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Photo/Dino Giacomazzi

Kings County dairy farmer Dino Giacomazzi added a concrete weir on his property, above, to improve the solid-liquid separating process in his settling basin and prevent solids from flowing into the dairy lagoon. Giacomazzi was one of three San Joaquin Valley dairy farmers who spoke at the 2010 World Ag Expo about ways to simplify dairy nutrient management and improve water quality.



Photo/Christine Souza

Improved water management brings benefits for dairies

By Ching Lee

Many California dairy farmers are changing the way they manage dairy waste, to make better use of the nutrients the waste provides and to comply with environmental laws.

At the 2010 World Ag Expo in Tulare this month, three dairy farmers from the San Joaquin Valley discussed some of the technologies and practices they have implemented on their farms, to improve water quality while meeting wastewater discharge requirements.

Kings County dairy producer Dino Giacomazzi said even before water quality regulations required dairy farmers to monitor and manage nutrients from their operations, he was already employing some of

those practices when he began using conservation tillage for growing corn and wheat.

"We're trying to reduce our inputs on every level—reducing the number of tractor passes that we make and the amount of fertilizer and pesticides that we're using," he said.

Because water from the dairy's lagoon and dry manure are used to provide irrigation and nutrients for his crops, Giacomazzi looked at ways to improve the distribution of those nutrients through his fields. One was to make the solid-liquid separating process better.

His dairy separates solids in a settling basin. In the past, water from the dairy would flow from this basin to the lagoon through a 10-inch-diameter pipe. But

the majority of the solids would flow into the lagoon rather than settle at the bottom of the basin, and an excavator would be needed to remove those solids, which are then used as bedding or applied to fields.

"So it was costing us money to get the solids out of there," Giacomazzi said.

To improve the solid-settling process, he added a concrete weir in front of the pipe, to serve as a barrier to the solids and to create a much wider area for the water to pass. The water would rise to the top of the concrete wall, slowly flow over it, go through the pipe and then into the lagoon.

"I call this the Everglades effect," he said. "The Everglades is essentially water spilling out a lake and

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it's going very slow, very shallow across the floor and down into the ocean, so it allows the solids to stay behind."

His project was one of 26 completed in partnership with the organization Sustainable Conservation, through a state grant program that funds water quality improvement projects that include installing pipelines, flow meters, solid/liquid separators and manure collection systems. The grants provide a cost share to help farmers implement those improvements in dairies throughout the San Joaquin Valley.

There are other ways to achieve a more agronomic distribution of nutrients. For Tulare County dairy farmer Bill Van Beek, the solution was in upgrading his tailwater return system to make more efficient use of his water and improve distribution of nutrients from that water.

He milks about 2,800 cows and farms some 320 acres, irrigating with water pumped from his lagoon mixed with fresh water. In his old system, tailwater from his fields would be pumped back to be reused on just 80 acres of his entire field.

But the nutrient-rich recycled water was actually burning his crop, and he noticed yields were dropping in that 80-acre field.

To rectify the problem, Van Beek installed a pump and replaced old pipeline with a larger one so that he could distribute the tailwater to all 320 acres of his field.

"All these pipelines allow us to get water to all the different ranches," Van Beek said.

"It's a more efficient use of the nutrients and water," added Joe Choperena,

project manager for Sustainable Conservation. "By pumping it back to all 320 acres, it distributes those nutrients over a much larger area, so the plants aren't exposed to too much nitrogen, and his yields are improving," he said.

Being able to better disperse wastewater from their dairies to croplands they are farming is a common conundrum for many San Joaquin Valley dairy farmers. As farmers consolidate and expand their operations to improve their economies of scale, they often need to upgrade their systems to accommodate for the increased production and to improve their nutrient management.

That was the case with Fresno County dairy farmer Melvin Medeiros, who was pumping lagoon water from his dairy to 80 acres of farmland. After acquiring an additional 20 acres, he wanted to extend his existing pipeline from the 80-acre field to connect to another pipeline that would allow him to pump lagoon water to those 20 acres.

To help pay for the improvements, he applied for a grant through the Environmental Quality Incentives Program, or EQIP, through the U.S. Department of Agriculture Natural Resources Conservation Service.

