



# EQIP improves dairy farm's water quality

**SMART USE:** Jesus Perez, Laclede County dairy farmer, says his new waste-management system is making a difference on his dairy operation. In addition to keeping his cows cleaner, it prevents waste from polluting groundwater.

By **CHARLIE RAHM**

It didn't take Jesus Perez long to figure out that he liked the new animal-waste management system on his dairy farm.

"Before, it was hard for the cows. It was hard for me," Perez says as he looks out over the new roof-covered, concrete feeding floor next to the milking barn on his Laclede County farm. "Now, it's very nice."

Perez has been operating the 75-cow dairy since 1996. He and his wife, Juanita Martinez-Perez, have co-owned it along with Juanita's father since 1999. Because they qualified in 2003 as limited-resource farmers, they were able to receive 90% cost-share under the Environmental Quality Incentives Program to install an animal-waste system.

## Key Points

- Laclede County dairy installs waste-management system.
- EQIP cost-share made project possible for 75-cow dairy.
- System protects farm's water quality and boosts efficiency.

EQIP is a program managed by the USDA's Natural Resources Conservation Service that promotes agricultural production and environmental quality. It provides financial and technical assistance to help farmers install structural conservation practices and to implement management systems that promote conservation.

The \$100,000 system that Perez installed includes the feeding floor, roof, holding pit, lagoon, and storage tank and flush system. It also includes

a new well, supply lines, tanks and hydrants for a prescribed grazing system on the 160-acre operation.

Before the waste-management system was completed in January, solid waste built up on a dirt lot next to the milking barn. Perez had to scrape it up and haul it to a large pile on the farm. Now all he has to do is open the valve to a tank, which flushes the waste off the feeding floor and into a lagoon. Water from the lagoon is then pumped back into the flush tank for use the next day.

"The system has improved efficiency," says Dan Silberberg, NRCS district conservationist. "It helps him save time in hauling waste, and it provides a lot cleaner environment."

Perez says he noticed those benefits right away. "When the cows go in the barn now, they are clean, and it keeps the milk barn clean," he says. "It's a lot easier for me."

## Careful planning

Theresa Woods, NRCS agricultural engineer, says it took about a year working with Perez to design a system that would work well at his farm and would achieve what he wanted.

A few obstacles affected the design. For instance, the lagoon needed to be located 440 feet from the feeding floor because rocky soil near the feeding and milking area would not have supported a lagoon. The waste could not be flushed the entire distance to the lagoon, so a holding pit was built at the end of the feeding floor. From there,

the waste flows through an underground pipe from the pit to the lagoon. There is also a sink-hole near the milking barn, so the system was located downhill from it.

"If waste got into that sink-hole, it probably wouldn't just affect water quality right there," Woods says. "It could affect water quality at nearby Bennett Springs, a state trout park."

## Fertilizer saver

In addition to reducing labor, protecting water quality and creating a cleaner environment at the farm, the waste-management system should reduce fertilizer costs.

Perez will follow a nutrient-management plan developed by a technical service provider. The plan will help him know the best time to pump the nutrients from the lagoon onto the grass in the pastures. It will also help him get the nutrients to the pastures that will benefit the most from them.

"They probably won't know until they pump out the lagoon the first time how much they will save," Woods says.

Perez's wife, who manages the farm's finances, says the family is thankful for EQIP because it has allowed them to vastly improve their dairy operation while also creating cleaner living conditions around the house the couple shares with their son, Marcos.

"We couldn't have done this on our own," she says.

*Rahm is an NRCS public information and marketing specialist in Columbia.*

## Energy firms yield potential water source

An overlooked energy industry byproduct — water — could be a valuable resource for Missouri agriculture to tap into in the future.

The volume of water produced from domestic oil and natural-gas wells greatly surpasses the amount of oil and gas produced. This traditionally had been problematic for an industry that struggled to find cost-effective water-management solutions. Now, new technologies and water treatment programs have changed this scenario.

"What has historically been viewed as a waste that was disposed of in a cost-efficient and environmentally sound manner can now be efficiently managed and used as a valuable resource," says Dan Arthur, a partner of ALL Consulting, Tulsa, Okla.

While some of this "produced water" is too salty for use, large quantities may be utilized as an environmentally safe source of agricultural irrigation, power generation, aquifer storage, surface discharge and even wildlife use.

## Management researched

ALL Consulting and the Interstate Oil and Gas Compact Commission conducted a national research effort, funded by the U.S. Department of Energy's National Energy Technology Laboratory, focusing on the management of produced water from onshore exploration and production operations in the United States.

Researchers evaluated oil and gas operations throughout the country to observe how the industry has dealt with water-management challenges. They released their results in a guidebook that catalogs data on produced-water quality and water processing techniques that operators are implementing across the country.

The guidebook also discusses regulatory challenges associated with produced water.

Currently, each oil- and gas-producing state is responsible for regulating produced water in accordance with its specific geographic and geologic conditions.

To find out more about produced water and its beneficial uses, visit the Web site [www.ioGCC.state.ok.us](http://www.ioGCC.state.ok.us).

The IOGCC, representing the governors of 30 member and seven associate states, promotes the conservation and efficient recovery of the nation's oil and natural-gas resources while protecting health, safety and the environment.



**CLEAN SWEEP:** Perez opens the valve to the water storage tank, which then flushes waste off the freestall barn feeding floor and into a lagoon. Water from the lagoon is then pumped back into the flush tank for use the next day.