

CORN and GRAIN SORGHUM BOARD PROPOSAL—Progress Report, December 2008.

Title: Assessment of the Importance of Nematodes and Foliar Disease in Corn in Arkansas

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Objectives:

- 1) Determine the yield loss associated with root-knot nematodes and foliar diseases in field corn.
- 2) Evaluate new and current corn hybrids for resistance to root-knot nematodes and foliar diseases.

There were a total of 4 Disease Management Plots planted from May to late June for foliar disease evaluation at select locations throughout the state: 1.) Lafayette Co. near Gin City, 2.) Jefferson County, 3.) Jackson County (Newport Research Center), and 4.) Crawford County (Kibler Vegetable Substation). Plots in the test were evaluated for incidence and severity of diseases in early August at all locations. Individual plots of each hybrid or line (four replicates) were assessed for disease severity. Southern rust and northern corn leaf blight were the only two economical important diseases observed in the four locations with southern rust being moderate to severe. There was a large variation in southern rust across the 30 hybrids evaluated. Southern rust incidence was at 100% and severity ranged from 10.3 % to 52.5% severity indicating that some hybrids may be less susceptible. A fungicide by hybrid test was also conducted at the Newport research center in August to determine the response of hybrids to select fungicides in the presence of disease. There was an average of 6 bushel increase recorded in the fungicide plots compared to the untreated check. All data have yet to be analyzed. Significant lodging occurred at all plot locations due to hurricanes Gustav and Ike in August and September resulting in a loss in yield data.

A greenhouse screening was just completed on all the varieties in the 2008 corn variety test for root-knot nematodes resistance and/or tolerance. 96 hybrids that were entered into the 2008 Arkansas Corn Variety Test were evaluated for root-knot resistance in greenhouse tests. All of the hybrids were susceptible with nematode reproduction ranging from (35,000 to 207,600 nematodes/gram of root). Telone II at 3 and 6 gal/ acre in field length plots were evaluated in a grower's field in Lafayette County with a high root knot and lesion nematode population. Telone II @ 3 gal averaged 6 bu more than the untreated plots and 13 bu more than the 6 gal rate. Significant lodging occurred at all plot locations due to hurricanes Gustav and Ike in August and September resulting in a loss in yield data.

Fungicide trials were also conducted to evaluate all commercially available and experimental fungicides for control of southern rust. Results are currently be analyzed and will presented in the year-end report.

Thanks to the Arkansas Corn and Sorghum Promotion Board and the Corn growers of Arkansas for continuing to make this program possible.