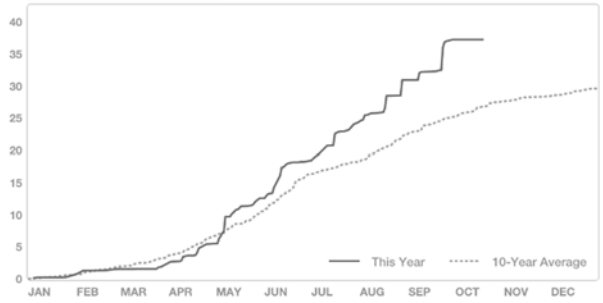
Nebraska On-Farm Research Network

ILeVO® Seed Treatment for Sudden Death Syndrome

Study ID: 171053201501
County: Dodge
Soil Type: Alcester silty clay loam; Coleridge silty clay loam;
Planting Date: 5/21/2015
Harvest Date: 10/6/15
Population: 150,000
Row Spacing (in.) 30
Hybrid: Hoegemeyer 2860
Reps: 4
Previous Crop: Corn
Tillage: No-Till
Herbicides: ***Pre:*** 6 oz/ac of Sonic (cloransulam-methyl & sulfentrazone) and 1/2 pt 2,4-D on 4/15/15. ***Post:*** 24 oz/ac Roundup Powermax (glyphosate) and 5 oz/ac of Arrow (clethodim) on 6/20/15.
Seed Treatment: None other than the treatments

Foliar Insecticides: Aerial sprayed for soybean aphids, 8 oz/ac of Nufos-4-E (Chlorpyrifos) and 3 oz/ac of Lamba-CY 1EC (Lambda-cyhalothrin) on 8/15/15.
Foliar Fungicides: None
Fertilizer: 50 lbs of MAP/acre
Note: Hail storm on July 31 and soybeans lodged significantly.
Irrigation: Pivot, Total: 0"
Rainfall (in.):



Soil Sample Results:

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---------- K	Ca	Mg	Na	Sum of Cations me/100g	% Base Saturation H	K	Ca	Mg	Na
Rep 1	6.3	6.7	0.33	NONE	22.8	55	57	232	2945	300	12	20.8	14	3	71	12	0
Rep 2	6.3	6.8	0.36	NONE	17.3	42	71	266	3168	341	12	21.2	8	3	75	13	0
Rep 3	6.4	6.8	0.32	NONE	15.4	37	60	229	2796	326	10	19.5	11	3	72	14	0
Rep 4	6.2	6.9	0.31	NONE	16.3	39	59	187	2450	294	9	16.4	7	3	75	15	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 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 *Fusarium virguliforme*, 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*

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	60 A
Acceleron + Poncho/VOTiVO + Seed Coating	30 A
Acceleron + Poncho/VOTiVO + ILeVO + Seed Coating	10 A
P-Value	.5596

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 n 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	0.95 A	1.6 A	0 A	1.20 A	3.7 A	1 A
Acceleron + Poncho/VOTiVO	1.45 A	2.2 A	0 A	1.45 A	5.0 A	1 A
Acceleron + Poncho/VOTiVO + ILeVO®	0.95 A	1.3 A	0 A	1.00 A	2.7 A	0 A
P-Value	.3866	.7773	.8299	.4487	.5176	.4565

	Yield (bu/ac)†	Moisture (%)	Harvest Stand Count	Marginal Net Return ($/ac)‡
Check - Untreated Seed	62 A*	12.0 A	139,583 A	$551.80
Acceleron + Poncho/VOTiVO	60 A	12.0 A	131,583 B	$522.00
Acceleron + Poncho/VOTiVO + ILeVO®	60 A	12.0 A	134,917 AB	$508.00
P-Value	.2869	0.8477	.1039	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.

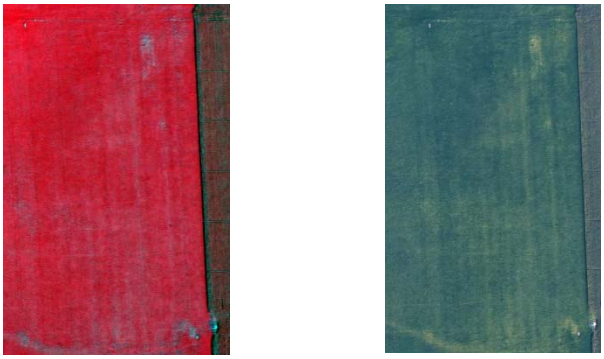


Figure 1: False-color (left) and true-color (right) imagery of the plot area

Summary: On the first and second date of disease ratings, there was no difference in disease incidence, severity, or index among the three treatments. At harvest, there was no moisture or yield difference among the three treatments. The untreated seed resulted in the highest marginal net return.

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