Corn and Grain Sorghum Promotion Board
2015 End-of-year Report

Title: Assessment of fungicides applied at an early growth stage for suppression of NCLB and importance of lesion nematode in corn.

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Objectives:

1. Compare fungicides at early growth stages to standard VT/R1 applications for control of NCLB.
2. Evaluate isolates of NCLB for resistance to strobilurin fungicides.
3. Survey for lesion nematode in Arkansas corn as well as other diseases.

Objective 1: Field trials were conducted at Pine Bluff (PB), Hope, and Rowher to evaluate the effect of fungicide applied at an early stage of growth on disease suppression and benefit to yield. The treatments were: 2.0 oz Stategro YLD/ac applied at V6, 3.0 oz Stategro YLD/ac applied at VT, the combined V6 + VT, and a non-treated control. Treatments were arranged in a RCBD. There was no NCLB in any of the three locations, so disease severity was percent of ear leaf infected with southern rust at R5. Plots were harvested at each location and grain moisture was adjusted to 15.5% moisture.

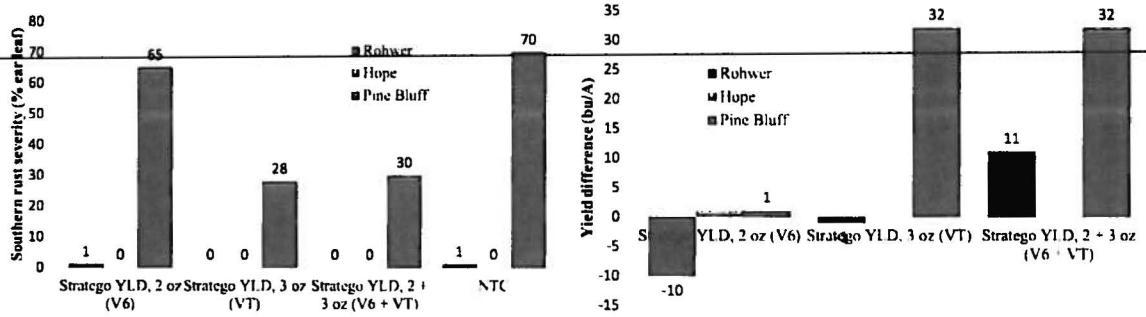

Figure 1. Evaluation of fungicide applied at V6, VT, and V6 + VT for suppression of southern rust and yield protection at three locations across the state.

Conditions were favorable for southern rust with 70% of the ear leaf infected at R5 growth stage on the NTC at PB (Fig. 1). Suppression ($P = 0.10$) of southern rust was observed with the VT treatments over the NTC and V6 only treatment at PB. This contributed to a significantly higher yield difference (32 bu/A) for the VT treatments over the NTC (AgVenture R9583, 159 bu/A) and V6 treatment. Given the current break even scenario of 5 to 10 bu/A, these treatments would have been profitable to the producer. For the past few years this trend has been clearer; the effect of fungicides on yield is affected by disease severity, and this year was no exception. For example, at the Rohwer (NTC = 161 bu/A) and Hope (NTC = 56 bu/A, dry) location, where there was little or no disease and no benefit to yield. Finally, treatments at V6 rarely provide a yield benefit and are not recommended for use by the Arkansas producers.

Objective 2: There was little NCLB across the state due to environmental conditions, thus no isolates were collected. Studies are underway to compare the genetic background of isolates collected in 2014 on grain sorghum, Johnson grass, and corn to determine if these are the same pathogen. This information would be helpful to determine the impact of fungicides on selecting strains with fungicide resistance.

Objective 3: Three locations were identified this year to monitor the types of nematodes present in corn at the end of the season. Data from the 2015 corn samples (n = 6) suggest lesion, spiral, and lance are

more common in corn than cotton and soybean fields in central Arkansas. These sites will be monitored to determine the effect of rotation on nematode population densities.