## IMPACT OF COVER CROP AND TILLAGE ON IRRIGATION EFFICIENCY OF COTTON IN

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## **Abstract**

Producers are often skeptical about converting to cover crops, as they are concerned about water movement through the field. Research was conducted along with Discovery Farms in Southeast Arkansas. Discovery Farms main focus is edge of field water quality. Runoff ditches from trapezoidal flumes split field in half, allowing research to be conducted for standard practice till no cover, and no-till with cover. The objective was to determine if no-till cover was more efficient than till no cover in regards to irrigation efficiency. Research was conducted on Weaver field in 2015. Soil compaction was measured with soil penetrometer at both three and six inch depths. Irrigation water flow down rows was determined through use of button loggers placed at three different intervals throughout furrows. Soil moisture was monitored by hand held moisture sensors at twelve inch offset location. Flow meter readings tell exactly how much water was applied, and through trapezoidal flumes runoff from irrigation was tracked. Soil compaction was consistently lower in no-till with cover, irrigation water flow down rows was 6.7 percent faster in till no cover, and soil moisture levels were consistently higher in no-till with cover. Irrigation water use efficiency increases in no-till with cover. Overall irrigation efficiency across all irrigation events for till no cover is 64.43% and no-till with cover 68.78%. These factors played a major role with no-till cover producing a higher yield than till no cover, 1107 lb lint/A and 965 lb lint/A, respectively.