



Mississippi Corn Promotion Board 2019 Progress Report

Project Title: Row-Crop Irrigation Science Extension and Research (RISER) Program

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Project Summary (Issue/Response)



The RISER Program validates the ability of irrigation water management (IWM) tools to reduce water use while maintaining or improving corn yield and profitability through on-farm demonstration; and provides first-hand learning opportunities for existing and new irrigation management tools. Learning opportunities are provided by 1) utilizing yearly in-service training to educate county extension agents, NRCS personal, private consultants and private sector representatives on irrigation BMPs installed at RISER locations, i.e., PHAUCET, Pipe Planner, soil water budgets, soil scheduling tools, meter utility, proper irrigation set design, etc.; 2) conducting on-site field-days at multiple RISER locations within the growing season; and 3) providing one-on-one, on-farm consultations for producers interested in adopting the latest RISER validated technologies. RISER locations are implemented with flow meters to determine cumulative water use. Yield and yield components are determined for both RISER and Producer controlled fields. Water and yield data are measured to document BMP effectiveness at the field scale. Collecting field scale data at multiple locations across years allows MSU personal to more effectively identify key physiochemical parameter(s) required for individual BMP success.



Project Results/Outcomes

Funding by the MCPB is instrumental in supporting Mississippi State University's RISER Program. Irrigation water management tools including Pipe Planner, surge irrigation, in-season tillage, and soil moisture sensor technologies were showcased at 4 locations in 2019. Additionally, we taught 25 producers how to use Pipe Planner.

The RISER Program assisted producers with an irrigation design to help create the most efficient irrigation system for their fields. Overall, the RISER program created irrigation plans for over 6,713 acres that included computerized hole selection with Pipe Planner to improve irrigation application efficiency. Surge valves demonstrations were installed on four farms in fields with sealing soils. Techniques for proper surge valve installation, set design (with Pipe Planner), programming, and deployment for maximum irrigation efficiency were demonstrated. The RISER program verified flowmeter readings for numerous producers. In addition, the RISER program provided irrigation scheduling information and verification of soil moisture sensor readings, e.g. thresholds for irrigation initiation and termination. Eight soil moisture sensors were installed to aid irrigation decisions for growers.

Project Results

Overall results for the 2019 growing season were:

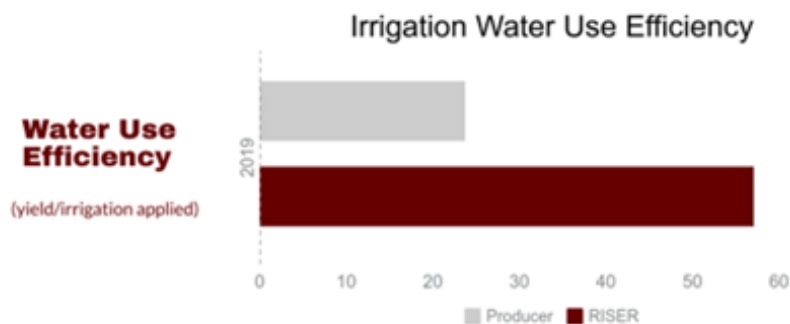
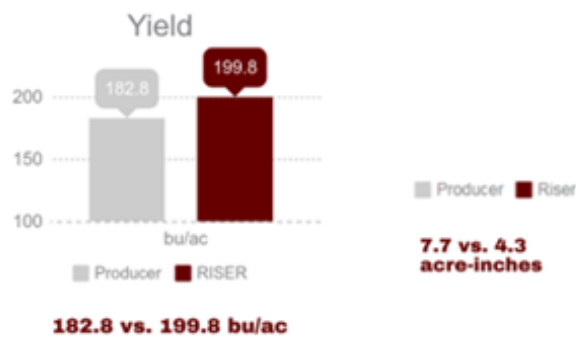
**Row-crop
Irrigation
Science and
Extension
Research**



2019 RISER on-farm results



results are from 4 producer corn fields



Project Impacts/Benefits

The RISER program demonstrates the potential for irrigation water management tools to improve on-farm profitability up to \$30/acre while reducing water use by 41%. Additionally, the RISER program serves as a catalyst for the adoption of IWM that will make Mississippi corn producers more profitable while reducing demand on the Mississippi Alluvial Aquifer.

Project Deliverables

Presentations:

Gholson, D., August Conservation Webinar Irrigation Conservation, "Irrigation Conservation," Research & Education to Advance Conservation & Habitat, Online. (August 20, 2019).

H2O Initiative Meeting, Natural Resources: Irrigation and Water Resources Technologies (November 21, 2019)

Gholson, D., Mississippi Chapter of the American Society of Agronomy Annual Meeting, "Irrigation Management Strategies in Mississippi," Mississippi Chapter of the American Society of Agronomy, Grenada, MS. (November 7, 2019).

Gholson, D., Multi-Commodity Education Program Meeting, "Ensuring Water Sustainability in the MS Delta," National Cotton Council, Stoneville, MS. (October 17, 2019).

Agent Training:

Gholson, D., ANR Extension Agents Training. Pipe Planner Training Workshop, "Pipe Planner Training Workshop," Mississippi State University Extension Service, Stoneville, MS. (December 12, 2019).

Blog Post:

Larson, E. J., Gholson, D. (2019). *How to Safely Terminate Irrigation in Corn*. Mississippi Crop Situation. www.mississippi-crops.com

Gholson, D. (2019). *Sealing Soils Complicate Irrigation*. Mississippi Crop Situation. www.mississippi-crops.com

Gholson, D. (2019). *Soil Moisture Sensors Not Responding to Irrigation*. Mississippi Crop Situation. www.mississippi-crops.com