

Maximize *Irrigation* Benefits

Trial Takes Threefold Approach To Fine Tune Irrigation Timing

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Using irrigation wisely in cotton production was explained by Chris Main, extension cotton specialist with the University of Tennessee.

“Over the last few years in West Tennessee many farmers have put a tremendous investment in new irrigation systems,” he said. “That’s not something that we have traditionally had in West Tennessee, previously only had about 5 percent or less of our acres were irrigated in all crops.”

However today between 100-150 new pivot systems have been installed and farmers need more information about how to use this water resource. Main and his colleagues at the University of Tennessee, crop physiologist Dr. Dave Verbree, and engineer Dr. Brian Leib, are taking a threefold approach to fine tune irrigation techniques to present to farmers.

“How cotton varieties respond to irrigation in terms of yield and fiber quality is important to our growers,” Main said. “Out of that research we find some very interesting things going on. We have one year of research with trials in three states, Tennessee, Mississippi and Arkansas.”

What has been found is that in situations where there isn’t much rainfall, irrigation shows a dramatic impact by increasing yield. Where there has been adequate or excessive rainfall, irrigation may not pay for itself, but it’s going to provide some other intangibles such as improved fiber quality, length and strength and uniformity of fibers that will eventually provide extra money at the end of the year based on your loan values. So many interesting things are coming out of this work.

“We’re specifically looking at many different commercial cotton varieties because we want to make sure we put the correct variety on the acres that we have irrigated,” he added. “We don’t want to place varieties that don’t respond well to water under our pivot systems.”

Dr. Verbree’s efforts are aimed at utilizing this water resource the best way possible for the crop and recording how that crop responds to it. He works across all crops in West Tennessee but presently is focusing on cotton because there’s already a good program with irrigation in cotton.

“Dave’s role is to build water use coefficients for the different crops here in West Tennessee, because a lot of the research we have is based on irrigation use from arid environments where rainfall, humidity and cloudy days are not prob-

lematic,” Main said. “They have nice blue skies, hot temperatures, and can almost schedule their irrigation before the year begins. We have to work around what Mother Nature provides.”

Dr. Leib, the other team member from engineering, is looking at sensors and studying ways to tell how much water is left in the soil profile, how the plant is responding, the temperature of the plant, the amount of canopy closure and how to better time irrigation with crop use. His goal is to make sure the plant runs at the optimal level according to Dr. Verbree’s prescription.

“As a team we work together to make sure that we’re tying all three of those components together,” Main said. “The take home message is



Dr. Chris Main, extension cotton specialist with the University of Tennessee explains how to use irrigation in cotton production wisely.

that if we pick the wrong variety, if we’re not monitoring what’s going on with the plant, we may be wasting money and water. We cannot necessarily just go out and put a variety under irrigation, turn the water on and know we’re going to maximize the economic impact of irrigation.

“The goal is to make sure that we’re maximizing return on that irrigation dollar, bringing maximum economic returns back to the producer,” he summed. Δ

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