

# Center pivots getting cotton what it needs, when it needs it



Even in areas where local water and rainfall is abundant, automated irrigation plays a pivotal role in cotton production.

Because cotton's water requirements are extremely time sensitive and you always can't count on Mother Nature, cotton growers from the Gulf Coast to the Texas High Plains rely on center pivot irrigation to efficiently water at the precise moments which are most crucial to crop development and production.

"My Zimmatic center pivots take a lot of the worry out of cotton farming," said Kerry Van Moore of West Green, Ga. "It's like having extra insurance."

Van Moore, who bought four new low-pressure Zimmatic center pivots in 1996, has a total of six Zimmatic pivots. His 2,300-crop acres include 600 irrigated acres—400 cotton acres and 200 corn acres. "I rotate my cotton and corn ground most every year," he said. Van Moore's farm also includes peanuts, tobacco, hay, rye, broilers, 200 head cow/calf herd, some timber, and pasture. He also markets about 3,000 hogs per year from a 150 sow farrow-to-finish operation.

Because his soils are excellent and rainfall is abundant in this area of Georgia, about 40-50 avg. inches each year, Van Moore uses irrigation as a yield-boosting tool. "I don't always use irrigation as a necessity," he said. "But to help boost the crop and keep it in good shape." Center pivot irrigation provides many growers extra insurance during times of drought and stressful weather.

He plants his cotton around May 1 in 36-inch rows at 8 pounds per acre.

Usually his crop is ready to pick by Sept. 20. Van Moore gins his cotton at the Tri-County cotton gin, which he owns with six other local cotton producers. "We gin between 65,000 and 75,000 bales per year," he said. Before Tri-County opened in 1995, there was only one local gin that struggled to handle the area's cotton supply.

## Boosting yields

During an average year Van Moore will irrigate his cotton four or five times, putting down about an inch every irrigation. This helps Van Moore harvest up to three bales per acre, a third more than his dryland cotton. Since beginning to irrigate in 1990, Van Moore said he's seen average yields increase to 1,180 pounds per acre.

And with his five low-pressure systems that operate at 400 gallons per minute, he's able to use less water and reduce

evaporation losses. "My water goes twice as far," he said. Because of this, Van Moore will eventually be able to add more land with the water supplied by his four wells and three ponds, he said.

### Growing more with less water

In the Texas Plains, there couldn't be a good cotton crop without irrigation.

## KEY POINTS

- ◆ Cotton growers in this story experienced at least a 10 percent yield increase using center pivots.
- ◆ Even where water is abundant, center pivots are used to provide many growers reassurance of a good crop.
- ◆ LEPA (low-energy precision application) center pivots are 95 to 98 percent efficient.
- ◆ LEPA is up to 20 percent more efficient than regular spray heads and up to 33 percent more efficient than flood irrigation.
- ◆ Texas A & M recommends splitting cotton irrigation into two passes: half the weekly total every 3.5 days.

Just ask Rusty Whitt of Muleshoe, Texas near the New Mexico border. Whitt's 2,700 acre irrigated operation includes 600 acres of cotton, food grade and regular grain corn, wheat and soybeans. His operation includes 13 center pivots including a new AIMS- and R-MAC-equipped 1/2 mile Zimmatic pivot.

"All of my ground has been irrigated by center pivots for the last seven years," Whitt said. "It's one of the best things I've ever done. Without my Zimmatic center pivots there's no way I could farm 2,700 acres. It would take too many people and I just couldn't afford it."

But Whitt points out he's saving much more than time with his center pivots. "We've wasted a lot of water, just gave it away. It's a natural resource, more precious than oil," he said.

But with center pivots he's able to irrigate much more efficiently than with row watering. "Before (with furrow irrigation), you'd have to put down 5 inches just to get 1/2 inch in the middle of the row," Whitt said. "Sprinklers (center pivots) provide much more uniform distribution. It's a lifesaver for cotton."