But there were some stipulations with that funding. One of them was that he had to develop a nutrient management plan. He also ended up installing two flow meters to monitor the amount of fresh water he was using in his milk parlor and how much water he was pumping out of his lagoon to his fields.

"When I applied for this funding, the only thing I was looking at was getting pipeline for that 20 acres of ground," Medeiros said. "What I didn't anticipate was flow meters and a nutrient manage-

ment program that we were going to implement before it was required—how that was going to benefit our operation. So I got a little more than I bargained for."

Choperena said flow meters are an important tool in dairy nutrient management. By having a flow meter on a lagoon discharge pipe, dairy farmers can monitor how much water is being pumped to their fields. And if they know the concentration of nutrients in that water, they'll also be able to calculate how much nitrogen they are applying to their fields.

"Flow meters allow you to monitor the amount of water and nutrients you're applying to your fields," he said. "If timed with the crop's nutrient demand, you can apply an accurate amount that meets the crop's needs. Instead of guess-

ing, you're going to have a much better estimate of how much nutrients you're applying out to a particular field."

With an additional state grant through Sustainable Conservation, Medeiros also added another pipeline to connect with existing pipeline that enabled him to distribute lagoon water to another 45 acres.

Out of his own pocket, he financed the installation of another pipeline to connect two more pipelines that allowed him to access 155 more acres of cropland.

"By distributing those nutrients over a larger amount of cropland, you're able to have more crops take advantage of those nutrients," Choperena said.

(Ching Lee is an assistant editor of Ag Alert. She may be contacted at cle@cfbf.com.)

Group urges yearly well checks

With National Ground Water Awareness Week just around the corner, farmers and rural residents who own wells are encouraged to schedule an annual water well checkup, to ensure their well caps are in good condition to protect the water supply.

Ground Water Awareness Week, March 7-13, is sponsored annually by the National Ground Water Association.

"A damaged or unsecured well cap can allow the entry of bacteria or other contaminants into the well," said John Pitz, a member of the NGWA board of directors. "It is one of the easiest things to check, and a well owner can do it."

While well owners can spot a damaged or unsecured well cap, "they should always use a qualified water well systems contractor who knows applicable well construction codes," he added. "If the well cap is damaged or unsecured, the water well contractor may also need to test the water and disinfect the well."

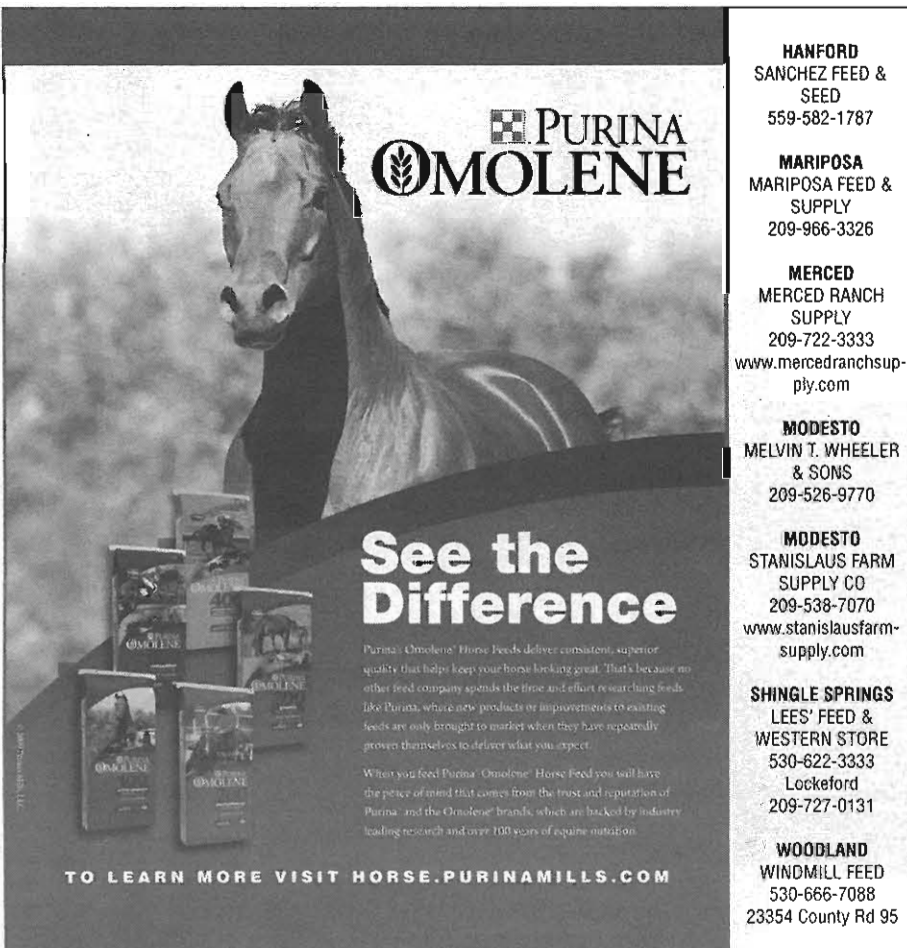
Having a well tested is the surest way to determine that the water is safe, according to NGWA. Even if the well cap fits

