

## Drip Irrigation on Cotton

Loyd Jordan Farms, Meadow, Texas

### Benefits of Drip on cotton:

- Increased yields
- Increased water use efficiency
- Reduced labor costs
- Reduced energy use
- Improved ease of field access



Loyd Jordan Farms  
Meadow, Texas

Loyd Jordan is a 3rd generation farmer who cultivates 3,500 acres southwest of Lubbock in Terry and Lynn counties, Texas. He irrigates 1,250 acres with pivots and, most recently, 300 acres with subsurface drip irrigation. A neighbor had tried drip and said good things about water savings, getting increased yields on fewer acres, and how easy it was to apply fertilizers and control insects. So in 2004, Jordan installed 40 acres. He liked it so much that he installed an additional 120 acres in 2007, and then another 140 acres in 2009. Now he prefers drip to the pivots he has used for so many years.

### Lessons & Results

“I can get three bales of cotton per acre with 16 inches of drip water, but only 2.25 bales per acre with 16 inches of pivot water,” says Jordan. “Wind is a big factor out here where we have limited water supplies.” Although water is not yet being allocated, there are limitations on drilling new wells in the Ogallala aquifer, so every drop counts. But there are other reasons he likes the drip, too. “Pivots are always in the way when we need to cultivate, and water is always heavy in one spot so it gets muddy. And you need a mechanic to deal with all the electrical and mechanical problems. The energy costs associated with pivots are a concern, and the insurance costs add up, too.”

After six seasons, Jordan has learned a great deal about drip installation, operation and maintenance. In his



Jordan shanked in his 7/8 inch, Toro Aqua-Traxx drip tape 12-15 inches deep on 80 inch centers. The emitters were 16 inches apart, and the flow rate .17 gpm per 100 feet, resulting in an application rate of .025 inches per hour. Tape laterals were connected to buried PVC pipe.

most recent installation, Jordan shanked in his 7/8 inch, Toro Aqua-Traxx drip tape 12-15 inches deep on 80 inch centers in sandy loam soils with a little clay. The emitters were 16 inches apart, and the flow rate .17 gpm per 100 feet, resulting in an application rate of .025 inches per hour. In the past, Jordan had used 24 inch spaced emitters. “I liked the closer, 16 inch spaced



# Crop Solutions

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emitters better than the wider 24 inch spacing I used in the past. With 16 inch spacing I'm able to wet up quicker." Cotton was planted the 1st week of May on 40 inch centers, but hail forced Jordan to replant the first week of June and to finish the year with typical yields.

"We run the drip system continuously for about 3 weeks to germinate and fill the 3 foot rootzone with a little over 4 inches of water. Then, with the help of a consultant, we schedule irrigations pre-bloom according to crop needs. If we get an inch of rain, we can back off for 3 to 5 days." After bloom, Jordan irrigates continuously at a rate of about .2 inches per day, alternating the schedule such that each block gets equal amounts of irrigation during both daylight and night time hours. "Our consultant told us this is a good thing, so we're going along with it."

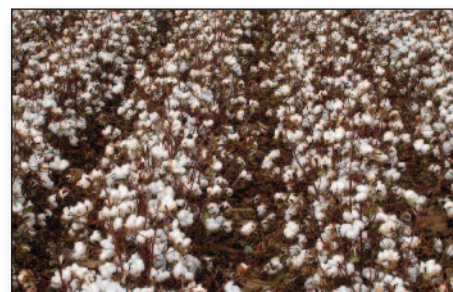
One system irrigates 43 acres with 500 gpm divided into three zones with four valves running at once. A total of twelve zone valves are automated with Toro control equipment which worked great and cut down on labor costs. "After bloom, there is little margin for error. Everything has to work right," Jordan reminds us.

**"I can get the same number of bales of cotton from 80 acres of drip as I can get from 120 acres of pivots. Why farm more acres for the same result? Yield, and crop per drop, is the bottom line."**

Jordan acknowledges that drip requires a little more intensive management and has its own problems. But he hired a consultant to help with irrigation scheduling, fertigation and scouting, and injects Vydate through the system at a rate of about 8 soluble ounces per acre to knock back the gophers. And occasionally, hose kinking can be a problem after the ditch settles in.

"But it's not a big deal - we just go out and fix it," says Jordan. In spite of the gophers and occasional repairs, Jordan believes drip irrigation requires less labor than pivots. Ultimately, he prefers drip because it applies water more evenly and efficiently, which is of utmost importance in this region of limited water. "I can get the same number of bales of cotton from 80 acres of drip as I can get from 120 acres of pivots. Why farm more acres for the same result? Yield, and crop per drop, is the bottom line."

Asked about the future, Jordan says he hopes to work rotation crops in. Depending on the schedule, he believes he could get a crop of winter wheat, sorghum or milo in after the



cotton. If verticillium wilt is present, rotation will be a must. Fortunately, there have been no cotton root rot problems in the area. But what he hopes for most is that some of his 3 children or 8 grandchildren will come back to farm with him. "Farming is a struggle, but we're hanging in there." Hopefully, with the help of drip irrigation, Loyd Jordan Farms will prosper well into the future.

The Toro Company  
Micro-Irrigation Business  
1588 N. Marshall Avenue, El Cajon, CA 92020-1523, USA  
Tel: +1 (800) 333-8125 or +1 (619) 562-2950  
Fax: +1 (800) 892-1822 or +1 (619) 258-9973

[toromicroirrigation.com](http://toromicroirrigation.com)

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