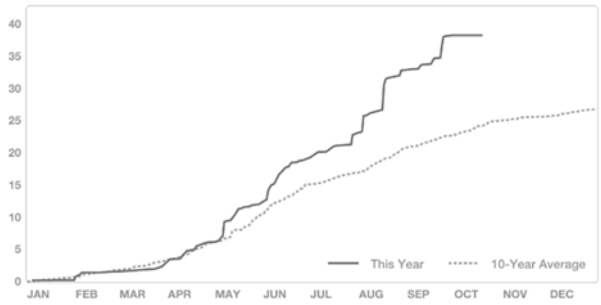
Nebraska On-Farm Research Network

ILeVO® Seed Treatment for Sudden Death Syndrome

Study ID: 173023201501
County: Butler
Soil Type: Hastings silt loam;
Planting Date: 5/29/15
Harvest Date: 10/2/15
Population: 160,000
Row Spacing (in.) 30
Hybrid: AG2733 RR
Reps: 4
Previous Crop: Corn
Tillage: No-Till
Herbicides: ***Pre:*** Authority First, 2-4D and Roundup ***Post:*** Roundup and Flexstar
Seed Treatment: None, other than those being studied.
Foliar Insecticides: none
Foliar Fungicides: none
Fertilizer: none
Note: There were cattle on the field prior to season.
Irrigation: Pivot, Total: unknown
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	6.2	6.7	0.28	NONE	16.8	40	8	373	2383	308	16	18.7	17	5	64	14	0
Rep 2	6.2	6.8	0.27	NONE	13.7	33	10	351	2221	280	16	16.7	14	5	66	14	0
Rep 3	6.2	6.7	0.24	NONE	13.0	31	8	364	2269	279	16	17.7	17	5	64	13	0
Rep 4	6.1	6.8	0.25	NONE	12.5	30	7	384	2387	287	17	17.1	10	6	70	14	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. 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 Eclipse was used; Eclipse is Fludioxonil 0.08, Thiabendazole 0.08, Metalaxyl 0.55, Imidaloprid 5# 1.6)

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
Seed Treatment - Eclipse	570 A
Seed Treatment - Eclipse + ILeVO	110 A
P-Value	0.122

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 = disease incidence x disease severity/9. Disease assessments were conducted on 8/21/15 and 9/2/15.

Results:

	Disease Severity	Disease Incidence (%)	Disease Index (DX)	Disease Severity	Disease Incidence (%)	Disease Index (DX)
	----------Aug 21, 2015---------			---------Sept. 2, 2015---------		
Check - Untreated Seed	1.50 A	31.1 A	5 A	2.29 A	17.5 A	5 A
Seed Treatment - Eclipse	1.33 A	10.8 B	2 B	2.04 AB	13.3 AB	3 AB
Seed Treatment - Eclipse + ILeVO	1.37 A	14.5 B	2 B	1.62 B	5.7 B	1 B
P-Value	0.8634	0.000	0.0084	0.0731	0.0689	0.1036

	Yield (bu/ac)†	Moisture (%)	Harvest Stand Count	Marginal Net Return ($/ac) ‡
Check - Untreated Seed	59 B*	11.3 B	132,417 B	$525.10
Seed Treatment - Eclipse	60 B	11.3 B	139,250 A	$524.25
Seed Treatment - Eclipse + ILeVO®	62 A	12.4 A	134,583 B	$528.05
P-Value	0.0068	0.0041	0.0118	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, $9.75/acre Eclipse treatment cost and $23.75/acre Eclipse and ILeVO® treatment cost.

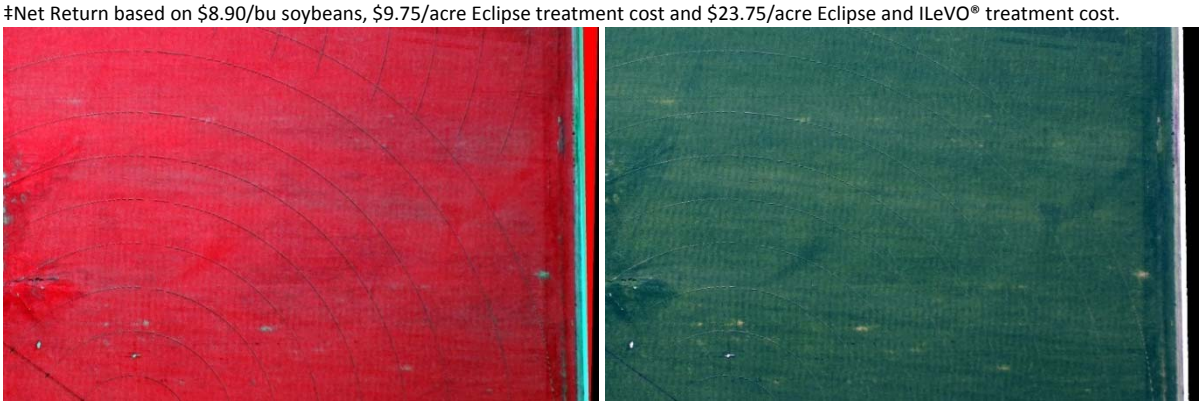


Figure 1: False-color (left) and true-color (right) imagery of the plot area.

Summary: On the first date of disease ratings, the untreated check had a higher disease incidence than the standard treatment and standard + ILeVO® treatment. There was no difference in severity. At the second date, the untreated check had a higher disease incidence and severity than the standard + ILeVO® treated seed. The standard seed treatment had a higher harvest stand count than the untreated and standard + ILeVO® treatment. At harvest, the standard + ILeVO® treated seed had a higher moisture than the standard treated seed and untreated seed. 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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In Partnership with: