

Soybean Board Research Report

Monitoring Soybean Sentinel Plots for Early Detection of Soybean Rust

Sikora, E. J., D. Delaney, J. Mullen, A. Gutierrez-Estrada, R. Yates, W. Griffin, R. Petcher, L. Kuykendahl and D. Derrick.

The soybean sentinel plot system was established with additional support from the North Central Soybean Research Program and USDA-APHIS. The sentinel plot system was set up in 28 States in the U.S. including Alabama. The sentinel plot system was used for early detection of Asian soybean rust and for epidemiological studies. A soybean sentinel plots was a 50 x 50 ft plot of soybeans planted approximately 2 weeks prior to the standard planting date for an area. Twenty soybean sentinel plots were established around the State in the following counties: Autauga, Baldwin, Calhoun, Chilton, Clarke, Coffee, Covington, Cullman, Dallas, DeKalb, Elmore, Escambia, Fayette, Henry, Lee, Limestone, Pickens and Talladega. Ten plots were planted on Auburn University Research Stations while another 10 were set up in commercial soybean fields. In addition, 15 kudzu patch sentinel plots were also identified.

Soybean and kudzu sentinel plots were monitored one-to-two times a week from the first true leaf stage through harvest for soybeans and from leaf emergence through a killing frost for kudzu. Scouting of selected commercial soybean fields and random kudzu patches was also undertaken. Leaves from plants suspected of being infected with soybean rust were collected and taken to the Auburn University Plant Diagnostic Laboratory in Auburn for disease confirmation. Information obtained from the sentinel plot system was used to support the USDA National Soybean Rust Information web site (SBRUSA.NET) and the Auburn University Soybean Rust Hotline (1-800-774-2847).

By mid December, soybean rust was detected in 34 counties in Alabama. This included 10 soybean sentinel plots, 17 commercial soybean fields, and 22 random kudzu patches. Soybean rust was detected in the following counties in Alabama: Autauga, Baldwin, Barbour, Bullock, Chambers, Chilton, Clarke, Coffee, Conecuh, Covington, Dale, Dallas, DeKalb, Elmore, Escambia, Geneva, Greene, Hale, Henry, Houston, Jackson, Lee, Limestone, Macon, Marengo, Marshall, Mobile, Montgomery, Pickens, Pike, Russell, Shelby, Sumter and Talladega. The system allowed for early detection of the disease and gave growers some lead-time to determine if a fungicide application was necessary for their operations.