

Dairyman counts benefits of digester

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By STEVE BROWN

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MONROE, Wash. -- Andy Werkhoven found a better way to deal with the manure his 1,000-cow dairy produces.

Werkhoven, who owns the dairy with his brother Jim, is part of Qualco Energy, a nonprofit that owns an anaerobic digester. The environmental group Northwest Chinook Recovery and the Tulalip Tribes also are part of the nonprofit.

The \$4 million project had several other farmers involved at the beginning, Werkhoven said, but right as the project was ready to get started in December 2008, the price of milk dropped and "the other dairies got scared and backed out."

Now he and neighboring cattleman Dale Reiner are the Sno/Sky Ag Alliance, the agricultural component of Qualco. The nonprofit is built around the common interests in developing a sustainable land strategy in Snohomish County.

Keeping wastes out of the river system benefits salmon, which are the centerpiece of Northwest Chinook Recovery and an integral part of the Tulalip Tribes' culture.

For the dairy, Werkhoven said, "Our big win is nutrient management. The digester has allowed me to make more efficient use of manure, using more over a bigger area."

As he showed off the massive generator powered by the digester, Werkhoven rattled off the numbers:

- * The digester is 16 feet deep and holds 1,452,000 gallons, utilizing manure from the cows and co-digesting food waste. The food waste includes whey, restaurant grease, fish waste, cattle blood, waste pulp, expired beverages -- "almost any organic product," he said. The materials would otherwise go to a landfill or into a sewer. Those who deliver the waste pay a tipping fee, which adds to the nonprofit's revenue.

- * The blended manure and food waste takes 17 days to flow through the system, which operates 365 days a year.

- * The "pressure cooker" inside the digester turns out upwards of 200 cubic feet of methane gas per minute. That's enough to power two generators, but with only one in place now, the excess is burned off by the flare.

- * The \$800,000, Spanish-built, V-12 engine runs constantly. Its carburetor allows it to burn different levels of methane gas, usually between 55 and 65 percent. It generates 450 kilowatt-hours of electricity, which is sold to Puget Sound Energy.

"We're turning a waste stream into a value stream," Werkhoven said. "Alfalfa hay, corn silage and grain corn produce milk, then electricity and fertilizer."

- * Solids are composted, sterilized and sold as a soil amendment. Liquids are pumped to lagoons, where underground lines channel the rich fertilizer onto the dairy's fields.

"We've removed the milk, the electricity and the odor, and leave just the right amount of nitrogen, potassium and phosphorus in here so it's ready to grow the next season's crop to do it all over again," he said.

The Werkhoven Dairy is a nominee for the inaugural U.S. Dairy Sustainability Awards, to be presented Feb. 1 by the Innovation Center for U.S. Dairy in affiliation with the Dairy Research Institute. The awards recognize dairy farms, businesses and collaborative partnerships for practices that deliver outstanding economic, environmental or social benefit, helping to advance the sustainability of the dairy industry.

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