

CROP RESPONSE IN A SIX-YEAR SPLIT-FIELD COMPARISON OF CONVENTIONAL AND CONSERVATION TECHNOLOGIES

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ABSTRACT

This research was conducted in an effort to assess, on a field scale, a combination of new crop growing technologies. In 1998, a fourteen acre field containing 7 different soils was divided roughly in half, with half of the field managed with innovative practices and half managed with traditional. Corn was grown in 1999, 2001, and 2003. Cotton was grown in 2000, 2002, 2004, and 2005. The traditional practices included conventional tillage and using broadcast P application. The innovative practices were conservation tillage and site-specific application of P based on grid sampling. Data are presented from 2004 (using a conventional and transgenic cotton cultivar and 2005 (using a common cultivar was grown on both sides of the field). There was considerable within-field variability in both years, and management practices (innovative vs. traditional) did not appear to affect the amount of within-field variability. The innovative practices resulted in seedcotton yield increases over traditional practices of 157 lb/ac in 2004 and 103 lb/ac in 2005, but cotton productivity response to the management practices differed by soil map unit. In both years, cotton grown with the innovative practices had higher yield than cotton grown with traditional practices on the Bonneau sand and Norfolk loamy sand soils but lower yields on the Ocilla sand and Rains sandy loam soils. The overall increase in yield with the innovative practices is in agreement with previous small plot research on conservation tillage management.