INFLUENCE OF STANCE TM AND MEPIQUAT CHLORIDE ON COTTON LEAVES AND LINT YIELD

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Abstract

Field experiments were conducted in summer of 2006 and 2007 to determine the influence of two PGRs; Stance™ (@ 3 oz/ac) and Mepiquat Chloride (@ 12 oz/ac) on cotton leaf area, leaf weight and thickness, chlorophyll and anthocyanin content of leaves, and yield. On the day of treatment, quarter size leaves were tagged. The tagged leaves and the third leaf below, were harvested on 3, 7, 10, 15 and 20 days after treatment (DAT). The leaves were analyzed for leaf area, fresh and dry weight, chlorophyll and anthocyanin content, and leaf thickness. The treatments and harvesting dates significantly affected leaf area. At the final harvest, Stance™ resulted in significantly lower leaf area compared to Mepiquat Chloride. The leaf area increased over subsequent harvests for all treatments. Anthocyanin content did not differ between treatments in either year. However in 2006, the anthocyanin content first decreased, then increased and then decreased again at the final harvest. In 2007, there was a uniform pattern that decreased significantly over harvesting dates and stabilized in the end. In 2007, Stance™ resulted in significantly lower fresh leaf weight at the final harvest over mepiquat chloride.

In 2007, total chlorophyll content for Stance™ was significantly higher than the untreated control and was higher than, but not statistically different, from mepiquat chloride. Leaf thickness was not significantly affected by treatments. However, leaf thickness increased over harvesting dates for all treatments except mepiquat chloride, which decreased the leaf thickness at the last leaf harvest date.

Generally, growth regulators affected leaf size, chlorophyll content, and fresh weight in 2007 but not in 2006. Rainfall was more consistent in 2007 than 2006, and the resulting growth was less inhibited during the leaf harvest period. Seed cotton yield reflects this greater growth with a mean yield of 1506 lb/ acre in 2007. The mean seed cotton yield in 2006 was 1260 lb/ acre.