The Seattle Times
Winner of Eight Pulitzer Prizes

Originally published January 26, 2012 at 9:06 PM | Page modified January 27, 2012 at 8:17 AM

Longtime Monroe dairy farm now turns manure into money

At the Werkhoven Dairy farm in Monroe, a family business has been transformed by turning manure into money.

By Nancy Bartley

Seattle Times staff reporter

MONROE — It's 5 a.m. at the Werkhoven Dairy — happy hour for Holsteins.

From a 5,000-gallon black tank containing beer and wine, Andy Werkhoven adds two pounds of alcohol to the feed of each of the 1,000 milking cows.

"Cow-bernet," he jokes. Not to mention a little Bud Light, Coors and any other out-of-date alcohol stores can't sell.

Old MacDonald's Farm this isn't.

In fact, as dairy farmers everywhere seek to stay in business and meet tougher-than-ever environmental standards, they are finding new ways not only to feed cows, as Andy and his brother Jim Werkhoven have discovered, but to deal with the waste as well — turning manure into money by letting it generate electricity.

Like so many dairy farmers, the Werkhovens felt the pinch in 2008 when milk prices plunged, hay prices rose and there was the ever-present issue of finding appropriate ways to dispose of waste. Right and left, dairies were going under — even those like the Werkhoven Dairy, which has operated for decades.

"I'm just glad my dad wasn't around to see it," Andy Werkhoven said. Sam Werkhoven, who started the dairy in 1959 with 25 cows, died several years ago.

When Daryl Williams of the Tulalip Tribes, strolled into their pasture one day with an idea on how to turn manure to money, Andy Werkhoven was ready to listen.

The Tulalips were interested because the Werkhoven Dairy is at the confluence of the Skykomish and Snoqualmie rivers, the historic fishing area for the tribe.

Williams' idea was forming a nonprofit group, Qualco Energy, and buying an anaerobic digester to turn manure to methane, which in turn, powers a generator that puts electricity on the grid.

In Washington, there are six digesters. A seventh digester system is being built in Enumclaw. Some serve more than one farm, and while no one has added up the energy they make all together, they are helping preserve the water quality of rivers for the generations to come, say environmentalists.

"When properly installed, they ... provide an overall environmental benefit," said Larry Altose, spokesman for the state Department of Ecology. "The process takes ... waste and converts it to a resource and in doing so helps protect water quality ... . It recovers invaluable nutrients ... from the solids left over and it can be very beneficial to the farm economy."

Digesters also help control the odor problem from farms and show "great promise" for the dairy industry, Altose said.

Using for energy production what went into Bossie and back out — along with other bio-waste products that would otherwise have ended up in the sewer or landfill — is the dairy trend for the future, said Mark Leader of the Washington Dairy Products Commission.

Washington's dairies are a $2.3 billion annual industry, when the total economic impact to the state is calculated, and second only to apples in agricultural-product sales, said Blair Thompson, communications director for the Dairy Farmers of Washington.

So important is the dairy industry, that last week when ice and snow made highway travel slow and treacherous, Gov. Chris Gregoire waived the limit on driving hours for truck drivers carrying milk from the state's dairies to processing facilities. She also allowed more driving hours during a 2008 snowstorm because milk spoils quickly.

At Werkhoven Dairy, sales of milk but also electricity and compost keep the dairy viable while preserving air and water quality and protecting salmon streams.

The manure from the dairy goes through a complex treatment system, is sent by pipe to the digester about a mile away and produces enough electricity to power 300 Puget Sound Energy customers.

The Werkhoven Dairy is considered a model of environmental sustainability and, along with George DeRuyter & Sons Dairy in Outlook, Yakima County, has been nominated for the U.S. Dairy Sustainability Awards to be decided next month.

The awards are intended to encourage dairies to turn to projects such as the Werkhovens did, Leader said.

When Sam Werkhoven started the dairy, he couldn't have imagined a reinvention of his farm — let alone that anyone would be feeding his Holsteins items taken from the grocery shelf, Andy Werkhoven said.

The dairy gets alcohol that's been pulled from store shelves because the expiration dates have passed. The sugar gives the animals extra energy, but the alcohol does not affect the milk.

The cows also get whey left over from the production of cottage cheese at the Issaquah Darigold plant and flour rejected for human use (it had bugs), eggs past their expiration date, leftover brewers' grain and the usual mix of corn sileage, alfalfa and molasses, Werkhoven said.

The "leftovers" are an economical feed that's also good for the cows.

Before the dairy took them, the leftovers went down the sewer or into a landfill. Now the cows are recycling them — the dairy diet is designed by a nutritionist who visits weekly. And what the cows don't eat goes into the digester, operated by Qualco but connected to the farm by underground pipes that carry the separated waste products from the dairy to the plant.

It's there, in what Werkhoven calls his "mixing bowl" — a vat leading to an underground chamber — that he adds alcohol and other "sloppy stuff" that has fat and protein, the building blocks for energy.

Once he added the alcohol too fast and a pressure valve — the methane flame that burns off any extra gas not forced down into the mix to heat it — shot up high and a gauge on the generator whistled like a tea kettle.

"It was really scary," Werkhoven said. "But there was nothing we could do. Just wait until it cooked down."

When it all began

The plan for the dairy's transformation actually started a few years ago when Monroe beef farmer Dale Reiner launched a project to restore the Haskell Slough, which over the years had filled, and trapped salmon in the dry months. He eventually was joined by Northwest Chinook Recovery (an organization working to restore salmon habitat), and the Tulalip Tribes.

The groups worked so well together, they decided to take on the dairy project.

Williams got the tribe to invest $150,000, convincing members that where the site was concerned "cows were better than condos." The U.S. Department of Energy came up with a $250,000 grant and the Department of Agriculture gave $500,000.

The Werkhovens put up $150,000. Qualco Energy was formed and now brings in $25,000 a month from the energy it creates.

The Legislature agreed to turn what long ago had been a minimum-security prison "honor farm" over to the Tulalip Tribes for the project.

The process of transforming the manure takes place underground so there's no odor; the leftover solids are nearly 100 percent pathogen-free compost for gardens and liquids for spraying onto the fields, Werkhoven said.

For Werkhoven, making the change, "was simply the right thing to do."

Nancy Bartley: 206-464-8522 or nbartley@seattletimes.com. On Twitter @BartleyNews.