



United States Department of Agriculture
Natural Resources Conservation Service
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Conservation Program Helps Dairymen Stay in Business While Protecting Water Quality

Although the creek bisects the organic dairy, all water from the dairy and its fields, drains away from the creek and no dairy water leaves the farm.



Drainage pad: *The field is gently sloped to run toward this concrete-lined drain. Water from the pasture is collected and recycled.*



Facing the issue head on: *Like her owner, this cow appears ready to face issues head on. "I don't see problems I see challenges," says Van Ryn. "And I prefer to be proactive and face them head on. When I got back in dairying I knew I had water quality challenges. I wanted to make sure no manure or chemicals were leaving the farm. But without the NRCS cost share it would have taken me 20 years or more. I have done it in less than seven."*

Regulations & Economy Pose Serious Challenges

In 2009, Bill Van Ryn operator of both an organic and a conventional dairy in California's Central Valley, faced a serious hurdle: His dairies faced new regulatory requirements to develop and implement Waste Management Plans for water quality work. Without the plans and work, his dairies would be shut down.



Little John Creek: *Bill Van Ryn stands next to Little John Creek, which his family calls the "Wild Kingdom" because of the wildlife such as river otter, beaver, and raccoon that live there.*

Van Ryn had lots of company. Fourteen hundred other dairies in the Central Valley faced the same mandate. Van Ryn had been working toward a goal of making his dairies "closed loop systems" that contained and reused all their water. The new regulations had similar goals as Van Ryn's—protect the creeks and other water bodies. However, the new mandate came at a very difficult financial time for dairy producers, many of whom were dancing on the edge of being able to stay in business.

Industry/NRCS Collaboration

Through a collaborative agreement, Western United Dairymen (WUD) worked with the California Natural Resources Conservation Service (NRCS) to find both technical and financial ways to help keep the milk flowing and the water clean on Central Valley dairies.

"The timing couldn't have been better," says Van Ryn. "Dairy producers have struggled with low prices in recent years and there was no way many of us could have made the infrastructure improvements on our own that we wanted to make."

Farm Bill Partnership Programs Key

First, the NRCS engineers and technical staff had to adapt the Agency's planning procedures to cover all the components of the State-required Waste Management Plans. Next, the dairy industry applied for some of the new conservation funds available under the 2008 Farm Bill. The Agricultural Water Enhancement Program (AWEP) and the Cooperative Conservation Partnership Initiative (CCPI) grants were both good possibilities. Both programs relied on an outside organization to bring together farmers who were interested in cooperating to make a real difference in a conservation goal.

In this case, Western United Dairymen was well positioned to play a coordinating role. The Industry was very effective at organizing producers to successfully apply for AWEF and CCPI funds to get the Waste Management Plans they needed to protect California water quality.

Getting to Work

Then the on-the-ground work began. The planning need greatly outstripped NRCS in-house capabilities. Each dairy needed to be inventoried and then engineers and agronomists needed to quantitatively determine how much manure was being generated, how it could be safely stored, measured, transported and applied to all the fields on the farm—in the proper amount and at the proper time needed by the crop. Private consultants were identified who could help with this enormous planning workload. Manny Sousa was one such consultant. “This project was a lifeline for my engineering business,” said Sousa. “Much of the traditional construction work was drying up and this gave us a new set of agricultural customers. It has really changed our business.” Sousa added that many of the dairy customers that knocked on his door told him that they could not have

done the work without the AWEF program.

Once a plan was in place, dairy producers had a clear path forward to put in place the structures (storage/separators/pipelines) and the management to safely store and use the manure as a fertilizer. Successfully

done, all this meant ground and surface water would be protected while the manure would take the place of at least part of the synthetic fertilizer that would otherwise be needed by the crop.

Between 2009 and 2011 WUD successfully applied for and received \$20 million in AWEF and CCPI awards—an amount matched by producers. This permitted almost 1,000 conservation contracts to be awarded to California dairy producers, about 90 percent of whom were in the Central Valley.

For many dairy producers it was the first time they had entered an NRCS office. In the Stockton, California office where Van Ryn receives assistance, eight dairy farmers had never been in the conservation office before they came to develop a Waste Management Plan. This wasn't the case for Van Ryn. He had already begun his “grand plan” to collect and recycle all water on his dairies, including the liquid component of the manure.



229: Cows enjoy the organic feed on Van Ryn's Gawne Organic Dairy. This dairy, as well as his conventional Brazil VanRyn Dairy both boast entirely closed water systems, collecting, pumping and redistributing all manure, irrigation and wash water, as well as rainfall.



Low Spot/Dairy: All parts of the dairy drain here. Water can then be re-used via pumping and piping on all parts of the dairy, including fields. No water leaves the premises.

THE BENEFITS

- ▶ Three fourths of California's Central Valley dairies cooperated in the joint effort by NRCS and the dairy industry to develop the Waste Management Permits required to stay in business.
- ▶ Synthetic fertilizer use decreases as manure nutrients are usefully distributed.
- ▶ Groundwater is protected.
- ▶ Surface water in the San Joaquin River and tributaries is protected.

SOME OF THE PRACTICES UNDERTAKEN BY DAIRY FARMERS

- ▶ Producing the Manure Management Plans.
- ▶ Manure Storage Ponds.
- ▶ Manure Transfer Lines.
- ▶ Settling basins.
- ▶ Strategic manure application to crops.

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— Bill Van Ryn

Blueprint for Success

“There’s a story to be told here and it’s a big story. In fact it’s a game changer,” says Van Ryn. “In my opinion, this is a model for how government should work if they find it necessary to introduce new (environmental) regulation. Without these grant opportunities from NRCS there would have been major challenges for the Industry.”

This involved leveling and sloping the fields and facilities towards a central drainage point, placing heavy concrete pads beneath feed and manure piles to prevent leaching, developing lagoons large enough to catch and store all the liquid, install pumps where needed to reroute water, and replace or install no less than seven miles of buried pipelines to safely convey the liquid.

“It’s the right thing to do and some things will pay for themselves eventually,” says Van Ryn. “The efficiencies in the irrigation, for example. But tackling an infrastructure change of this magnitude is daunting. I couldn’t have done it without the cost share.”



Lagoon: *Water is stored in the clay-lined lagoon until it is needed. Eventually Van Ryn would like to equip it and the other two holding ponds with plastic liners, but that constitutes a \$30,000 investment per pond just for engineering and design work.*



Field: *Water—irrigation or precipitation—from the field to the right is received into this deep ditch and is then recirculated to the head of the field a half mile to the right by the pump in the foreground. The dairy is a hydrologic closed system.*

In short, dozens if not hundreds of California dairies continue to be in business today, that may not have been without this assistance. Additionally, surface and groundwater is being separated from manure and fertilizer nitrates that are instead being safely used to fertilize thousands of acres of crops.

“It’s a win-win,” summarizes Van Ryn.

