

ARKANSAS SOYBEAN PROMOTION BOARD RESEARCH PROPOSAL UPDATE

Title: Effect of various application timing and rates of ASR fungicides on endemic foliar diseases in Arkansas

Investigator(s): Mr. Cliff Coker, Dr. Scott Monfort - Cooperative Extension Service. Dr. John Rupe, Plant Pathology

Priority Area: Priority I: Improving Soybean Profitability

Status: New, (year one of three)

In summary, research on this problem can be justified because 1) these diseases are causing economic yield loss on soybean each year; 2) we need more and better data to support recommendations for control and 3) Arkansas growers and county agents are currently requesting help on this problem through research.

Results: Soybean plots were grown at high plant populations and narrow rows to hasten canopy closure and density. This, along with irrigation, has increased the relative humidity within the canopy enough for Anthracnose, Pod & Stem Blight, Downy Mildew, and Asian Soybean Rust development. Six replicated 13 treatment fungicide tests were conducted at the Northeast Research and Extension Center, Keiser, AR and Southeast Branch Station, Rohwer, AR. Additional replicated test were also conducted in grower fields in Lonoke, Clark, Cross, Desha, and Drew counties as Asian Soybean Rust and Aerial Web Blight began developing in the Arkansas. The plots

relied upon natural infestation of the diseases endemic to the area. Disease incidence and severity was determined at seven day intervals throughout the growing season. Natural infestation levels of diseases were monitored weekly from pod set (R3) to maturity (R8). Each disease, incidence, severity at each stage of plant development were compiled for each location and is in the process of being statistically analyzed. The drought across Arkansas prevented or stopped all foliar disease development until after R6 and the soybeans yields had been established; therefore, disease pressure was very sporadic throughout the delta and fungicide use had little effect on yields. Anthracnose and Pod & Stem Blight ratings are still being evaluated on all plots. During 2007 Aerial Web Blight was detected in Cross county at R2, Asian Soybean Rust was detected at six locations but developed to measurable severity levels at only one location, that being Lonoke county. To date, none of the test treatments at any of the locations provided significant yield advantages over the untreated checks. All treatments at the Lonoke county location provided significant reduction in sporulation of Asian Soybean Rust, but rust severity levels did not impact yields. Data was collected to determine the effect of various rates, timing of various fungicides to foliar diseases, including green stem, delayed maturity and other abnormalities will be recorded until plants are ready for harvesting. Disease development and yield were determined.