



Arkansas Soybean Rust Working Group Update



Since the confirmation of soybean rust in Louisiana and later in Arkansas, many members within the University of Arkansas – Division of Agriculture have been busy. Prior to the discovery of soybean rust, several faculty members had already begun preparing for the appearance of this devastating disease in the United States.

The Arkansas Soybean Rust Working Group consists of

Plant Pathologists: Sung Lim, Rick Cartwright, Terry Kirkpatrick, Cliff Coker, John Rupe, Mark Trent, Kim Hurst, Steve Vann

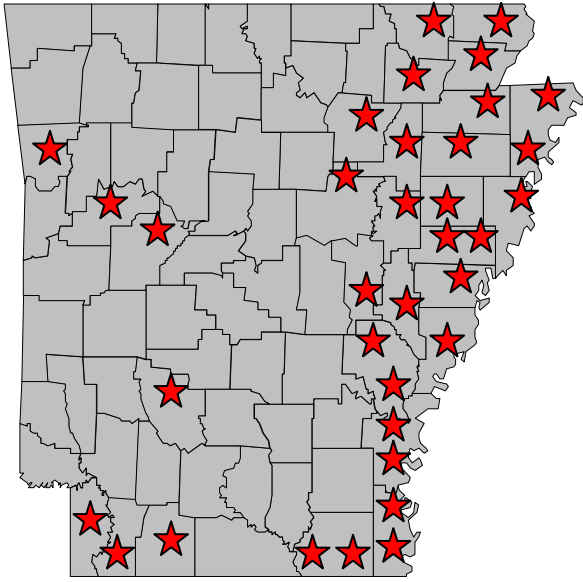
Soybean Agronomists: Chris Tingle, Dwayne Beaty, Trey Reaper

Advisors: Gus Lorenz (IPM Coordinator), Hank Chaney (County Extension Agent), Terry Walker (Arkansas State Plant Board), Joel Bard (USDA-APHIS)

Soybean Sentinel Plot Description and Methods – Arkansas

Since the fall of 2004, the Arkansas Soybean Rust Working Group has identified methods for early detection in case this disease appeared during the 2005 growing season. The USDA and other land-grant institutions have proposed using sentinel plots as a means of possible early detection, thus warning production areas and allowing them to implement control measures. Experience in South America has indicated that symptoms of soybean rust are expressed more during the reproductive developmental stages of soybeans. In order to provide an extended period within the reproductive stages of soybean development, sentinel plots containing a wide-range of maturity groups will be established beginning in March 2005.

Sentinel Plot Establishment: Locations throughout Arkansas will be established during March – early April. These locations will include Experiment Stations, Soybean



Research Verification Fields, and cooperator fields. The goal of these plots is to ensure early notification to all areas of soybean production in Arkansas, so locations will be established within as many soybean-producing counties as possible. However, soybean rust is expected to develop in a “south to north” direction during the spring and summer, moving by wind from overwintering sites in the Caribbean region northward across the U.S. Due to this possibility,

Southern Arkansas counties such as Chicot, Ashley, Little River, and Lafayette may have multiple sentinel plot locations.

Maturity Groups and Planting Procedures: Soybean cultivars from maturity groups 2, 3, 4, and 5 – including both determinate and indeterminate types – will be included. Individual plots of each sentinel cultivar will be approximately 25 ft. wide by at least 50 ft. (up to 100 ft.) long for each maturity group (up to a maximum of 10,000 square feet or 0.23 acres for the entire sentinel site of 4 plots). Field locations should be along field edges or corners to facilitate easy planting and inspection. Due to the earliness of these plantings, locations with adequate drainage and lighter soil textures will be used to encourage uniform establishment and survival. Planting dates should begin as soon as possible after March 1 (although plantings from March 14 on will more likely result in uniform stands and survival, based on historical weather patterns). A no-till grain drill or no-till 15” planter will be used to plant each location. To ensure adequate germination and emergence, a broad spectrum fungicide seed treatment will be used, and suggested seeding rates will be at least 250,000 seeds per acre.

Scouting/Sampling Procedures: Sentinel locations will be intensively scouted and sampled weekly at first and three times per week starting at R1 for the earliest cultivars and locations. Leaf samples will be collected from the lower, middle, and upper canopy and inspected microscopically for evidence of soybean rust (*Phakopsora pachyrhizi*); the samples will be incubated in moist chambers to encourage sporulation of any suspect rust pustules.

Reporting: Observations and other information gathered from sentinel plots and field monitoring will be disseminated to growers and the Arkansas soybean industry via county extension offices, the Arkansas Soybean Rust Alert Network, and the *Soybean Notes Newsletter*. Should soybean rust be confirmed, existing protocols for warning growers in Arkansas and other states will be followed. Infected sentinel plots will be destroyed immediately to minimize inoculum production and spread in the immediate area.

Soybean Rust First Detector Training

Shortly after the confirmation of soybean rust in Arkansas, the Soybean Rust Working Group created guidelines for identifying and training personnel in the state who are involved in the daily activities of soybean production. Approximately 700 professionals involved in Arkansas agriculture were identified and contacted to attend one of the eleven training sessions planned throughout the state. These included, but were not limited to county extension agents, consultants, agri-industry personnel (seed, pesticide, retail sales persons, etc.), producers, and other interested persons.

It was apparent from South American reports that rapid positive detection of soybean rust was critical in order to minimize production losses. Since the symptoms of soybean rust resemble other foliar diseases commonly found in Arkansas, proper identification was essential. In addition, with the recent approval of fungicides not currently used in soybean production, proper education about application rates, timings, and methods

was also needed. Therefore, an intensive training and certification plan was initiated. The following outlined was developed:

- I. Soybean Rust Overview
 - History and Introduction of Asian Soybean Rust into the U.S.
 - Soybean Rust Pathogen Biology
 - Disease Cycle and Epidemiology
 - Survival and Movement
- II. Disease Identification
 - Soybean Rust–Symptoms
 - Look-alike Diseases–Symptoms
- III. Hands-on Soybean Rust Identification and Field Microscope Use
- IV. Scouting for Soybean Rust
 - Sentinel Plots Monitoring
 - Collection and Management of Suspect Plant Samples
- V. Soybean Production Practices and Soybean Rust
 - Growth Stages, Planting, and Row Widths
- VI. Applying Fungicides Correctly
 - Guidelines for Fungicide
 - Application Equipment (Aerial and Ground)
 - Fungicide Use Decisions
 - Products and Rates
 - Strategies for Rust Management

In addition, the participants were given copies of the most recent printed information regarding soybean rust from the University of Arkansas and USDA, along with cards containing the contact information (mobile numbers and e-mail addresses) for members of the Arkansas Soybean Rust Working Group. We also collected vital information from the participants, including e-mail addresses, telephone numbers, and physical addresses. This information has been compiled into a central database for immediate contacts in case soybean rust is detected again.

Currently we have conducted 10 First Detector Certification Sessions reaching over 500 county extension agents, consultants, agri-industry personnel (seed, pesticide, retail sales persons, etc.), soybean producers, and other interested persons. I feel confident

that because of our staff and the support we have received thus far, soybean production in Arkansas will remain competitive in the global economy.