EFFECTS OF FRUITING PERIOD ON FIBER LENGTH

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Abstract

In recent years concerns have been expressed about the quality measure of fiber length uniformity in Georgia cotton. An irrigated field trial was conducted at Tifton, GA, to evaluate the influence of various mepiquat chloride (MC) regimes combined with an artificial limitation of flowering period on fiber length and uniformity. 'DP 555 BG/RR' was planted on April 30 and harvested on September 25, 2007. Experimental arrangement was a split plot design with four replications. Main plots, which were 4 rows (36-inch) by 40 ft, were three mepiquat programs: (a) untreated, (b) moderate- applications of 6, 8, and 8 oz/A at match head square, 1st bloom, and 2 wks after 1st bloom, respectively, and (c) aggressive – applications of 16, 24, and 24 oz/A at match head square, 1st bloom, and 2 wks after 1st bloom, respectively. Fruit removal sub-plots included (a) untreated and (b) white flower removal after 4 wks of normal bloom. The latter treatment served to artificially limit the fruiting period to 4 wks and was accomplished by hand-snapping white blooms several times each wk. Data collection included plant height and NAWF counts beginning at 1st flower, continuing for 8 wks, and then again at harvest. Prior to harvest plants from 5 ft of row from each subplot were subjected to hand "box picking" to determine percent retention and boll weight by fruiting position. Hand-picked samples were divided into three fruiting zones, nodes < 12, nodes 12-17, and nodes > 17. Plots were machine harvested and seed cotton samples processed at the UGA Cotton Micro Gin. HVI fiber analysis was conducted by the USDA Classing Office in Macon, GA. The MC programs resulted in differences in plant height. The untreated control was significantly taller than the MC systems, and the moderate MC regime was slightly taller than the aggressive MC program. Flower removal had no effect on plant height except at harvest. NAWF count was greater for the untreated than for the MC regimes, but counts for the two MC programs were nearly identical. There were almost no differences in boll weight by fruiting zone. Lint turnout was significantly different among MC treatments: untreated > moderate MC > aggressive MC. Lint yield was not affected by MC program but flower removal significantly reduced yield compared to normal flowering. Fiber length for the aggressive MC was slightly greater than for the untreated control (1.113 vs. 1.095 inches), but flower removal did not affect fiber length. Neither MC regime nor flower removal had an effect on fiber length uniformity. As to whether flowering duration can influence fiber length uniformity, in this study it did not.