

WATER CHALLENGES DEEPER THAN DROUGHT



DAN COYRO/SENTINEL

After consulting with irrigation experts, Royal Oaks farmer Javier Zamora improved his irrigation efficiency on his farm where he grows strawberries, cut flowers, broccoli, kale and cabbage.

Groundwater basin provides steady supply, but damaged by excess pumping

Water Supply - 2000
By DONNA JONES

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ROYAL OAKS — Rows of kale, chard and cabbage back up to a field of strawberries on Javier Zamora's 20 hillside acres off Maher Road.

Zamora grows "a little bit of everything," vegetables, flowers, berries, herbs.

His latest crop: Proteaceae. Native to South Africa and Australia, the shrubs sport colorful foliage that Zamora aims to market along with his tulips, marigolds and other flowers to florists. As he looked over the three-plus acres of foot-high proteaceae shoots on a recent morning, Zamora said for a small farmer like himself, the new planting represents a big investment since it will take four years before he has a crop to sell. But proteaceae comes with a powerful benefit as well. Once established, the plants require little maintenance and, more importantly, almost no water.

SEE WATER ON A3



DAN COYRO/SENTINEL

Royal Oaks farmer Javier Zamora shows off a proteaceae flower which is part of his cut flower farming business. Once established, the drought-resistant proteaceae require very little water. After consulting with irrigation experts, Zamora improved the irrigation efficiency on his farm where he grows strawberries, broccoli, kale and cabbage.

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JOHN EISKAMP, raspberry grower

WATER

Continued from A1

"Water is expensive," Zamora said, "and we don't have a lot."

That's a fact, and not only due to drought that isn't over despite a shift in the weather pattern in the past week that's brought rain and is expected to bring more in coming days.

"It's going to help with the drought, but it's not going to end it," said forecaster Bob Benjamin at the National Weather Service in Monterey of the recent rains. "It's going to take a lot more rain and a lot more snow than we're getting to end the drought. But it's step in the right direction."

So far, the drought's impact in the Pajaro Valley has been limited. Watsonville's wetlands have all but dried up, and the city experienced an unusually high number of brush fires in January. But the region and its economic powerhouse, agriculture, depend almost exclusively on groundwater. That reliance on the underground storage rather than surface water has provided a steady supply of water to consumers, including farmers who use more than 80 percent of Pajaro Valley water.

But for decades more water has been pumped from aquifers than is recharged by annual rain. As freshwater levels fall, saltwater is moving in to take its place along the coast, contamination that's creeping inland and tends to worsen with drought.

A lengthy drought could not only extend saltwater intrusion but also could put wells drawing from the shallower aquifers of the groundwater basin at risk of running dry, said Brian Lockwood, the Pajaro Valley Water Management Agency's hydrologist.

"The first year a drought happens, you have recharge from the last year, but the longer you go, the worse it's going to get," Lockwood said in late January. "If we're pretty much done for this year, which I hope we are not, next year at this time, we're going to have a much bigger problem."

In January, Pajaro Valley officials joined Gov. Jerry Brown in calling for a voluntary 20 percent reduction in water consumption. That's a tough call for Pajaro Valley farmers, who have pumped at higher than usual rates so far this winter to compensate for the lack of rain.

"How can we reduce our water use when we don't have rain? We have crops in the ground," said farmer Dick Peixoto, who presides over the largest family-owned organic operation in California. "If there's not rain, we have to replace it with sprinklers. We can be as efficient as we can, but we're still going to use twice as much as we would if it rained."

TRIMMING WASTE

Peixoto, who grows on more than 1,000 acres throughout the Pajaro Valley and another 600 in the Imperial Valley, said water conservation is an ongoing project, not a response to drought. Managing consumption at all times, he said, allows for water to be banked during wet years and tapped in dry. He estimates he uses 50

percent less water than he did 15 years ago. To accomplish the reduction, he's abandoned water-hungry practices, such as flooding furrows to irrigate lettuce, and paid more attention to irrigation details, such as water pressure.

Across the valley, he said, farmers are learning their crops don't need as much water as they were given in the past, and they are using less.

"People have learned it's easy to overwater, but not so easy to underwater," Peixoto said.

A statistic from the Pajaro Valley Water Management Agency lends weight to the claim that the region is getting smarter with its water use. On average, the Pajaro Valley taps 55,000-acre feet of water of each year for urban and agricultural uses. An acre-foot of water is 326,000 gallons, roughly enough to irrigate a half-acre of strawberries or supply two families of four for a year.

Water use spiked to 61,000 acre-feet last year, when 3.5 inches of rain fell in Watsonville. But that was 1,000 acre-feet less than in 2008, when Watsonville recorded 16 inches of rain, about four inches below the 20-year average but more than four times the 2013 total.

