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Drying's not the only whey for cheesemakers to recapture value and save some green

By Hilary Parker

MADISON, Wis.— Many cheesemakers looking to recapture value from their plant's whey stream who cannot or will not invest in a multi-million-dollar whey dryer — much less commit to the costs of operating one — feel landspreading is the only option.

Not so, says Sarah Ploss, vice president of market development for Ecovation Inc., Victor, N.Y., and Wisconsin entrepreneur Joe Van Groll.

Ecovation, a provider of value-driven, sustainable wastewater treatment and renewable energy solutions, has had great success turning the whey stream from cheese plants of every size into renewable energy. Not only does the company's anaerobic digester turn waste into biogas that can be used by the plant to make cheese, it also prevents companies from needing to landspread — and gives cheesemakers an opportunity to promote their environmentally-friendly practices to their customers, Ploss notes.

Ecovation currently is working with Rick Koller, owner of the Fairview Swiss Cheese Plant in Mercer County, Pa., which processes 500,000 pounds of milk a day into 200-pound Swiss blocks. Ecovation announced in October that it had broken ground on a renewable energy

generation system there which, once completed next summer, will produce 28 million cubic feet of biogas annually. The biogas, worth around \$600 a day using current natural gas prices, will be used to offset fuel oil and electricity used in cheese production.

The system will use Ecovation's Mobilized Film Technology to treat acid whey from the plant along with additional material trucked in from the nearby Joy Cone Co.

First, the waste stream will be treated in an anaerobic reactor to create biogas. Then the gas will be piped into a boiler to produce steam and electricity needed for cheese production. Effluent from the anaerobic digester will flow to an existing aerobic system for final polishing and discharge.

The project began with a feasibility study, funded by the Pennsylvania Department of Environmental Protection and conducted by the Pennsylvania State University Cooperative Extension for Mercer County, to uncover potential local opportunities for converting waste to energy.

"Pennsylvania as a state is very supportive of renewable energy," Ploss says.

State and county engineers identified Ecovation's technology as the best fit for Fairview Swiss Cheese after visiting

existing Ecovation operations in New York, she notes.

Indeed, seeing is believing, says Koller, who notes that Ecovation officials clearly know their business and are running incredibly efficient operations.

The project later received two grants: a \$500,000 USDA Rural Development Grant and a \$350,000 Pennsylvania Department of Environmental Protection Energy Harvest Grant.

"That so many parties are collaborating on this project is quite remarkable," adds Koller. "We knew we could generate energy from our waste, but traditional anaerobic digestion models didn't meet our needs. Ecovation's unique approach eliminates the headaches associated with off-site storage and disposal, and will go a long way toward supporting both Fairview Swiss Cheese and Pennsylvania's renewable energy and sustainability goals."

The total cost of the project is approximately \$2.2 million, and Koller projects that with today's energy prices, the project will pay for itself in roughly five years. But Koller says he was ready to go ahead with the project even without the grant monies, though the return-on-investment timeline would have been more like 10-15 years.

Koller says he's already hearing from other cheesemakers who are interested

in the technology.

“I know there will be several sets of eyes looking to see if it works for me, but I’m certain it will,” he adds. “A lot of cheese companies my size are always looking for ways to make money from our whey.”

Applications of this technology are not limited to companies without whey dryers, Ploss adds. She says Ecovation is working with many multi-national dairy processors looking to hedge their bets by performing both whey drying and energy recapture.

• Options on the rise

Meanwhile, Van Groll’s start-up renewable energy company, Grand Meadow Energy LLC, Stratford, Wis., produces both ethanol and biodiesel without a single corn kernel or soybean in sight. Rather, the company trucks in waste from surrounding cheese plants and raw canola oil from a nearby farm.

“There is no one silver bullet,” he says. “The silver bullets are already out there — taking waste streams and turning them into profit centers.”

Van Groll bought the Grand Meadow Co-op cheese plant when it closed more than three years ago, converted it and, with \$29,000 from Wisconsin’s Agricultural Development and Diversification

grant program, began testing what is now a trade secret. Today customers buy a license to use the yeast-based technology he developed to turn waste into energy with help from the grant.

As concerns about the environmental and societal impact of corn-based ethanol rise, he lists the advantages of his method.

“I don’t use energy; I put it back on the grid,” Van Groll notes. “I don’t slurp up water; I purify and recycle it. I don’t push up food costs; I dispose of waste.”

A 13-year veteran of the state’s cheese industry, Van Groll’s process focuses on permeate, a by-product of cheesemaking, but Van Groll says the technology can be used on a variety of waste streams and he sees no end in sight to its application.

His technology now turns what he refers to as “a messy problem” into a profit center for cheese plants. He buys permeate, blends it with his customized yeast culture and produces pure alcohol ethanol. What’s more, he does so at about a quarter of the cost of producing corn-based ethanol.

Two months ago, Van Groll began blending the ethanol with raw canola oil to make biodiesel. He uses the biodiesel to power a generator that

produces electricity for his plant and plans to sell excess energy back to the power company.

Producing two renewable fuels gives him the option of choosing which market is offering the best return. He also sells dried yeast, a by-product of the process, for livestock feed.

“As long as cows are around and cheese is around, I’ll be around,” adds Van Groll, who grew up on his family’s dairy farm near Green Bay, Wis.

With shiny floors and the smell of yeast in the air, the small scale, self-contained operation is patterned after a cheese plant, working on a 24-hour cycle that starts with yeast fermentation and ends with the distillation process.

Having successfully completed the first phase of his business, Van Groll says he is ready to grow. He’s looking to expand by purchasing another former cheese plant nearby with a capacity for producing up to 6 million gallons of ethanol a year; an average corn-based ethanol plant produces about 40 million gallons a year.

“It’s the optimum size for this operation,” he said. “I want to stay nice and small and nimble. I think that’s the best way I can benefit the environment and the rural economy.” **CMN**