



SUNNYSIDE OF CHEESEMAKING

BY CINDY SALO
PHOTOS BY BOB VESTAL AND JYL HOYT

Steve Ballard props his reading glasses back up on his head after he checks the gauges. “The water going up to the roof is 160 degrees,” he says, “and it’s coming back to the storage tank at 175 degrees.” The glasses teamed with his engineering knowledge, give him a warm, professorial air as he describes why that 15 degree difference is important at his dairy and cheese plant near Gooding, Idaho. The rooftop solar thermal tubes that heat water for pasteurizing milk are part of an engineering makeover he helped design, which has won regional and national awards for energy innovation. Although the recognition is gratifying, Steve’s biggest reward is being a dairy farmer.

Steve got the farming itch as a kid from California visiting his uncle’s 20-cow dairy near Shoshone, Idaho. When he and his wife Stacie started their family, he worked as a diesel truck mechanic and talked about moving to Idaho. Stacie was game, but refused to live in a cold climate until all the kids were old enough to dress themselves. Their youngest was nine when they left California on July 4, 1993.

Two days and one fuel pump later, the family pulled into to their new home, an RV park near Hazelton, Idaho. Less than two years later, they had found a home, land and 25 pregnant Jersey heifers to start the Ballard dairy herd.

For several years, they sold their milk to Glanbia Foods, which produces restaurant-scale batches of cheese. By then, their kids were older and the Ballards wanted to bring them into the business. “We either had to get bigger or add value,” Stacie said. They didn’t want to get bigger, so after three years of research, they decided small-scale cheese making was the best fit for them. Steve used his problem-solving skills to tackle the job of adding a cheese plant between the barn and the house.

The Ballards made their first batch of cheese curds in 2004 and soon added hard cheeses. Two years later, they won two national first place ribbons for their cheeses. You might catch a whiff of their 2007 winner, Idaho Golden Greek Grillin’ Cheese, at the new Boise Farmers Market. The halloumi-style cheese comes out of the frying pan crunchy-crust and squeaky-sweet to dress up anything from stir-fried veggies to desserts.

But cheese making requires lots of energy. The Ballards originally used propane to heat water for pasteurizing milk. As their cheese offerings increased, the price of propane ratcheted up and threatened their bottom line. It was time to start researching again. Steve decided on solar.


He found that evacuated solar absorbing tubes are more efficient than the flat plates most people know. “Most people” included most contractors: Steve talked to several before he found one eager to work with the new technology. The vacuum inside the tubes is a first-rate in-

ulator for the hot water on its way to the storage tank. Unlike flat plates, which point one direction and only catch direct sunlight for part of the day, round solar thermal tubes catch the sun’s rays any time it’s above the horizon. A pair of electric tankless water heaters stand by to insure hot water on winter mornings and cloudy days. These only turn on when hot water is needed, instead of constantly maintaining a tank of hot water.

As Steve enters the milking parlor, a dozen of their 90 cows are rocking gently with mechanical milkers. The pipeline of milk is cow-warm on one side of a chrome heat exchanger and condensation-cool on the other. The device is a thermoelectric cooler, similar to camping coolers that plug into car outlets. The previous system used ground water to cool the milk—about a thousand gallons per day.

The Ballard’s new system uses heat pumps to manage and reuse heat from the milk. These operate much like refrigerators, but instead of cooling the inside of a box and moving the heat into a kitchen, they cool a tank of water by moving the heat into a second, warm tank of water. In winter, the warm tank is used to heat buildings and preheat the solar thermal system. In summer, the cool tank is used to cool buildings.

In April, 2013, The Innovation Center for U.S. Dairy, a dairy research organization, gave Ballard Family Dairy and Cheese an “Outstanding Achievement in Energy Efficiency” award saying their various conservation projects, including solar, was “saving \$23,000 annually and reducing the dairy’s carbon footprint by 121,500 pounds per year, while decreasing its water footprint by 365,000 gallons annually.”

When they’re not away collecting awards, the Ballards are sharing their knowledge about designing energy efficient businesses with others. Novice farmers only a few years ago, now they’re the ones helping the Idaho dairy industry become a little more sustainable. 

Cindy Salo lives in Boise and writes about agriculture, ecology and natural resources. After many years as an ecological researcher, she now focuses on writing.

Ballard Family Dairy & Cheese

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