EVALUATION OF GROWTH CHARACTERISTICS OF MODERN COTTON VARIETIES IN GEORGIA, 2014

Brock A. Ward
T. Jay Hathorn
Nicholas D. McGhee
D. Scott Carlson
Larry Varnadoe
Brian Cresswell
University of Georgia
Tifton, GA
Jared R. Whitaker
University of Georgia
Statesboro, GA
Guy D. Collins
University of Georgia
Tifton, GA

Abstract

Prior to 2010, approximately 85% of Georgia's cotton acreage was planted to a single full-season variety, DP 555 BR. With the removal of this variety from the market, Georgia's cotton growers must now choose from many other varieties that differ in maturity, growth potential, management requirements, and response to environmental stress. Due to the increasingly rapid release of modern varieties onto the market, evaluation of plant growth and fruiting characteristics is necessary in order to provide timely, accurate, and research-based information to growers. Evaluation of such parameters could provide insight on how growers should manage new varieties with plant growth regulators, irrigation, or other agronomic inputs.

As part of the UGA On-Farm Cotton Variety Performance Evaluation Program, 12 top-performing cotton varieties were planted in growers' fields in both irrigated and non-irrigated environments across all regions of Georgia's cotton belt. All varieties were planted in six-row plots, and were replicated three times. Prior to harvest, the authors collected plant height, total nodes, total bolls, and position of bolls for each variety in the trials: Terrell County (high-yielding irrigated) & Early County (low-yielding non-irrigated). The following varieties were evaluated: CG3787B2RF, DP1050B2RF, DP1137B2RF, DP1252B2RF, NG1511B2RF, NG5315B2RF, PHY333WRF, PHY499WRF, PHY575WRF, ST4946GLB2, ST6448GLB2, and ST4747GLB2.

Data were subjected to Analysis of Variance, and means were separated using Fisher's Protected LSD at $p < 0.05$. Plant height was significantly different among several of the varieties tested, with a range of approximately 20 inches between the tallest and shortest variety, suggesting that overall growth potential does vary among modern varieties. The total bolls and sympodial bolls per plant were also significantly different among the twelve varieties in these trials.

Significant differences between varieties were observed in all of the data collected; plant height, total nodes, total bolls, and position of bolls. Differences in maturity may contribute to the differences in yield among the varieties in these trials. Further analysis of this data could provide insight on how these varieties may benefit from management strategies based on length of maturity as well as timing of inputs with respect to varietal growth characteristic differences.

The authors would like to thank the Georgia Cotton Commission and the UGA Cotton Team for their generous support of this and other research.