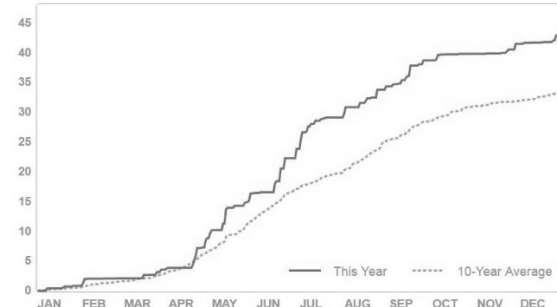


Multi-Hybrid Planting for Spatial Soybean Seed Treatments

Study ID: 180155201601
County: Saunders
Soil Type: Nodaway silt loam; Yutan eroded-Judson Complex
Planting Date: 5/15/16
Harvest Date: 10/13/16
Population: 165,000
Row Spacing (in): 30
Hybrids: Pioneer 31T11
Reps: 6
Previous Crop: Corn
Tillage: No-till
Herbicides: Pre: 2.8 oz/ac Enlite®, 1.7 lb/ac AMS, 30 oz/ac Durango®, 0.66 pt 2,4-D **Post:** 30 oz/ac Durango, 6 oz/ac Select®, 6 oz/ac Marvel™

Foliar Insecticides: Hero® 4 oz/ac
Foliar Fungicides: Priaxor® 4 oz/ac
Irrigation: None
Rainfall (in):



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 fields 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 CropScience for SDS and also has nematode activity (product information at

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	

Product information from: http://www.agrian.com/pdfs/ILeVO_Label1.pdf

right). This field was selected due to the presence of SDS in the 2014 soybean crop. Two treatments were selected to test the efficacy of the ILeVO seed treatment.

A: Standard soybean treatment (for this study PPST 2030® + Evergol Energy® + Gaucho® + Allegiance® was used)

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

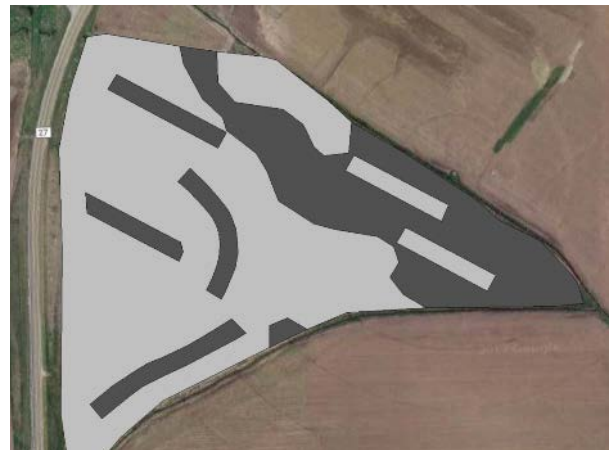


Figure 1. Management zones for soybean treated with ILeVO (dark grey) and without ILeVO (light grey) with check strips of the opposing seed treatment.

The additional capabilities of the Multi-Hybrid planter allowed for site specific application of ILeVO in the portions of the field that historically show the effects of SDS (*Figure 1*). This site specific application of ILeVO can reduce input costs while still effectively managing SDS pressure.

- Seed treated with the grower’s standard seed treatment was placed in portions of the field where yield loss due to SDS was not typically seen (light grey).
- Seed treated with standard seed treatment plus ILeVO was placed in portions of the field that typically had yield reductions due to SDS (dark grey).
- Check strips of the opposing seed treatment strategy were placed in each zone as shown in Figure 1.

Management Zone Creation: Three years of yield data displaying portions of low yields due to SDS were used for clustering.

Results: Within each zone, success of the ILeVO treated and untreated seed were evaluated by comparing the yield of the check strips to the yield in an adjacent strip of the treatment assigned to that zone. Yield data were analyzed using the GLIMMIX procedure in SAS 9.4 (SAS Institute Inc., Cary, NC).

Foliar disease symptoms were 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). $DX = \text{disease incidence} \times \text{disease severity} / 9$. Disease assessments were conducted on August 31, 2016 and September 8, 2016.

Treatment	Disease Severity	Disease Incidence (%)	Disease Index (DX)	Disease Severity	Disease Incidence (%)	Disease Index (DX)
	-----Aug 31, 2016-----			-----Sept. 8, 2016-----		
Standard Treatment + ILeVO	1	1	0.11	1.07	7.14	0.84
Standard Treatment	1.5	5.7	1.28	2.3	11	2.56

Treatment	Standard + ILeVO® Yield (bu/acre)†	Standard Treatment Yield (bu/acre)	P-Value
Standard Treatment + ILeVO® Zone	75 A	72 A	0.355
Standard Treatment Zone	77 A	74 A	0.243

†Bushels per acre corrected to 13% moisture.

*Values with the same letter are not significantly different at a 95% confidence interval. Letters apply within zone.

Treatment	Standard + ILeVO® Marginal Net Return (\$/ac)‡	Standard Treatment Marginal Net Return (\$/ac)
Standard Treatment + ILeVO® Zone	678.58	650.83
Standard Treatment Zone	712.25	684.50

‡Marginal Net Return calculated using \$9.25/bu soybeans and \$15.17/ac ILeVO seed treatment cost (\$10.19/oz).

Summary: At this site, there was no difference in grain yield for the ILeVO versus standard seed treatment in either the ILeVO treatment zone or the standard seed treatment zone. While not enough disease ratings were collected to do any statistical analysis, general trends could suggest that the Standard + ILeVO treatment had lower disease severity, incidence, and index on both dates than the Standard treatment. Overall, the disease ratings observed would be considered low. Both treatments appeared to have an increase in the disease index at the later sampling date.

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