DISTRIBUTION OF ASIAN SOYBEAN RUST IN ALABAMA

2004-2006

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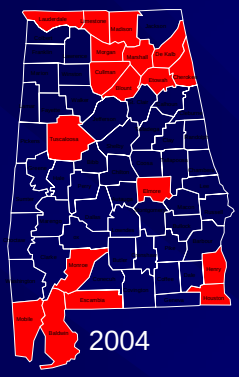

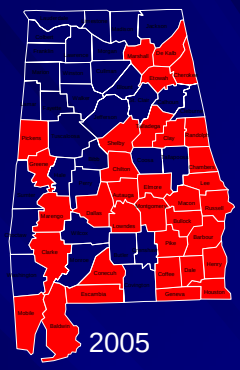

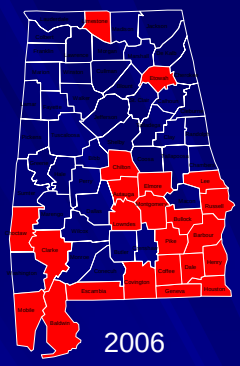

Soybean rust distribution in Alabama-Positive sites

Asian soybean rust (ASR) is caused by the fungus *Phakopsora pachyrhizi*. This fungus was originally identified in Japan in 1902 and has since traveled across Asia, Africa, and South America before discovery in the continental United States in late 2004. The primary mode of spread of this disease is by spores carried on wind currents. It is theorized that spores of ASR were carried to the southeastern United States by wind currents associated with Hurricane Ivan.

The disease in 2004 was most commonly found on green leaf tissue on older or volunteer soybeans. Detection came at a time when most soybeans had already been harvested.

In 2005, soybean sentinel plots were established across Alabama as an early warning system for soybean producers. Twenty soybean sentinel plots were planted with early maturing varieties two-to three weeks prior to normal planting dates on producer or Auburn University Experiment Station land. These sites were checked weekly by Extension Agents and Specialists, and other trained scouts. In addition, 15 kudzu patches were also monitored weekly.

ASR was first detected in a soybean sentinel plot in Baldwin County in South Alabama in late June. By the end of 2005 the disease was found in a total of 32 counties within the State. Positive ASR locations included 17 commercial soybean fields, 10 soybean sentinel plots and 22 kudzu patches. However, there was little significant yield loss in commercial soybeans, likely due to low initial levels of disease inoculum and a relatively high number of producers applying fungicides.

In 2006, 20 soybean sentinel plots were planted on producer or Auburn University land. Most sites on producer fields had 2 varieties of varying maturity to extend the scouting season. Most sites on University land had two plantings, one month apart, with two different maturity varieties. Extension personnel collected 50 leaves from each planting/variety weekly, with samples sent to the Auburn University Plant Diagnostic Laboratory via FedEx for microscopic examination. In addition, 15 kudzu patches were also monitored weekly, as were randomly selected soybean and kudzu sites around the State.

As in 2005, ASR was first detected in a soybean sentinel plot in Baldwin County in late June of 2006. Due to extremely dry conditions, spread of ASR was extremely slow with the majority of positive ASR findings occurring after mid-September. By the end of November, ASR has been detected in 23 counties. Positive ASR locations include eight commercial soybean fields, five soybean sentinel plots and 24 kudzu patches. There have been no reports of significant yield loss in commercial soybean fields in 2006.

More than 27,000 leaves were examined under a dissecting microscope in our laboratory, after a minimum of 24 hours incubation, for the presence of ASR. In addition, a random sample of soybean and kudzu leaves judged positive for ASR were analyzed by RT-PCR and the species confirmed.

Random kudzu patches will continue to be monitored through the end of December. Winter sentinel kudzu sites will be identified and monitored beginning in January, 2007.

Soybean leaf with ASR and target leaf spot

Soybean sentinel plot with ASR symptoms

Sentinel plot for soybean rust monitoring