untreated Seed	2.41 A	10.8 AB	3 AB	2.29 A	15.4 AB	4 A
Acceleron + Poncho/VOTiVO	2.62 A	14.5 A	4 A	2.20 A	18.8 A	5 A
Acceleron + Poncho/VOTiVO + ILeVO®	1.91 A	7.9 B	2 B	1.75 B	10.8 B	2 B
P-Value	0.1451	0.015	0.026	0.0079	0.0156	0.0142
	Yield (bu/ac)†	Moisture (%)	Test Weight	Harvest Stand Count	Marginal Net Return (\$/ac)‡	
Check - Untreated Seed	60 B*	11.8 A	56 A	134,500 A	\$534.00	
Acceleron + Poncho/VOTiVO	57 B	11.5 A	55 B	136,500 A	\$495.30	
Acceleron + Poncho/VOTiVO + ILeVO®	64 A	11.5 A	56 A	136,500 A	\$543.60	
P-Value	0.0114	0.237	0.0085	0.8116	N/A	

†Bushels per acre corrected to 13% moisture.

*Values with the same letter are not significantly different at a 90% confidence level.

‡Net Return based on \$8.90/bu soybeans, \$12.00/ac Poncho/VOTiVO treatment cost, and \$26.00/ac Poncho/VOTiVO and ILeVO® treatment cost.



Figure 1: False-color (left) and true-color (right) imagery of the plot area.

Summary: On the first date of disease ratings, the standard treatment had a higher disease incidence than the standard + ILeVO® treatment. There was no difference in severity. At the second date, the standard treatment again had a higher disease incidence than the standard + ILeVO® treatment. The standard + ILeVO® treatment had a lower disease severity than the untreated or standard treatment. There were no differences in harvest stand counts. At harvest, there was no moisture difference among the three treatments. There was no yield difference between the standard and untreated seed. The standard + ILeVO treated seed had higher grain yields than the standard and untreated seed.

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