

EFFECT OF BACTERIAL BLIGHT INOCULATION TIMINGS ON COTTON YIELD**B. Wilson****D. M. Dodds****C. A. Samples****M. Plumblee****A. B. Denton****S. S. Davis****L. X. Franca****Mississippi State University****Mississippi State, MS****Abstract**

Bacterial blight, caused by *Xanthomonas citri* pv. *malvacearum*, is a seedborne bacterium that is able to survive in infected crop residue. Bacterial blight was a major disease prior to 1970, before acid was used to delint cotton seed. In 2011-2012, an outbreak of bacterial blight occurred in Mississippi, where 12 counties were confirmed to have bacterial blight in 2011, and 25 counties were confirmed with bacterial blight in 2012. Bacterial blight of cotton can result in up to 25% reduction in cotton yield. The objective of this research was to determine the effect of bacterial blight inoculation timings on cotton yield. Experiments were conducted in 2016 in Starkville, MS and Brooksville, MS to evaluate bacterial blight inoculation timing on cotton yield. Plots were planted with Deltapine 1522 B2XF (Susceptible) and Deltapine 1518 B2XF (Resistant) in a non-irrigated production system. Plots consisted of four rows with four replications in a randomized complete block design. Inoculation timings were at pinhead square, first bloom, bloom + 2 weeks, bloom + 4 weeks, and bloom + 6 weeks. A liter of inoculum was used at each location. There were approximately 280,000,000 bacterial cells in each liter. Equipment used during the application of the inoculant consisted of a mudmaster sprayer with TTJ60-11004 spray tips. Bacterial blight inoculum was applied at 280 L/ha, at 483kPa, and at a speed of 3 kph using Lechler drop nozzles with two nozzles per row. Data collected consisted of bacterial blight ratings (0-100), plant height, total nodes, NAWF, NACB, and seed-cotton yield. Data were subjected to analysis of variance using PROC GLIMMIX procedure in SAS 9.4 and means were separated using Fishers protected LSD at $P = 0.05$. No significant differences in yield were observed among inoculation timings. Early infection timing ratings in DP 1522 B2XF (18%) were significantly higher than those ratings collected at bloom (7%), bloom + 2 weeks (7%), bloom + 4 weeks (6%), bloom + 6 weeks (4%). Deltapine 1522 B2XF had significantly greater plant heights at bloom and harvest than Deltapine 1518 B2XF. Yield of Deltapine 1522 B2XF (1029 kg/ha) was significantly greater than Deltapine 1518 B2XF (936 kg/ha) in this experiment.