

2016 White Mold Foliar Fungicide Comparison Trial

Purpose: *Sclerotinia Stem Rot* or white mold can cause significant yield reductions in soybeans grown in Michigan. However, the incidence and severity of the disease vary tremendously by year and location. Three factors determine the incidence and severity of white mold: 1) presence and quantity of disease inoculum; 2) environmental conditions favorable to disease development; and 3) a susceptible host. The purpose of this trial was to determine the effect of two commercially available foliar fungicides on soybean yields.

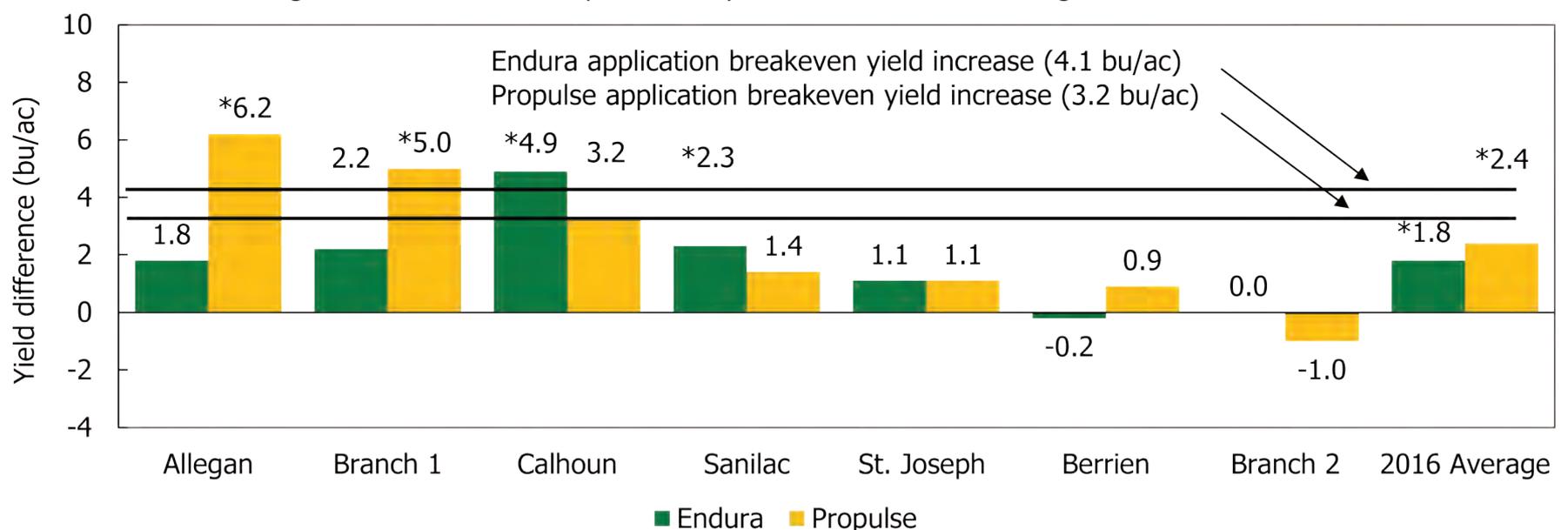
Procedure: This trial consisted of three treatments: 1) Endura®, 2) Propulse® and 3) an untreated control and was conducted at seven locations. Both fungicides were applied at 6 oz per acre about one week after the appearance of the first blossoms. All sprayers were equipped and operated to optimize spray droplet deposition in the canopy. White mold incidence was determined at all locations by counting 100 consecutive plants and recording the number of diseased plants. All counts were taken from approximately the same location in each treatment.

Table 1. White mold foliar fungicide effect on soybean yield and income in 2016

Location	Untreated control	Endura	Propulse	LSD _{0.10}
	----- Yield (bu/ac) -----			
Allegan	54.7 b	56.5 ab	60.9 a	5.3
Branch 1	76.1 b	78.3 ab	81.1 a	4.9
Calhoun	61.3 b	66.3 a	64.6 ab	3.7
Sanilac	66.8 b	69.1 a	68.1 ab	2.3
St. Joseph	73.0	74.1	74.1	2.0
Berrien	86.7	86.5	87.7	3.3
Branch 2	63.0	63.0	62.0	2.0
Average	68.8 b	70.6 a	71.2 a	1.3
	----- Income (\$/ac) -----			
Average Income	\$633	\$612	\$625	

Endura cost = \$30.00 per acre
 Propulse cost = \$22.25 per acre
 Application cost = \$7.50 per acre

Figure 1. Yield difference produced by two white mold foliar fungicides in 2016



*The yield difference between the fungicides and the control was statistically significant at these locations
 The yield difference between the two fungicides was never statistically significant in 2016

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Results: All seven sites had a history of white mold. Environmental conditions favoring white mold development occurred at the Allegan, Branch 1 and Branch 2 locations with overall disease pressure being rated as low to moderate. However, white mold incidence was very low at the other four sites. These four trials demonstrate how the foliar fungicides affect soybean yields and income in the absence of significant white mold pressure. Propulse increased soybean yields compared to the untreated control at the Allegan and Branch 1 locations by 6.2 and 5.0 bushels per acre respectively (figure 1). Endura increased yields compared to the untreated control at the Calhoun and Sanilac locations by 4.9 and 2.3 bushels per acre respectively. Despite the large numerical differences occurring at some locations, the yields produced by the two fungicides were never statistically different. When all seven locations were combined and analyzed, both the foliar fungicides increased soybean yields over the untreated control and were not different from each other. Both fungicides significantly reduced white mold incidence at the Branch 1 and Calhoun locations (table 3). Propulse was profitable at Allegan and Branch 1 and Endura was profitable at Calhoun. However, neither product was profitable at the locations having very low disease pressure.

White mold is a complex disease and foliar fungicides can be a part of a comprehensive management plan that includes resistant varieties, reduced planting populations, row spacing greater than 20 inches, no-tillage, irrigation water management and crop rotation. However, foliar fungicides used alone will not consistently manage white mold.

We want to thank Bayer Crop Science for providing the Propulse, BASF for providing Endura and, Martin Nagelkirk, Dan Rajzer, and Ned Birkey for coordinating these trials.

2016 White mold foliar fungicide program comparison trial locations



Table 2. Planting dates, planting rates, row spacing and fungicide application dates at the trial locations

Location	Planting date	Planting rate	Row spacing	Application date
Allegan	May 19	150,000	Twin 7.5" rows	July 15
Branch 1	--	165,000	15"	July 5
Calhoun	May 5	166,000	15"	July 22
Sanilac	May 7	130,000	20"	July 13
St. Joseph	May 21	130,000	Twin 7" rows	July 13
Berrien	May 18	140,000	30"	July 6
Branch 2	May 7	190,000	15"	July 14



apothecia



sclerotia

Table 3. Foliar fungicide effect on white mold incidence in 2016

Location	Untreated Control	Endura	Propulse	LSD _{0.10}
	----- White mold disease incidence (% infected) -----			
Branch 1	25 a	3 b	11 b	12
Calhoun	58 a	16 b	25 b	27.5