



United States Department of Agriculture
Natural Resources Conservation Service

helping people help the land

LANDOWNER PROFILE

“I saw farmers in Greece stringing water pipes through olive trees in very rocky, rugged terrain and figured if they could do it, so could I. This idea just seems to be a solution for a number of problems.”

— Russ Lester

Hanging sprinklers prevent problems

Russ Lester uses both 7/8" and 3/4" pipe, hanging sprinklers on them like the kinds used overhead in greenhouses. Among the buried hose problems he no longer has to deal with:

- No more weeds by sprinklers
- No mineral buildup in emitters. Hanging sprinklers allow all the water to drain into the air, at the lowest point, which also means no water in the system to freeze
- No critter damage. Rodents chewed through underground pipes, and jack-rabbits chewed sprinklers above ground
- No more problems locating underground leaks, pinched pipes and flow problems



Russ Lester calls his innovative elevated pipe an upside-down sprinkler system. The Solano County, Calif. organic farmer has threaded plastic pipes through the branches of 215 acres of walnut trees and found enough benefits that he wants to put pipe up in the air throughout his whole farm.

“We’ve been evaluating this for six or seven years now,” said Lester. “We farm organically and try to look at the whole picture, including energy. This idea just seems to be a solution for a number of problems.”

His flood irrigation system was loading water up on one end of the field to the extent that trees on the other end were stunted, and buried irrigation piping presented other problems.

He originally was thinking about how grape growers used trellises to support irrigation pipes and had talked with a visitor from Italy who was using elevated pipes on his farm. Then he saw farmers in Greece stringing water pipes through olive trees in very rocky, rugged, terrain and figured if they could do it, so could he.



UPSIDE-DOWN IRRIGATION: Russ Lester worked with NRCS conservationist Jim Schneider and others to convert to his elevated irrigation system.



There were several concerns Lester had when he first tried the elevated system. He was concerned about pruning and shaking the trees with the hoses in them, but that hasn't been a problem. He was also concerned if the hoses would sag too much, but found they were fairly stable. He says the workers can cross-mow, another concern, as long as they keep their heads down.

Lester entered into an Environmental Quality Incentives Program (EQIP) contract with NRCS to convert flood irrigation systems on 26 acres of walnuts in both Solano and Yolo County, Calif. in to his new elevated sprinkler system. A benefit of converting to the elevated pipe instead of buried pipe is that it is easier and better for the trees, since there is no digging around tree roots.

Still testing

Lester is working with the Resource Conservation District and NRCS to test the efficiency of some of his systems. While most sprinkler systems operate at 20 to 30 PSI, he believes he can operate at 15 to 20 PSI. "We'll save energy, and with the larger droplets the lower pressure would allow, we will get less evaporation," said Lester.

High yields on organic

Lester was certified organic in 1991, but he took his first steps toward it in 1978, when he and his father began using integrated pest management.

"I wanted to reduce my use of chemicals then," said Lester. "So we tried not spraying and allowing a natural cover crop to grow under the walnuts. It turns out that beneficial insects took care of the pests. We were

CONVERTING FOR EFFICIENCY. Lester entered into an EQIP contract with NRCS to convert flood irrigation systems on 26 acres of walnuts in both Solano and Yolo Counties to his new elevated sprinkler system.

finding only two to three percent worm damage when others with sprayed fields were seeing 20 percent worm damage."

He began to seriously pursue organic farming in the late 1980s. He had stopped using chemicals for both insects and weeds at that time and decided to quit using commercial fertilizer.

"I had beautiful walnuts, but my walnuts were being dumped in with everyone else's crops. I knew mine were quality nuts and if I got certified I could get a premium for them," added Lester.

He says organic farmers do need to get a premium because they are constantly doing research with their own finances, they have higher labor costs and they are more susceptible to weather.

"But I think we have a superior product and we do have high yields. Our production is two times the state average," concluded Lester.

Lester set a goal to become energy self-sufficient by 2012. He has a solar system and machinery that burns walnut shells to generate electricity to dry walnuts.