TEXAS HIGH PLAINS GROWTH REGULATOR STUDIES

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Abstract

Numerous cotton plant growth regulator (PGR) products are currently available on the market, and new materials continue to be developed by industry. Seven replicated field experiments were initiated in 1997 in the Texas High Plains region to determine the influence of various PGRs on cotton lint yields and other agronomic characteristics. A Lee "Spider" self-propelled sprayer was used to apply the treatments at all sites (except the Crosby County location which was applied by the producer-cooperator). Calibration typically was 15 GPA at 30 psi with 3 MPH field speed. Broadcast coverage was accomplished using TeeJet 80 series flat fan spray tips. Products evaluated included Micro Flo PGR IV and MFX formulations (new formulations of mepiquat chloride (MC) with *Bacillus cereus* (BC) bacterial additives). The BC additive is reported to increase the potential of positive lint yield responses. MFX 4294 was recently labeled as MepPlus (4.2% MC + 2 g/gallon BC). Other products included RyzUp (from Abbot Laboratories), the Miller/Plant Biotech PGR/foliar fertilization program, and Griffin Early Harvest. Results from the experiments (3 dryland, 4 irrigated) conducted at Lubbock (dryland and furrow irrigated), the Lamesa AGCARES facility (dryland and low energy precision application (LEPA), irrigated at 75% potential evapotranspiration (PET) replacement), and Crosby County (Jim Parkhill Farm, furrow irrigated) indicate no statistically significant increases or decreases in cotton lint yields were obtained from PGR use or foliar fertilization. Although not statistically significant for lint yields, treatment means (averaged across replications for untreated check and PGR comparisons) show that the untreated check was numerically larger than PGR treatments in 3 of 7 studies (5.6, 9.6, and 10.1%, averaging 8.4%). Treatment means across replications for PGR treatments were numerically larger than the untreated check in 4 of 7 studies (1.7, 6.3, 8.0, and 9.6%, averaging 6.4%). Observations of numerically larger lint yields in some studies indicate the need for additional research and/or use of more sophisticated statistical analysis of multiple-site datasets. Although the 1997 season was initially very cool and wet, good to excellent square retention and early-season soil moisture conditions translated into an early boll load and limited plant growth potential. Dryer soil moisture conditions at test sites in late July, August, and early September further minimized potential for excessive growth.

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