

TORO

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Grower Solutions

Drip Irrigation on Processing Tomatoes

Worth Farms, Huron, CA

Benefits of Drip on Processing Tomatoes:

- Increased yields
- Reduced water use
- Reduced labor costs
- Reduced fertilizer use
- Reduced herbicide use
- Ease of field access



Chuck Herrin
Worth Farms
Huron, CA

Chuck Herrin manages Worth Farms in California's Westlands Water District. Founded by his grandfather, a custom harvester turned farmer, Worth Farms today grows 4,500 acres of drip irrigated crops including 3,500 acres of processing tomatoes. Herrin first learned about drip on their 300 acres of almonds, but it took some time to translate that knowledge to their tomatoes. This is because canning companies remembered some bad experiences with over-watered and over-fertilized drip-irrigated tomatoes from other farms that resulted in undesirable low brix content.

But when the Worth management team leased a piece of sandy ground that was difficult to irrigate otherwise, they decided to give drip a try on their own operation. A local dealer helped them get started, along with neighboring farmers who had previous experience. The first system was such a success that they set out to convert more acreage as quickly as possible.

"Our best-ever yield on conventional sprinkler/gravity acreage was 64 tons/acre in 2004. Five years later, we are achieving 50 - 100% increases in yields with drip, and an overall average of 65 tons/acre operation wide. On top of that, water, labor, fertilizer and herbicide savings are substantial. We used to apply 36 inches of water per acre to meet a crop ET of about 18 inches. Now we only apply 24 inches of water, a 33% savings. At the same time, we have cut labor use by half, and fertilizer use by a third. This is significant."



Yields increased 50-100% using drip irrigation vs. conventional sprinkler/gravity fields.





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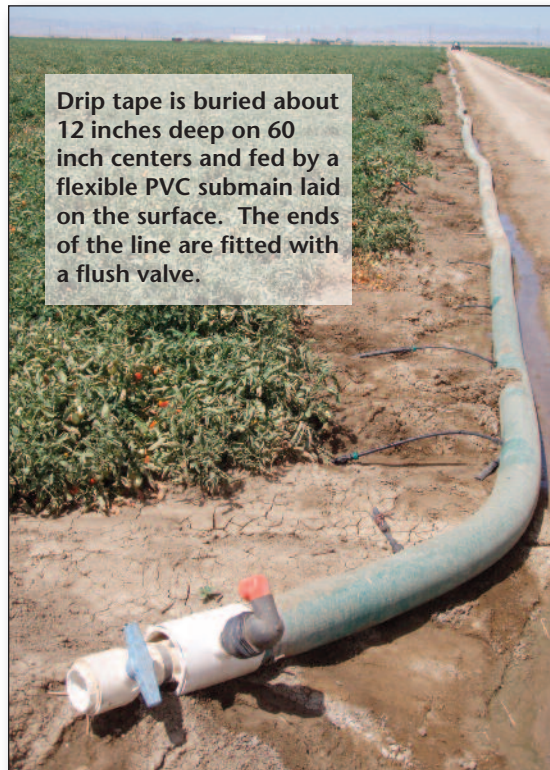
Herrin explains that the key to successfully growing tomatoes with drip irrigation is water, fertilizer and variety management. "Today we use transplants and set them with the drip as opposed to conventional seeding and sprinkling up." The transplants are 6-8 inches long and planted on 60 inch beds, 14 inches apart and 2-3 inches deep into moisture supplied by the drip tape. Toro's Aqua-Traxx drip tape, with a 7/8 inch ID, 15 mil wall thickness, 12 inch emitter spacing and a flow rate of .22 gpm/100 feet, is buried about 12 inches deep, supplying .04 inches of water per hour. A consultant was hired to help with soil moisture monitoring and management decisions, but in water-short years when surface water deliveries are cut, the crop must survive from limited supplies of groundwater alone. "The wells run full time during the summer months and barely keep up with crop water use. We have about 2,200 gpm available to irrigate 320 acres in a 3 set system - if all goes well, we can apply .36 inches per acre on any given day in the summer."

To prevent emitter clogging, the ground water is treated with both acid and chlorine. N-phuric is injected into the drip irrigation system to reduce the pH from 8.5 to about 6.5 at the ends of the line. In addition, chlorine is injected at a rate of 1 ppm continuously. "We are hoping that the 15 mil tape will last the length of the lease, about 7 years. In order to achieve this goal, we have to prevent clogging by applying the right chemicals and flushing the lines properly," says Herrin.

Herrin would like to move towards automation and more sophisticated valve control in the future. Currently, hand labor is used to open the ends of the lines and flush, but automating with a buried flush line would be more efficient. "We started with a flexible PVC layflat feeder submain, and then moved to semi-permanent, buried PVC pipe. The next logical step is to connect the ends of the lines to a semi-permanent, PVC flushing submain and bury it as well. Then the whole system is below ground and can be automated."

As Herrin reflects on the benefits, he summarizes: "Farming the tomatoes is now as easy as farming the almonds. We can access the field anytime without worrying about pipes or ditches in the way, or muddy drive rows. Now that we grow tomatoes with drip, I can't imagine farming them any other way. It's definitely the way to go - the way of the future."

"We saved 33% on water, cut labor use by half, and fertilizer use by a third. This is significant."



Drip tape is buried about 12 inches deep on 60 inch centers and fed by a flexible PVC submain laid on the surface. The ends of the line are fitted with a flush valve.



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