Asian soybean rust (ASR) will likely be a continuing problem for Alabama farmers based on the results of monitoring efforts over the last three years. Asian Soybean Rust successfully survived on kudzu during the winters of 2005/06 and 2006/07. However, a drought in 2006, and a late frost coupled with drought in 2007, has prevented ASR from being a significant problem for soybean growers outside of the Gulf Coast region of the State. For three consecutive years, ASR has first been detected on soybeans in Baldwin County in the southwest corner of Alabama in late June. Weather conditions have been more favorable for early season development of ASR in this area and most growers have followed a protective spray program with success. Growers in the remainder of the state who were subjected to two consecutive years of drought have used fungicides much less frequently as the threat of rust and other fungal diseases was minimal. In 2005, with moderate moisture conditions, ASR was detected in 35 counties. In 2006, ASR was detected in only 26 counties with the majority of reports occurring late in the year. The drought of 2007 has resulted in a similar pattern as 2006. Mild winters during the last two years have allowed ASR to overwinter successfully in Alabama but drought conditions have kept the disease from becoming a major problem. We suspect that a mild winter followed by a wet spring will result in a much more rapid spread of ASR in some upcoming year and growers will need to be prepared.

Abstract

In 2007, 20 soybean sentinel plots were planted on producer or Auburn University Alabama Agricultural Experiment Station land. Lack of soil moisture prevented several sites from being planted or did not sustain plant growth. These sites were moved to alternate locations where possible.

Most sites on producer fields had 2 varieties of varying maturity soybeans 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 additional kudzu patches were also monitored weekly, as were randomly selected soybean and kudzu sites around the State. Farmer participation doubled this growing season as ASR awareness intensified. Leaves were sent in by the County and Regional Extension Agents as well as the producers themselves.

Because of the extreme drought, many fields that were planted in cotton and corn were destroyed and replanted in late June and July with different maturity group soybeans. These late planted fields, particularly in south Alabama, were likely very susceptible to ASR, but scouting data has not been analyzed.

Results

As of the end of November, 2007: 28 counties were reporting rust, 19 with ASR on soybeans the rest on kudzu. More than 40,000 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 by microscope were analyzed by RT-PCR and the species confirmed.

Future Plans

Random kudzu patches will be monitored through the end of December 2007. Winter sentinel and known positive overwintering kudzu sites will be identified and monitored beginning in January, 2008.