

THE EFFECT OF PLANT GROWTH MANAGEMENT ON COTTON SUSCEPTIBILITY TO DROUGHT DURING THE FLOWERING AND BOLL FILLING STAGES

**Joshua Lee
John L. Snider
Lavesta C. Hand
Phillip Roberts
A. Stanley Culpepper
Devendra Chalise
Amrit Pokhrel
Navneet Kaur
Ved Parkash
Gurpreet Virk
University of Georgia
Tifton, GA**

Abstract

A field trial was conducted in Tifton, GA to evaluate the effects of PGR management on drought susceptibility during the flowering and boll filling period and to compare yield stability of PGR treated and untreated plots in response to water availability. Phytogen 580 was grown at a field site near Tifton, GA equipped with subsurface drip irrigation. The growth management treatments included an aggressive PGR strategy and untreated control. Rain exclusion shelters were moved over treated and untreated plots immediately prior to drought stress. At approximately 2 weeks after first flower, water was withheld from the drought stressed treatment for a three-week period, and well-watered plots were kept irrigated according to the University of Georgia Checkbook recommendations. After this drought period, all plots were returned to well-watered conditions. Weekly measurements throughout the season included heights, nodes, length of the 4th internode from the plant terminal, nodes above white flower (NAWF), and soil moisture. End-of-season estimates included lint yield, fiber quality, yield component measurements, and fruit retention estimates. PGR treatment significantly affected plant height, mainstem node number, 4th internode length and cutout date. Soil moisture was significantly reduced during the drought stress period, but the level of stress experienced by the crop varied substantially, depending on field location. Yield stability assessments demonstrated that PGR treated plots were more yield stable than untreated plots but could not achieve the same yield as untreated plots in high-yield situations.