EFFECT OF N RATE AND PLACEMENT ON NO-TILLAGE COTTON

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Abstract

Information on nitrogen (N) application methods for no-tillage (NT) cotton production is limited. Research was initiated on a Loring silt loam at the Milan Experiment Station in 1994. The experimental design was a RCB with treatments replicated five times. N rates of 0, 30, 60, 90, and 120 lb/A were broadcast, injected, and split applied to NT cotton. The cultivar 'D&PL 50' was planted by mid-April in 4 row (40 inches) by 30 feet plots. Surface residues were old cotton stalks and spring killed weeds. The broadcast and injected N rates were applied immediately after planting. The split rate plots were fertilized with 60 lb/A N at planting with 30 and 60 lbs/A N applied a month later. Plots were fertilized with 40 lb/A P_2O_5, and 60 lb/A K_2O, using 0-46-0 and 0-0-60. Ammonium nitrate was the broadcast N source and UAN the injected N source.

Two year average NT cotton lint yields were increased by increasing the N rate. Yields were unaffected by method of application. A year-by-N rate interaction affected lint yields. In 1994, yields were increased with N through the 120 lb/A rate. Yields in 1994 were excellent in relation to 1995. The 1995 yields were increased with N through the 60 lb/A rate and were reduced by applying 120 lbs/A. Yields were unaffected by different application methods. The advantage of injection application method is to apply the N sources below surface residues reducing immobilization. This research indicates that surface residues on these plots were insufficient to immobilization sufficient N to reduce yields. As would be expected responses to the higher N rates occurred during a year of greatest yield. This research will be continued evaluating NT cotton produced on either small grain or corn residues.

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