

Furrow Irrigated Rice / Producer Eliminates Legwork

By Elton Robinson
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Michael Carr knew the decision to furrow irrigate half his rice acreage this year was going to require a lot of legwork, plugging and unplugging holes in rolled out pipe, monitoring fields, turning valves, etc. Imagine his surprise when he discovered it could be done automatically, thanks to surge irrigation technology and some creative use of flexible tubing.

Carr and his father, Andy Carr, run Mascot Planting Co., near Clarksdale, Miss. They raise about 920 acres of rice, 1,450 acres of cotton, and 2,200 acres of soybeans. The rice land being converted to furrow irrigation was initially land-formed for cotton, Michael Carr points out. Cotton and soybeans are still a part of the Carrs' rotation program on those fields, and the three-tenths slope provides the row crops with good drainage.

One advantage of furrow-irrigated rice would be an easier transition between crops, Carr points out.

"We felt that the time consumed building levees and tearing them back down to get ready for another crop would be more than offset by any possible reduction in yield from the furrow irrigation. But I'm not sure there's even going to be a reduction in yield."

Last winter, the Carrs and their consultant, Don Beverly, were planning the layout of the pipe they would need to furrow irrigate rice and trying to figure a way to run the flexible tubing "without having to stumble over ourselves plugging and unplugging holes."

With a little extra flexible pipe, they eliminated the need for plugging and unplugging.

Also during the winter, a representative from P&R Surge Systems stopped by to talk about how irrigation efficiency could be increased through surge systems.

Surge irrigation is the practice of intermittently stopping and starting the stream flow in the furrow to quickly advance the water across the field. Initial runs down the field help to seal the soil surface, making succeeding runs easier. Surge can reduce tailwater runoff at the end of the row and deep percolation at the beginning of the row.

At the time, it was the programmable aspect of surge irrigation that interested Carr the most, since well capacity and location limited how much he could water at a time, which also increased legwork - turning off pumps and valves, etc. Eventually, he bought two surge units from P&R.

Where the surge systems have been installed, irrigation is completely automatic, Carr says, except for monitoring.

One of his surge units is set up to water two halves of a levee-less rice field which is three-quarters of a mile long and one-quarter of a mile wide. At the well head, which is located on one end of the field, he keys in total irrigation time and the computer figures out the irrigation sequence for each half of the field. A valve inside the t-pipe sends water to the appropriate pipe.

Carr runs two parallel lines of flexible tubing from the t-pipe along the head of the field. The outside line runs the entire length of the field but has holes punched only in the second half of the section. It waters only the half of the field farthest away from the well head.

The tube closest to the field runs to the halfway point of the field and stops. Holes are punched its entire length. It waters the half of the field closest to the well head.

The other surge unit is set up to water four quadrants. The same system described above is set up on each side of a ridge that divides the field. One side is equipped with a surge unit. The other side is worked manually.

"We can actually water half of the other side of that ridge and half of this side of the ridge, plus half of the smaller field all at the same time. That's very efficient, especially on the other side of the ridge where it drops off so much. Normally, you have one levee stacked right on top of another."

Carr notes that he has bought 50 percent more tubing with the system, but says it pays off in time saved, "and the cost of the flexible tubing has gone down." He is on a two-year rotation with rice and beans and sometimes will come back with cotton.

In the future, Carr plans to prepare land for furrow irrigated rice in the fall, although much of it was prepared in the spring this year. (Carr didn't make the decision to go to row rice until spring).

However, some of the land that went in row rice this year was in cotton last year. "We didn't do anything to it but fly on Roundup, and we drilled right into the old cotton row. We had a little stubble there, and we hoped it wasn't going to give us a problem. It didn't."

Carr experimented with several practices for preparing the furrow on other land.

"We used an Orthman cultivator with buster points that make a row, and we used a hipper on some of it. On some of it, we knocked down with a Do-al, which was a mistake. The Do-al knocked all that dirt back into the middles. Having to work the water down the row with all that dirt took a lot more management.

"I would recommend rolling the bed. You still will have a good furrow, but a flat row top. It's a lot easier in setting the grain drill."

Carr's rice furrows are 38-inches apart, the same as his cotton and soybean row spacing. The rice is planted in seven-inch rows with a Tye grain drill.

Carr achieved a good stand in the rice fields despite the presence of the furrows. "You might want to take the pressure off on top of the row and add more pressure in the middles. On the fields that were in cotton last year, the stale seedbed helped."

Carr pointed out that rice emerged on top of the rows first. But the rice in the middles caught up as the season progressed.

"As soon as it begins to dry, but not too dry, we crank the irrigation system up, run the water down, get it wet again and turn it off," Carr says.

"We try not to get behind, even if it means watering into a wet situation to keep our cycle going. If you stay ahead it doesn't take much. But if you get behind, it takes a lot. In a critical time, like heading, we would ideally want to wet it every three days."

Carr did notice more weed pressure in the furrow irrigated rice. He put out four pounds of propanil and a pound of Facet on most of the ground, flushing in the Facet after giving the propanil time to work.

"In one field, I put out a little Basagran because I had some smartweed pressure. I also used Prowl at two quarts where we needed it. For Johnsongrass, I went with Whip 360 at three-tenths of a pint and flew it on twice. We put Storm out on one field and Blazer out on about 250 acres of the row rice. I also put 2,4-D on about 125 acres where I had a lot of smartweed pressure.

"We figure that we will probably use a little more chemical," Carr says, "but we're also reducing the costs associated with the building of levees."

The only levee in the field was placed at the bottom of the field, Carr says. "It's kind of like a tail ditch levee. That's the only levee we cross on one field for half a mile. We can go along with the grain cart and dump on the go. You're not constantly up and down these levees."

After rice harvest, Carr hopes to use the Orthman to rehip the old rows and let the stubble decay during the winter. "We can leave those rows until next spring, burn it down with Roundup and plant them in something else."

Carr was told to expect about a 15 percent decrease in yield in row rice, but says, "That has yet to be seen. A good rice crop for us is 145 bushels. If we do that this year, I'll be happy. But, I'm hoping for more than that."