

## **COTTON (*GOSSYPIMUM HIRSUTUM*) CROP WATER NEEDS UNDER CONVENTIONAL AND CONSERVATION PRODUCTION SYSTEMS**

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### **ABSTRACT**

Conservation tillage systems have not been widely adopted in the Mississippi Delta, even though evidence has shown the economic advantages. Questions remain as to how to best manage cover crops on the deep alluvial soils of the region, and the irrigation needs of crops under conservation systems. In this study, we are examining changes in soil organic matter in two soils types common to the region during the transition from conventional tillage to conservation systems. We are also determining crop and soil moisture levels for the soil types under different tillage regimes, with an end to developing appropriate irrigation scheduling guidelines for cotton (*Gossypium hirsutum*, sps. L.) production. The two soil types examined in the study are Sharkey clay; and a Dundee loam, which ranges in the field from sandy to silty clay. Treatments are conventional: with and without fall subsoiling at 45 cm depth, no cover crop; and conservation: with and without fall subsoiling, winter wheat or gin trash cover. Measurements include soil surface organic matter, soil moisture at 15 cm increments down to 91 cm, and soil temperature. Plant growth is followed throughout the season, and final yield and fiber quality determined at harvest.