

EVALUATION OF PLANTING DATE, VARIETY, AND PRE HERBICIDE ON THRIPS INFESTATION AND COTTON GROWTH, DEVELOPMENT, AND YIELD**J. Drake Copeland****D.M. Dodds****T.H. Dixon****D. Zachary Reynolds****C.A. Samples****A.L. Catchot****Mississippi State University****Mississippi State, MS****J. Gore****Delta Research and Extension Center****Stoneville, MS****D. Wilson****Monsanto Company****St. Louis, MO****Abstract**

Planting cotton at the most optimal time is crucial for successful production. However, planting cotton in inclement conditions that are often present early in the season can reduce plant populations as well as seedling vigor. In addition to weather conditions at planting, early season thrips infestation and weed control can impact early season growth and development. From 2008 to 2012 the number of cotton bales lost due to thrips damage in Mississippi increased from 152 to 5,057. With cotton being naturally slow to develop in the early stages, proper protection from thrips is essential for optimum early season development. Insecticidal seed treatments are utilized on almost every acre in Mississippi. Simultaneously, the use of preemergence (PRE) herbicides has drastically increased across the state due to the proliferation of glyphosate-resistant Palmer amaranth. PRE herbicides can cause injury on seedling cotton and intensify damage from other environmental factors. However, previous research evaluating the effect of planting date and PRE herbicides on cotton growth, development, and yield is lacking. Therefore, this research was conducted to determine the effect of planting date, PRE herbicide, and cotton variety on thrips infestation as well as cotton growth, development, and yield.

This study was conducted at three locations in Mississippi which included the Black Belt Branch Experiment Station near Brooksville, the R.R. Foil Plant Science Research Center near Starkville, and Delta Research and Extension Center in Stoneville. Two different levels of varieties were used in this study which included DP 0912 B2RF (short season) and DP 1252 B2RF (long season). Planting dates utilized were May 15th (Early), June 1st (Middle), and June 15th (Late). Inclement weather conditions prevented earlier planting dates in 2013. Acceleron N seed treatment (thiamethoxam + pyraclostrobin + abamectin) was utilized on each variety. Fluometuron (Cotoran 4L) + S-metolachlor (Dual Magnum) was applied preemergence at 1.12+ 1.07 kg ai/ha, respectively. In addition, an untreated check (with respect to herbicides) was included for comparison purposes. This experiment was arranged as a factorial arrangement of treatments in a randomized complete block design, with the three factors being planting date, variety, and PRE herbicide. All data were subjected to analysis of variance and means were separated using Fishers Protected LSD at $p = 0.05$.

Cotton planted May 15 had significantly less biomass at the 2-leaf stage and the 4-leaf stage than cotton planted June 1 and June 15. DP 0912 B2RF had significantly more biomass than DP 1252 B2RF at the 2-leaf stage and the 4-leaf stage. Cotton planted June 1 had significantly greater infestation of immature thrips at the 2-leaf stage and the 4-leaf stage compared to cotton planted May 15 and June 15. DP 1252 B2RF was taller at harvest than DP 0912 B2RF within each planting date. PRE herbicide had no impact on plant height at harvest for cotton planted May 15 and June 1. Cotton planted June 15 and treated with fluometuron + S-metolachlor was significantly shorter than cotton with no PRE herbicide planted the same day. DP 0912 B2RF had significantly greater seed cotton yields than DP 1252 B2RF when planted June 1 or June 15; however, when planted on May 15 yields were similar between DP 0912 B2RF and DP 1252 B2RF.