

PVC irrigation pipe is tough, flexible and more efficient

**By Eric McMullin
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Aluminum pipes have long been the standard in solid-set irrigation systems, but PVC piping offers several advantages over aluminum.

It's flexible so it can be moved aside during field operations, its mainline is sturdy enough to drive over, and it seals tightly and eliminates leakage at the joints. That last benefit alone improved irrigation efficiency from 86.3 percent to 94.8 percent in a California State University, Fresno research trial. Furthermore, the efficiency could be raised to 100 percent by adding pressure regulators to each sprinkler head.

So why hasn't it taken over the industry?

"Cost," said Steve Fortin, manager of Sierra Cascade Nursery in Susanville. Not the added cost of PVC pipe versus aluminum, simply the added cost of replacing an existing aluminum system.

"A lot of people would like to switch to PVC pipe, but it just doesn't pencil out for them," said Fortin. "Especially if a guy has a lot of aluminum pipe just sitting out there already."

With the recent run-up in world aluminum prices, PVC pipe is now actually cheaper than aluminum, said Lee Tecklenburg, territory manager for CertainTeed Corp., which produces the Certa-Set PVC Irrigation Piping.

That would seem to make it a no-brainer for anyone putting in a new solid-set system.

"When our company buys new pipe, we buy the PVC," said Fortin.

For those with existing aluminum pipe, however, the PVC pencils out best in high-value crops. Sierra Cascade Nursery uses the PVC pipe on strawberry transplants and is putting PVC pipe in vegetables at the Susanville location. Vegetables grown in the other locations are still on aluminum pipe, he said.

Tecklenburg said that the PVC pipe is being used in onions, carrots, garlic, potatoes and cotton. "It works best in a crop where the sprinklers are set in place for the duration of the crop," he explained. "This PVC pipe results in a uniform pattern, so it doesn't need to be moved during the season."

The Fresno State study showed that aluminum pipe systems have an average efficiency of 86.3 percent. Water losses occurred due to leaks in the joints until the system reached full pressure and draining out of the joints as the system shuts down. The resulting wet spots in the field represent wasted water as well as a source of potential disease development for crops.



"Organic growers might move their solid-set systems five to seven times a season just to spread those wet spots around," said Tecklenburg.

In addition, he said, there's no sputtering of sprinkler heads when the system turns on.

"The pipe remains full of water, so our lines are fully pressurized from the moment the system starts up," said Tecklenburg. "That's important for frost protection. And you know when an impact sprinkler starts up, it'll sputter a bit and shoot out a straight line of water? That can wash out seed holes in small-seeded crops. Our research shows that those sprinklers can wash out as many as 33 or 34 holes."

A big advantage of the PVC pipe mainline is that it can be driven over in the field, and it can be moved during field operations. Several users have modified their equipment so that the pipe is lifted up, then replaced as the equipment goes through,

said Tecklenberg. The result is that crews don't have to move the pipes in-season.

The Certa-Set piping has been available for the past 14 years, but only recently have sales started to heat up. Initially, the piping was available only through Golden State Irrigation Services. It now is available through several dealers in the Central Valley.

PVC pipe has "maybe a 2 percent market share," said Tecklenburg, "mostly because the aluminum pipe is so entrenched in the industry." He expects that to increase as growers replace their aluminum systems. "Aluminum pipes have no warranty against corrosion. We have a 7-year warranty on our pipes, and I know of 14-year-old systems that are just as good as new."

Fortin said that the PVC pipe's longevity is the only question left unanswered. "We know that some of those aluminum systems can last a very long time. This has just a 7-year warranty and we really don't know how long these will last. That's probably the only concern I have left. But the big deal with this pipe is the lack of leaks and the sprinkler patterns. We're getting good sprinkler uniformity with no leaks, so we're satisfied—actually, more than satisfied—so far."

Steve Albaugh, manger of Crown Nursery in Red Bluff, has the PVC pipe on 60 acres of strawberry transplants.

"The owners were expanding, so it was an easier decision for them," said Albaugh. "I'd like to put it on our higher-elevation acres and I'll present a plan to the owners this year. It's a bit of a tough pill to swallow, but I believe that the disease prevention alone makes this almost mandatory. As a nursery, we have to deliver a clean product."