AN ECONOMIC ANALYSIS OF IRRIGATION AND TILLAGE FOR COTTON IN SOUTHWEST GEORGIA

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Abstract

Nearly half of all Georgia cotton acres were irrigated in 2008. In addition, over half of all cotton acres in Georgia were produced under some form of conservation tillage. In light of recent droughts and weed management problems, farmers continue to look for the most economical methods to grow cotton. Tillage and irrigation are two production methods that may be adjusted to create an increase in revenue through higher yield or a decrease in costs. The purpose of this project is to examine the economics of cotton grown under conventional tillage (disc, disc, rip and bed, then plant) and conservation tillage (winter cover crop, burndown, then strip and plant) production at four levels of irrigation (100%, 70%, 30% and 0% using soil-based watermark sensors). The trial was conducted during 2009 at Stripling Irrigation Research Park in Camilla, GA using DP0935 cotton in a 2x4 split-plot design. Economic analysis was conducted using a partial budget approach. Revenues were calculated from the southeast base price and yield. Costs were based on irrigation application, tillage operations and ginning and storage costs with a credit for cottonseed. Results indicate that the 100% irrigation level cost an average of $4/ac more than the 70% irrigation level and $8/ac more than the 30% and the 0% irrigation levels. In terms of tillage costs, strip till plots averaged $3.50/ac more than the conventional plots. The 0%, 30% and 70% irrigation levels were more profitable on average than the 100% irrigation plots by at least $90/ac. At the 100% irrigation level, strip till plots were more profitable than the conventional till plots by an average of $71/ac. Heavy rains throughout the growing season had a negative impact on yield for the plots at the 100% irrigation level. Future irrigation applications should be determined by the soil-based watermark sensors in conjunction with future precipitation expectations.