Rusty Whitt

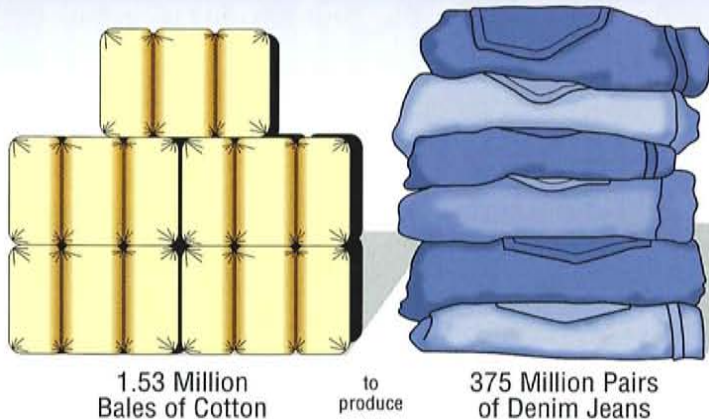
### Saving more water with LEPA

The specially equipped LEPA (low-energy precision application) center pivots can be even more efficient,

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Cotton growers from the Gulf Coast to the Texas High Plains rely on center pivot irrigation to water efficiently at the precise moments which are most crucial to crop development.

## DENIM JEANS PRODUCTION IN U.S.



Represents 14% of U.S. Cotton Production

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according to Leon New, Texas A & M agricultural engineer. "The more limited the water supply the more important LEPA becomes," said New.

LEPA applies water through low-pressure drop tubes typically placed 12 to 18 inches above the ground. Sometimes growers drag "socks" and apply water directly on the ground. "This system, which is 95 to 98 percent efficient, allows growers to get more acres with the same amount of water," New said. In areas where water is very scarce, LEPA allows producers to grow a crop where it couldn't have been otherwise.

Studies show LEPA systems to be 15 to 20 percent more efficient than regular spray heads positioned above the crop and up to 33 percent more efficient than flood irrigation. There's also less work involved than with furrow and side roll irrigation, New said. "One person can watch 8 to 10 or more pivots at a time," he said. "And that's a lot more ground than he could manage under furrow or flood irrigation."

According to New, LEPA-equipped systems are able to operate with as little as 200 gallons of water per minute and still put down 3/4 inch of water per week. "We (Texas A & M) recommend splitting the irrigation into two passes—putting down half the weekly total every 3.5 days," he said. This way cotton growers are getting water to all of the crop frequently, making the system even more efficient. Growers are producing 100 pounds of lint from each inch of irrigation water.

### Preparation for an abundant cotton crop

Whitt's irrigation program starts with pre-watering around February or March, depending on the year. This helps ensure the seeds have adequate moisture to germinate. "The hardest thing is getting cotton up," he said.



*Drops help LEPA systems keep up to 98 percent of the water on the ground and crop, greatly reducing loss to wind and evaporation.*



*AIMS panels help cotton growers program center pivots to apply precise amounts of water at very crucial points during crop development.*

He plants his cotton in 30-inch rows the first week of May. Whitt has gone from pounds per acre to a population based seeding rate. "We try to get six seeds to the foot, or two inches between seeds," he said. He said he's found cotton crops easier to control, and boll production much more efficient under this system. Plus, he's stopped wasting seed, Whitt said.

Whitt said he generally lets the weather dictate his irrigation program, but on average he will put down 1.25 inch a week from pinhead square until peak bloom around the second or third week of July. "We get our best crop when we get first bloom by the Fourth of July," he said.

Whitt may irrigate some more later in the year, but is very careful not to over water during this period, "it's much worse to be too wet than to not have enough water—or you could disease it up," he said. "That's where the control from the AIMS Advance comes in so handy."

Center pivot irrigation also allows Whitt to spoon-feed fertilizer to his cotton crop. He also applies some herbicides through the pivots.

Irrigation has also resulted in better yields and better grades for his cotton crop. Whitt said his yields average between 900 and 1,100 pounds per acre but have reached up to 1,700 pounds.

### Center pivots and harvest aides team up

Whitt said using irrigation in conjunction with the many growth regulators and

harvest aides really helps make a difference. "One just enhances the other," he said. "They keep fields growing uniformly."

He also praises the assistance of his entomologist. "Anybody can make a good crop with good weather," he said. "Under adverse weather is when these guys really shine. A farmer can't keep an eye on everything and these guys take the worry out for you. They keep an eye on crop development so everything is timed right."

Whitt said he's learned a lot about cotton farming since he began in 1974. "There's so much technology and so many chemicals out there," he said. "They've really made cotton the crop it is today."

But it's still not easy to grow cotton, he said. "Cotton is a little more hands-on than other crops. The management is more intense," Whitt said. "It's like raising children. You make one mistake early on and you could have a lot of problems later." Center pivot irrigation is one very important "parenting" tool cotton growers use to raise a healthy, productive crop. ■

**FYI**

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