tightly on the well and the water tastes fine, the water well system should be given a checkup by a contractor every year, NGWA advises.

The American Farm Bureau Federation supports National Ground Water Awareness Week because of the importance of groundwater to farms and ranches for irrigation, and because 96 percent of rural Americans depend on groundwater for their water supply, said AFBF President Bob Stallman.

"Irrigation accounts for the largest use of groundwater in the United States," he said. "Some 58 billion gallons of groundwater are used daily for agricultural irrigation from more than 374,082 wells. America's farmers and ranchers take their roles as environmental stewards very seriously. We are committed to ensuring that America's groundwater supply is safe, clean and pure."

To learn more about proper well location and construction, well maintenance, water testing and treatment, and groundwater protection, visit www.wellowner.org.



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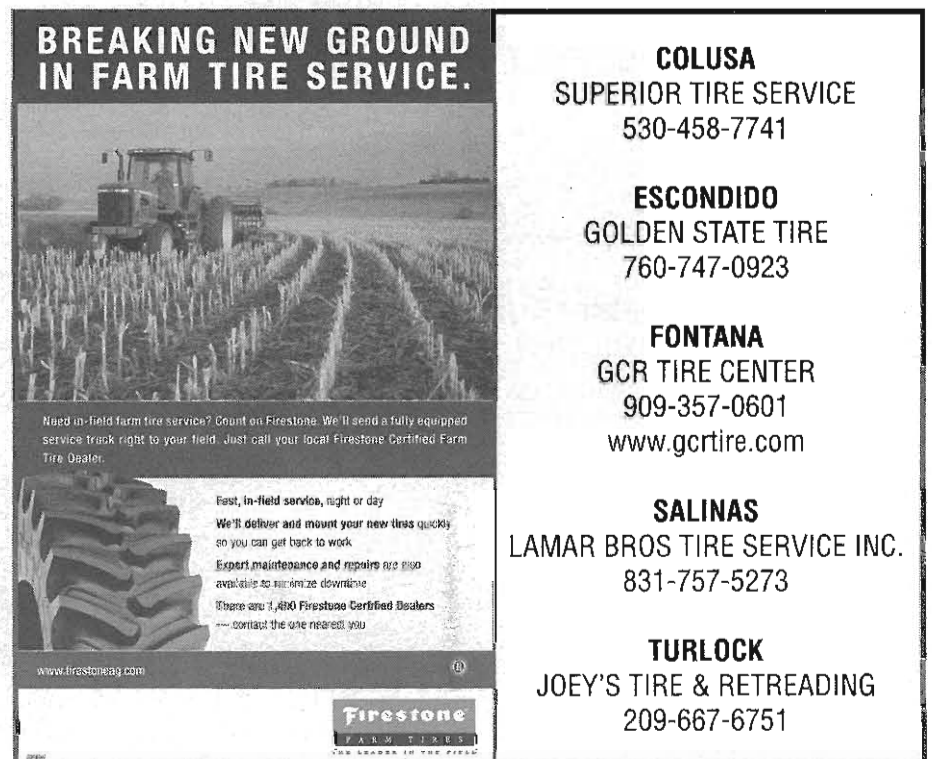
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