The water management agency has a long-range plan to address an average shortfall of 12,000 acre feet through water supply projects and additional water conservation.

Zamora, who, like Peixoto, farms organically though on a more modest scale, said he's doing what he can to cut water consumption. He recognizes the limits of the supply and is all too aware of the expense of tapping what's there. Like all Pajaro Valley well users, he pays a pumping fee to the water management agency to fund the planned projects. The bill at one of his two ranches for the last quarter of 2013, a time when little irrigation is usually required, came to \$1,448.72. The electricity to run the pump at the ranch cost \$1,100 in November and December, more than double the usual bill for the two months. He's had to pay workers to help with the irrigation, as well.

"For me, I'm a really small farmer, and there not being rain has thrown my budget out of whack by at least \$7,000," he said.

The incentive to conserve water is strong if only to cut costs. But Zamora, who sits on the water board, doesn't think the call for a 20 percent voluntary cut is realistic, though he voted for the resolution to stress the seriousness of the problem. He's striving for a 10 percent reduction.

"That's a realistic goal," he said.

BETTER PRACTICES

Zamora uses drip irrigation where he can — his leafy greens require overhead watering with sprinklers — and he replaced a leaky PVC irrigation system in place when he leased the land with more efficient drip tape. He redid his sprinkler system as well after farm advisers evaluated it for uniformity of



PEIXOTO

BY THE NUMBERS

7.89 INCHES: Total Watsonville rainfall in December 2012

0.46 INCHES: Total Watsonville rainfall in December 2013

22.5 INCHES: Total Watsonville rainfall, 2012

3.5 INCHES: Total Watsonville rainfall, 2013

22 INCHES: 20-year average rainfall, Watsonville

55,000 ACRE FEET: Annual Pajaro Valley water use, average

61,225 ACRE FEET: Annual Pajaro Valley water use, 2013

18,375 ACRES: Cultivated in Santa Cruz County, 2012

\$566.2 MILLION: Value of Santa Cruz County agriculture, 2012

SOURCES: California Department of Water Resources, Pajaro Valley Water Management Agency, Santa Cruz County Agricultural Commissioner 2012 Crop Report

distribution and found some areas were getting more water than was needed, and some areas less.

Zamora said he'll switch out some crops this year, too. He's already advised customers he won't have broccoli in the next season. Instead he'll plant a less thirsty crop, perhaps onions, carrots or beets, he said.

Some farmers will set a schedule for irrigation and stick to it no matter what, Zamora said. He walks his fields every day, paying close attention to conditions before making deciding how much to water.

"What you need to do, to figure out, is whether you're wasting water," Zamora said.

Rasperry grower John Eiskamp also is closely monitoring water needs with field inspections and a system of electronic soil probes and wireless technology that delivers up-to-the-minute data to his computer or iPhone.

Eiskamp, who farms along Holohan Road east of Watsonville, credits the technological approach for a 20 percent drop in water consumption. Community Water Dialogue, a coalition of growers that formed three years ago to develop solutions to the groundwater problem, has promoted the system as a model tool for farmers trying to conserve water. Equipment loans and low-cost wireless access make the system feasible for even smaller farmers, said Eiskamp, a coalition member. But it has yet to be widely adopted.

"We would like to see more larger growers get involved in the system," Eiskamp said. "Then, they can help their peers within the grower network."

Like others, Eiskamp is skeptical of a 20 percent cut-back when crops are already in the ground. But he does think everyone has to get on board with solving the longer term water supply issue. The coalition is a good start, he said, evidence of a growing awareness of the groundwater issue and commitment to change.

"I hope we don't get to the point where people are mandated (to conserve)," Eiskamp said. "Some people are reducing more than others, and it's counterproductive to penalize those who are already doing a better job. We need to help those who could do better to do better."

HELP OFFERED

Water management agency leaders plan to spend \$100,000 this year to assist farmers with water conservation, and they are developing a more extensive program.

Richard Casale, district conservationist for the U.S. Department of Agriculture Natural Resources Conservation Service in Capitola, said his agency can help as well with free expert guidance and grants for water conservation projects.

He said the first thing to tackle is water management practices, whether replacing leaky pipes and worn out sprinklers or better scheduling of irrigation.

Other helpful practices include building soil with organic materials for improved water retention and cover cropping, Casale said. His agency also can help with water collection and storage systems, either through the reuse of irrigation runoff or taking advantage of rainfall. The agency provided 50 percent of the funding to install a rainfall catchment system at a vineyard and winery in the Santa Cruz Mountains above Soquel, for example.

Casale pointed to studies that have shown drought is not only common in California, but can last decades. In past droughts, the state didn't have nearly the population to support it does today.

"We still have a lot of growers we haven't spoken too, but more are coming to the table," Casale said. "They are seeing the handwriting on the wall. We have a pretty serious water shortage."

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