EFFECT OF SELECTED GROWTH REGULATORS APPLIED IN-FURROW ON CONVENTIONAL- AND NO-TILLAGE COTTON

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Abstract

Research was initiated on a Loring silt loam in 1995 at The Milan Experiment Station evaluating the effects of three PGR's applied in-furrow (I-F) on cotton produced by conventional- (CT) and no-tillage (NT) systems. The experimental design was a RCB with treatments replicated five times. Seven treatments were applied in-furrow for each tillage system. Treatments were; 11-37-0 I-F applied at qt/A, HM8805-A plus 11-37-0 I-F applied at 2 oz/A and qt/A rates, HM9424 I-F applied at pt/A, HM9424 I-F applied at 1.5 pt/A, HM9424 I-F applied at pt/A with HM9515 foliar applied at 8 oz/A at pin head (PH) and again at pin head plus 7 days, 04213-A I-F applied at 1 oz/A followed by foliar applying at 4 oz/A at PH and again at PH + 7 d and a non-treated check. 'D&PL 50' was planted April 27 in 4 row (40 inches) by 30 feet plots. Plots were fertilized with 80-40-60 lb/A of N, P_2O_5, and K_2O, by broadcasting ammonium nitrate, 0-46-0 and 0-0-60. All recommended production practices were utilized for each tillage system. Treatment effects on root development was evaluated for three selected treatments plus the check. Root samples were collected on June 13 and July 6. Soil samples were collected at three soil depths, 0-4, 4-8, and 8-12 inches at three row positions. The in-row position (between two equally spaced plants), and four and eight inches from the row. All samples were collected using a 3/4 inch diameter soil probe. Five sub-samples were collected from each of the five replicated treatments. Plant growth measurements plants/ three feet of row, leaves from these plants, plant height, leaf surface area per three feet of plants, and leaf surface area per plant were evaluated for each treatment and tillage system. Lint yields were estimated by harvesting the two center plot rows.

Plants per three feet of row, leaves per three feet of row, surface area per leaf were unaffected by treatment for either tillage system. CT plant heights were increased by three of the treatments and total surface area was increased by one NT treatments. Root development varied with sample location and tillage system. CT root development was greater for applying HM9424 at 1.5 qt/A and the 04213-A treatments relative to the control or 0.5 qt/A application of HM9424. Root development in the NT system was not increased by treatment. Yields of either tillage system was not affected by treatments. Yield variation was high restricting the accuracy of the test.

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