MSU Pushes RISER Plan For Efficient Crop Irrigation

STONEVILLE, MISS.

Mississippi State University experts have a new program to help Delta producers irrigate row crops more efficiently and economically.

MSU Extension Service irrigation specialist Jason Krutz is leading a multi-faceted approach to water conservation, dubbed Row-crop Irrigation Science and Extension Research, or RISER. The researchers are working with producers to help reduce irrigation water use while maintaining or improving crop yields and profitability.

"The RISER plan developed by MSU can help producers better manage irrigation and increase production and profitability," Krutz said.

Growers participating in RISER allow MSU researchers to handle irrigation decisions on a particular field for the entire growing season. At the end of the year, the grower can compare irrigation costs and harvest yields on the RISER fields with those on other fields on the farm.

Mississippi State University experts are working with producers to implement programs that help reduce irrigation costs and maintain or improve yields in a variety of crops, including soybeans like these.
Photo by MSU Delta Research and Extension Center/File Photo

"We'll talk to the producers all year, telling them when we're going to irrigate and what we're doing," Krutz said. "We hope at the end of the year when they see how much they saved on irrigation and what their yields were like, they'll follow these practices on their other fields and tell their neighbors they need to do what MSU is recommending."

MSU researchers will schedule irrigations for fields in the RISER program using scientific irrigation scheduling tools, including the Mississippi Irrigation Scheduling Tool, or MIST; atmometers; and soil moisture sensors.

Research has proven the effectiveness of these scheduling tools in Nebraska and Florida, and MSU researchers will collect data this year to validate these numbers in Mississippi.

"Use of a scientific irrigation scheduling tool can reduce irrigation usage by 30 or 40 percent," Krutz said.

The final step in the RISER management program involves using the computerized program Pipe Hole and Universal Crown Evaluation Tool, or PHAUCET, to calculate the proper hole size and distribution for polypipe to furrow irrigate row crops efficiently.

Tom Eubank, agronomic crops specialist with MSU's Extension Service and researcher with the Mississippi Agricultural and Forestry Experiment Station at the Delta Research and Extension Center, has evaluated PHAUCET over the last three years. This project is funded by a grant from the Mississippi Soybean Promotion Board.

"Our research has shown that PHAUCET reduces water, fuel and irrigation usage by 20 percent versus conventional irrigation sets in regular-shaped fields," Eubank said.

In irregular-shaped fields, PHAUCET could reduce water use as much as 50 percent.

Through the RISER program, MSU scientists will work with corn, cotton, soybean and rice Extension specialists using existing on-farm management systems, such as the Smart Program for soybeans and the Corn Verification Program, to promote good irrigation management practices.

"If soybean producers could eliminate one irrigation during the growing season, it could decrease the overdraft of the Mississippi Alluvial Aquifer by approximately 300,000 acre feet a year," Krutz said. "That is the equivalent of 300,000 side-by-side football fields covered in one foot of water."

This aquifer has served as an irrigation source for the Mississippi Delta for decades. Experts have estimated that it is decreasing by 300,000 acre feet a year.

"Using 25 percent less aquifer water for irrigation would slow this depletion," Krutz said.

Krutz said even producers not participating in RISER can take steps to reduce water consumption. A key step in fine-tuning irrigation strategies to conserve this critical natural is to keep irrigation records for fields. The written records should include the timing and amounts of water used. Krutz offers large, laminated ledger sheets provided by the Mississippi Soybean Promotion Board to aid this process.

"Increased management and awareness are key steps in irrigation management. This initial step is crucial to better management because less than 1 percent of the area's producers keep irrigation records," Krutz said.

For more information on implementing smart irrigation strategies, contact Krutz at (662) 686-3271 or Eubank at (662) 686-3232. Δ