

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

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both tillage systems were increased by I-F applications of 472 and 708 ml/A of HM9424 while yields from other treatments were unaffected relative to the check for both tillage systems.

**Abstract**

Additional research is needed on plant growth regulators (PGR's for no-tillage (NT) cotton (*Gossypium hirsutum* L.) production. Field experiments were initiated on a Loring silt loam in 1995 and continued in 1996 at the Milan Experiment Station evaluating the effects of three PGR's applied in-furrow (I-F) on cotton produced by conventional-tillage (CT) and NT systems. The cultivar D&PL 50 was planted April 27. Plots were fertilized with 80-40-60 lb/A of N, P<sub>2</sub>O<sub>5</sub>, and K<sub>2</sub>O, respectively, by broadcasting ammonium nitrate, 0-46-0 and 0-0-60. All recommended production practices were utilized for each tillage system. The experimental design was an RCB with treatments replicated five times. Six treatments were applied in-furrow for each tillage system along with a non-treated check. Treatments plus their rate applied I-F were; 11-37-0 applied at 946 ml/A, HM8805-A (asset) plus 11-37-0 I-F applied at 59 ml/A and 946 ml/A rates, HM9424 (RTU) applied at 472 ml/A, HM9424 (RTU) applied at 708 ml/A, HM9424 (RTU) applied at 944 ml/A, and 04213-A (PGR IV) applied at 30 ml/A followed by foliar applications of 118 ml/A at pin head square stage (PH) and again at PH + 7 d. Treatment effects on root length density were evaluated for the HM9424 applied at 472 and 708 ml, 04213-A and the check treatments. Five 1.9 cm diameter soil cores were collected for each of the four treatments on 17 June and 9 July, 1996. Cores were taken at three soil depths (0-10, 10-20, and 20-30 cm) and at three positions in relation to the planted row (in-row, between two equally spaced plants, and 10 and 20 cm from the row). Plant height, and leaf surface area per plant were evaluated for each treatment and tillage system within the first month of growth. Lint yields were estimated by harvesting the two center plot rows.

Neither plant height nor leaf surface area per plant was affected by treatment for either tillage system. Root length density measurements (cm/cm<sup>3</sup>) was significantly affected by a treatment-by-sample position-by-soil depth interaction of the first CT sample date and both NT samples dates. CT root length density in the 10 cm soil depth was greater relative to the check for the 472 ml/A and 708 ml/A application rates of HM9424 in the NT system. This observation that root density measurements was affected by treatments for the first sampling date differs from the 1995 data showing that root density measurements of the second sampling was increased by treatment. The 1996 yields of