

**YIELD RESPONSE OF DRYLAND COTTON TO RATE AND TIMING
OF APPLICATION OF THE PLANT GROWTH REGULATOR PROMOTE 125**

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Abstract

Foliar application of Promote 125 once cotton plants start growing bolls (after first bloom stage) may delay the onset of internal supply-demand unbalance and physiological cut-out long enough to produce one or two more bolls and/or bigger bolls. Promote 125 is a carboxylic-acid-based plant growth regulator and, therefore, may affect the biosynthesis and metabolism of fatty acids and carbohydrates as well the primary source of energy in plants. The objectives of this study was to evaluate the yield and fiber quality responses dryland cotton to (a) three rates of Promote 125 applied at the stage of 7 NAWF and (b) different timing of application of 2 oz./ac after the first bloom stage. Two separate experiments were conducted at the Texas A&M University Agricultural Research and Extension Center in Corpus Christi, TX, in 2002. Cotton cv. Deltapine 458 BG/RR was planted on April 4 to a plant population of 35,000 plants/ac. Plots were 4 rows wide 100 ft long with four replicates in randomized complete blocks. Plots were hand-picked (1 ac/1000) on August 21. Treatments in the rate study experiment included 2.0, 3.0, and 4.0 oz./ac applied at 7 nodes above white flower (June 20). The growing season was droughty with rainfall amounts of 1.5 in. from first square to first bloom, 1.0 in. two weeks after first bloom, 1.5 inch 4 weeks after first bloom, and 1.0 in. at first open boll. Treatments in the timing study consisted in single applications of Promote 125 at 2.0 oz./acre starting at first bloom (June 6) and following at weekly intervals for 5 weeks. The different rates of application at 7 nodes above white flower had no significant effects on yield, although there was increase of 126 lbs./ac with 3 oz./ac over the control. Rates did not affect bolls per plant. Boll weight was marginally increased by 2.0 and 3.0 oz./ac rates. Micronaire, fiber length, and uniformity were not affected by rate of application, but strength was increased by the 4.0oz./ac rate from 29.850 grams per tex (UTC) to 31.225 grams per tex (P=0.1014). Timing of application had no significant effect on lint yield, although there was a clear tendency of yield increase when Promote 125 was applied one week after 10 first bloom which gradually declined when applications were delayed through the fourth week after first bloom. Bolls per plant and boll weigh were not significantly affected by timing of application, but their numerical values followed a similar trend as yield. Fiber quality was not affected by time of application.