

THE IMPACT OF ANGULAR LEAF SPOT IN MISSISSIPPI IN 2011**T.W. Allen****Delta Research and Extension Center – Mississippi State University
Stoneville, MS****Abstract**

During the 2011 season, cotton in several commercial Mississippi fields was determined to be infected by the bacterial blight pathogen, *Xanthomonas axonopodis* pv. *malvacearum* (*Xam*). Prior to 2011, bacterial blight was a sporadic disease in MS, typically occurring in extremely low levels or in a limited number of fields on an annual basis but not resulting in a measureable yield loss. The majority of the published literature regarding bacterial blight suggests the most likely primary source of the bacterium is from infested seed. By July 13, reports of bacterial blight from two geographically distinct fields were reported based on observed symptoms and bacterial streaming from symptomatic plant tissues in the laboratory. Bacterial blight symptoms, including angular leaf spots, blackarm, as well as systemic vein infections were present on leaves, petioles, and bracts and young bolls in the two fields contained the characteristic water-soaked, round lesions. Secondary methods of inoculum transport, including wind, windblown rain, hail, and movement of equipment, spread the bacterium throughout numerous fields. By the end of the season, 5 different cotton varieties were determined to be infected with the organism in 11 different counties (Bolivar, Calhoun, Coahoma, Grenada, Leflore, Monroe, Quitman, Sunflower, Tallahatchie, Washington, and Yalobusha) based on field-level surveys. Several of the fields had a history of cotton production; however, one field in Bolivar County had not produced cotton for approximately 5 years, and the field in Monroe County had never previously produced cotton following approximately 30 years in the Conservation Reserve Program (CRP).

Field trials were conducted in Stoneville, MS to determine the observable reaction of 22 varieties contained in the MS Organized Variety Trial (OVT) to *Xam* by inoculating the plants with a layby application of the bacterium in solution (approximately 5×10^5 cells/ml) with a silicon-based adjuvant (Dyne-Amic, Helena Chemical Company, Collierville, TN) at 150 psi. Plants were inoculated shortly after emergence of first white flower. A second block of the OVT entries contained in the same field but separated by 14 rows were not inoculated and served as a nontreated comparison for yield and yield characteristics at the end of the season. Based on observations conducted 14 days post-inoculation, 17 of the 22 varieties were determined to be susceptible to infection by the bacterium while 5 varieties were deemed resistant based on no (or limited plant material containing some lesions deemed to be a hypersensitive response) observable symptomatic tissue. Inoculated plots were taken to yield. Although additional data analyses are currently being conducted, in general, inoculation with *Xam* reduced yield (averaged across all 22 varieties) by 26%. In addition to plant height (cm) measurements on inoculated and non-inoculated plants, numerous yield quality characteristics were collected, including 100 seed weight (g), color, elongation (%), gin turnout (% lint turnout), grade, length, micronaire, strength, and uniformity (%). Producers having fields that contained bacterial blight infected cotton during 2011 are limited in their management to prevent the disease from occurring in 2012 since even though the potential for the organism to overwinter is limited it can occur given proper environmental conditions (e.g. mild winter). Producers in MS are urged to either rotate to another crop, plant a resistant cotton variety, or, as a last resort bury stubble to minimize survival of *Xam*.