

FINAL REPORT
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Asian Soybean Rust Monitoring System

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Asian Soybean Rust Monitoring Final Report:

For the most part, the winter of 2016/2017 was very mild in South Carolina and much of the Gulf Coast area of the Southeastern United States. Many “experts” and Farm Chemical Dealers were projecting that this would allow the buildup and early season spread of Asian Soybean Rust (ASR) in the South. This was the projection for South Carolina and many of our growers were budgeting \$25 to \$30 an acre to allow for 2 fungicides sprays when rust became evident in nearby areas. With approximately 380,000 acres of soybean in South Carolina that meant that at \$15 per acre per spray that growers and dealers were projecting \$11,400,000 to be spent on foliar fungicides on soybeans in South Carolina. The South Carolina Soybean Board allocated \$5,000 to pay for 4 Agronomic Row Crops Agents to survey the approximately 40,000 acres of soybeans in the Savannah Valley for rust and other diseases on a biweekly, then weekly schedule as the growing season progressed. Three fields were surveyed in each county every week. The Savannah Valley was chosen for surveying as it is the geographic area furthest south in South Carolina and traditionally the first area in which ASR is found each year. Surveying began earlier than planned as early planted soybeans began blooming in mid-July. Agents recorded the incidence and severity of ASR, Frogeye leaf spot, Septoria Brown Spot and other foliar diseases in the area. Fortunately, incidence and severity of foliar diseases were low, even though we had average to above average rainfall during most of the growing season. The first find of ASR was on August 22, 2017. This was a low level find with one leaf out of 86 having ASR at

a very low incidence level. This shows that sampling fields in the lower savannah valley area can detect ASR at low levels early in the infection cycle. This field was in Hampton County. At that time, our early planted soybeans were at early pod development (R3-R4). Recommendations for fungicide applications were made based on the presence of ASR and the seven day forecast. It was 22 days later when rust was found in a second field, this time in Barnwell County on September 14th. Progression of ASR was slowed in 2017 by a combination of weather conditions and number of fields that were protected after the initial find. Progression of ASR continued to move across the area after the second find, with the help of wind and rain from tropical storm Irma, at the end of the planned sampling time 11 counties had fields with positive ASR finds.

In South Carolina we plant both full season (about 60%) and double cropped (about 40%) soybeans. Based on survey results and weather conditions at the time of the initial find, we would have sprayed the soybeans in the Savannah Valley as we found ASR at very low levels in full season beans. With the slow spread of ASR, a second application was not warranted on full season beans. After ASR started to spread in the state there was only a need for one application on double crop beans as well.

Summary based on survey results:

1. Savannah Valley: 1st spray on 24,000 acres full season = \$360,000 spent, potential savings of 4 bu/ac at \$9.00 per bu = \$36 per ac.
2. Savannah Valley: No 2nd spray on 24,000 acres of full season soybeans (matured before spread in state started) = \$360,000 saved.
3. Savannah Valley: 1st spray on double crop 16,000 acres = \$240,000 spent, potential savings of 4 bu/ac at \$9.00 per bu = \$36 per ac; No 2nd spray needed saved \$240,000

*Research plots from Edisto REC have shown a potential yield loss from 5% to 15% from ASR if left untreated. For estimates of yield savings 10% loss potential was used. Yield of 40 bu/ac was used to estimate potential yield savings at 4 bu/ac.

Total for Savannah Valley spent on fungicide application = \$600,000 resulting in a potential crop savings of \$1,440,000 from the investment of \$5,000 on the survey.

Results of the survey were distributed statewide through ASR News Note emails to growers, extension agents, and ag industry representatives. This would bring in another 340,000 acres under our recommendations, especially for Asian Soybean Rust spray/no spray decisions. If the potential savings were translated to 75% of

the statewide crop the potential savings could have equaled to \$9,180,000, if ASR had developed unchecked.