

2016 and 2017 ILeVO® Seed Treatment Trial

Purpose: Soybean producers have identified seed treatments as a high priority for evaluation in SMaRT on-farm research trials. ILeVO was selected because Sudden Death Syndrome (SDS) is increasing in Michigan. The purpose of this trial was to evaluate the effect of ILeVO seed treatment on soybean yields and income in fields having a history of (SDS).

Procedure: This trial compared two treatments (a complete seed treatment *without* ILeVO vs. the same complete seed treatment *with* ILeVO). Seven trials were conducted in 2016 and four trials were conducted in 2017. The cooperating producers worked closely with their seed dealers to ensure that all seed planted in each trial was the same variety and seed lot. All seed treatments were applied by local seed dealers and the ILeVO was applied at 1.18 oz per 140,000 seeds.

Soil samples were collected from the same areas in each treatment after planting and again before harvest to determine the effect the ILeVO had on soybean cyst nematode (SCN) population development. The number of SCN eggs and juveniles found in the pre-harvest sample (PF) was divided by those in the post-planting sample (PI) to determine the SCN reproductive index (PF/PI). A lower reproductive index indicates less SCN reproduction.

Results: The occurrence of above-ground symptoms of SDS was minimal at all of the sites in 2016 and 2017. Despite this, the ILeVO seed treatment increased soybean yields by 5 bushels per acre at two of the seven locations in 2016 and by 2.1 bushels per acre at one site in 2017 (figure 1). The numerical yield increases occurring at the other sites were not statistically significant. However, when all the 2016 sites were combined and analyzed, ILeVO increased soybean yields by 2.8 bushels per acre and increased income by \$14.00 per acre. In 2017, the average yield increase due to ILeVO dropped to 1.8 bushels per acre.

ILeVO's effect on SCN population development was mixed in 2016 (table 2) with numerically lower SCN development at three locations and numerically higher development at two locations. In 2017, there was a stronger trend for the ILeVO to suppress in-season SCN reproduction.

We want to thank local seed dealers and Bayer Crop Science for contributing to these trials.



Seed tender for handling bulk soybean seed



Foliar symptoms of Sudden Death Syndrome



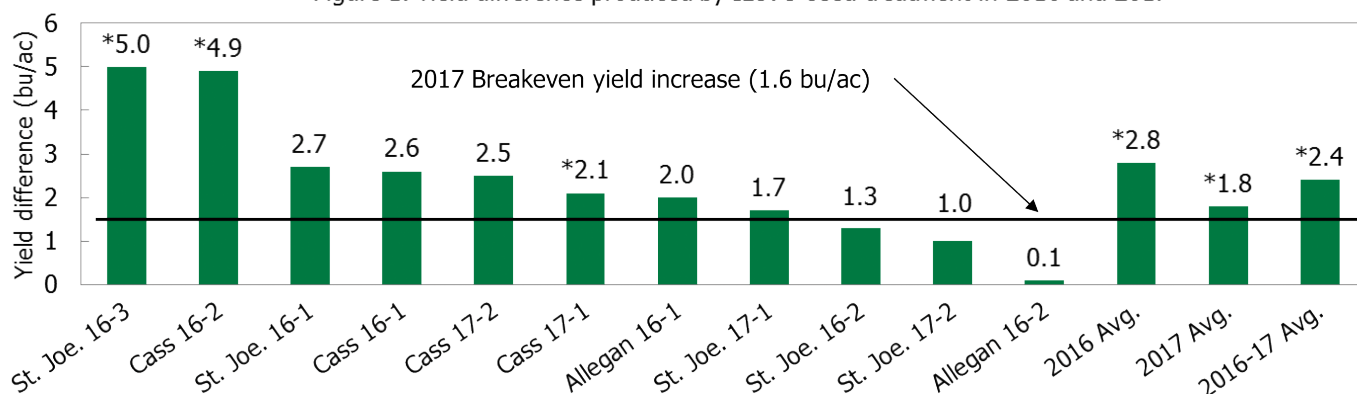
Planting no-till soybeans in Shiawassee County

Table 1. The effect of a ILeVO seed treatment on soybean yield and income in 2016 and 2017

Location	Untreated control	ILeVO	LSD _{0.10}	Yield difference
	Yield (bu/ac)			Yield (bu/ac)
St. Joseph 16-3	66.8 b	71.8 a	2.3	5.0
Cass 16-2	52.0 b	56.9 a	4.5	4.9
St. Joseph 16-1	52.2	54.9	4.2	2.7
Cass 16-1	27.2	29.8	4.6	2.6
Cass 17-2	50.3	52.8	2.7	2.5
Cass 17-1	60.2 b	62.3 a	1.5	2.1
Allegan 16-1	67.7	69.6	2.2	2.0
St. Joseph 17-1	51.9	53.6	3.5	1.7
St. Joseph 16-2	72.7	74.0	2.5	1.3
St. Joseph 17-2	48.8	49.8	1.8	1.0
Allegan 16-2	62.2	62.3	4.2	0.1
Average (2016-2017)	55.6 b	58.0 a	0.8	2.4
	Income (\$/ac)			
Average income	\$512	\$519		

ILeVO cost = \$15.00 per 140,000 seed unit

Figure 1. Yield difference produced by ILeVO seed treatment in 2016 and 2017



* The yield difference was statistically significant at these locations

Table 2. ILeVO seed treatment effects on SCN population development in 2016 and 2017

Location	SCN population after planting (PI)		SCN population before harvest (PF)		SCN reproductive index (PF/PI)	
	Control	ILeVO	Control	ILeVO	Control	ILeVO
	----- SCN eggs and juveniles per 100 cm ³ of soil -----					
St. Joseph 16-3	--	--	2,070	1,225	--	--
Cass 16-2	470	440	5,450	3,372	12	7.7
St. Joseph 16-1	440	235	39,150	40,900	89	174
Cass 17-2	255	190	6,780	3,260	27	17
Cass 17-1	1	1	190	78	190	78
Cass 16-1	15	4	1,690	626	113	156
Allegan 16-1	21	30	5,470	2,240	260	75
St. Joseph 17-1	22	66	14,190	7,040	645	107
St. Joseph 16-2	81	51	2,947	1,735	36	34
St. Joseph 17-2	25	0.5	1,075	114	43	228
Allegan 16-2	0	0	0	0		

The SCN reproductive index measures SCN reproduction during the growing season (lower numbers = less reproduction).