

Evaluation of Foliar Fungicides on Wheat

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Objective

The objective of this study was to evaluate the yield response of wheat to the application of foliar fungicides at specific growth stages.

Background

Crop Year:	2008	Fertilizer(cont.):	230 lb/A 37-0-0-8.5S
Cooperator:	Farm Focus/Marsh Foundation		broadcast topdress (April 17)
County/Town:	Van Wert/Van Wert	Herbicide:	none applied
Soil Type:	Hoytville clay	Variety:	Wellman Seeds W-132
Drainage:	Non-systematic Tile	Insecticide:	Mustang Max @ 3 oz/A on June 17 for armyworm
Previous Crop:	Soybeans	Row Width:	7.5 inches
Tillage:	No-till	Planting Rate:	2,100,000 seeds/A
Soil Test(2005):	pH 6.7, P 30 ppm, K 158 ppm	Planting Date:	October 8, 2007
Fertilizer:	295 lb/A 10-19-20 surface broadcast (October 6)	Harvest Date:	July 10, 2008

Methods

This study was designed with two foliar fungicide programs and a nontreated check treatment. All three treatments were replicated four times in a randomized complete block design. The treatments were:

- 1) Nontreated check- no foliar fungicide
- 2) Stratego @ 5 oz/A at Feekes 7, followed by Proline @ 5 oz/A at Feekes 10.5.1
- 3) Proline @ 5 oz/A at Feekes 10.5.1

Both the Stratego and Proline fungicide applications included the addition of a non-ionic surfactant (NIS) at 0.125% volume per volume, and were applied at 15 gallons per acre and 45 psi operating pressure. The Stratego treatments were applied on May 6 with the wheat at the Feekes 7 growth stage (two nodes visible above soil surface just prior to flag leaf emergence). This application was intended to help protect the flag leaf mainly from powdery mildew infection. All Proline treatments were applied on May 28 with the wheat at the Feekes 10.5.1 growth stage (beginning flowering) to help protect against Fusarium head scab infection.

The study was scouted for foliar disease presence and severity on May 21, two weeks after the Stratego application. Head scab assessments were conducted on June 23 to determine the percentage of infected heads. This was accomplished by counting the total number of heads in one foot of row, and the number of heads within this same sample infected with head scab. These assessments were completed at six separate locations in each plot. The number of heads per acre was estimated from the total number of heads counted in one foot of row during the head scab assessment. These counts were converted to heads per acre. Harvesting was

accomplished with a John Deere 6620 combine equipped with a calibrated AgLeader PF3000 yield monitor. Plot grain weights were determined with a calibrated weigh wagon. Moistures were taken from the average yield reading for each plot. All yields were adjusted to 13.5% moisture.

Results

Table 1. Harvest moisture, yield, head count, and percent head scab means¹.

Treatment	Moisture (%)	Yield (bu/A)	Head Count (heads/A)	Head Scab (% heads)
Nontreated Check- no foliar fungicide	13.8	82.5	3,264,000	10.8 b
Stratego @ 5 oz/A f/b Proline @ 5 oz/A	13.9	84.4	3,455,800	6.0 a
Proline @ 5 oz/A	14.0	82.7	3,249,600	6.5 a
LSD (P=0.05)	NS	NS	NS	3.1
CV(%)	< 1	2.3	9.5	22.9

¹ Means followed by the same letter in the same column are not significantly different.
NS= not significant

Summary

The results of this single-year study indicate there were no statistical differences among the treatments for moisture, yield, or head count. The study did show a statistical difference for the percentage of heads infected with head scab, with the fungicide treatments showing a significantly lower incidence. However, this lower scab incidence did not translate into a significant yield increase, but it potentially may have contributed to the reduction of vomitoxin contamination. Vomitoxin was not quantified in this study. Scouting of the test field plots for powdery mildew and other disease pressure two weeks after the May 6 Stratego application indicated only low levels of disease in any of the plots, including the nontreated checks.

The Stratego plus Proline applications would require an additional 6.4 bushels of yield in order to cover the cost of the products and two applications. The Proline application alone would require an additional 4.2 bushel yield increase in order to cover the cost of product and application. This was based on in season pricing of Stratego at \$6.80/A, Proline at \$19.30/A, a wheat market price of \$6/bushel, and a cost of \$6/A for each application.

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