

## Foliar Fungicide Applications on Corn 2016—Ken Simpson Farm

Kiersten Wise, Purdue University  
Email: [kawise@purdue.edu](mailto:kawise@purdue.edu) Phone: 765 496-2170

An on-farm research trial was established to determine the effect of an early-season foliar fungicide application on disease control and yield of corn. The trial was set up as a randomized complete block design with six replications of each treatment in the designated field. Treatment consisted of the foliar fungicide Preemptor applied at a rate of 5 fl oz/A at growth stage V7-V8, and a non-sprayed control. Plots were 120 ft wide and at least 1,000 ft long. Foliar disease severity was assessed for 5 consecutive plants at 3 locations in each plot at growth stage VT-R1, and again at R4. Percent disease severity on the ear leaf for all foliar diseases was recorded at each time, and averaged over the 5 plants per location. Final yields were adjusted to a standard of 15.5% moisture.

In order to determine the true effect of fungicide on disease severity and yield data were analyzed using statistical analysis software (SAS PROC GLIMMIX) and treatment means for disease severity and yield were compared at the  $\alpha = 0.05$  significance level. When significant effects were observed, means were separated using the least-squared means function in SAS. This procedure allows us to estimate the effects of natural variation (soil type, topography, environment, etc.) and look solely at the effect of fungicide on disease severity and yield.

### Results:

Foliar disease severity was very low in the trial at the time of application, and also at the first disease severity rating at VT-R1 (Table 1). Gray leaf spot was the primary disease observed at this rating time, and disease was present on the ear leaf in all plots, but was at low levels (1-2%). Statistical differences in disease severity at this time were observed as fungicide application reduced disease by 1%. Hot, humid conditions and rainfall in August increased gray leaf spot severity, and at R4, disease severity levels exceeded 10% in all plots. Disease severity was statistically similar in both fungicide treated and non-treated plots at the final disease rating date (Table 1).

Fungicide significantly affected yield. Fungicide treatment increased yields by approximately 10 bu/A in 2016 (Table 1). Despite low disease levels at the time of application, it appears that the fungicide suppressed disease development through tasseling and early grain fill (Preemptor has 14-21 days of activity in the plant) and this delay in disease development prevented yield loss due to disease.