

Climate fight targeting cows may reshape California dairies

Kurtis Alexander, San Francisco Chronicle, 9-29-16

Dairy farmer Bob Giacomini, 79, is ahead of his time, even if he didn't mean to be.

Eight years ago, the North Bay native bought a custom motor, generator and pipeline to make electricity from an unusual source — cow manure — at his ranch along Tomales Bay. The hope was that the renewable energy would save him a few bucks and perhaps bolster the environmental bona fides of his family's famed cheese, Point Reyes Original Blue.

As it turned out, the power system served another purpose. It helped do away with the potent greenhouse gas that's at the heart of a new, first-of-its-kind climate law targeting agriculture.

Legislation signed this month by Gov. Jerry Brown requires California's dairy industry to answer for its contribution to global warming by making a 40 percent cut in methane emissions in coming years. The gas, which heats the atmosphere 20 times faster than carbon dioxide, comes from the butts and burps of bovines.

One U.N. report blames livestock, which has largely escaped climate regulation, for 14.5 percent of the planet's heat-trapping gases, as much as planes, trains and automobiles combined.

"I wasn't thinking about climate change so much when I made the purchase," Giacomini said, reflecting on his so-called methane digester as he sat in the office at his 720-acre ranch on a recent morning. "But there had been plenty of stories in the newspaper about how cows produce methane, and talk about putting diapers on them."

The challenge of cutting methane could reshape the 1,500 dairy farms that dot California — only about a dozen of which own methane digesters. Farmers say the new law, and the money and equipment needed to comply with it, could deal some in the industry a fatal blow as they already struggle with low milk prices, rising labor costs and drought.

Adding to the pressure, many environmentalists are pushing to tighten the crackdown on methane. The legislation, they say, didn't demand deep enough cuts — and could lead to unforeseen problems like pollution from methane digesters.

"To be completely frank, some of the compliance will come through attrition," said Rob Vandenheuvel, general manager of the agricultural trade group Milk Producers Council. "We're just going to see less dairy in this state."

A last-ditch effort by industry groups to block methane regulation came in the form of a saucy social media campaign that seized "flatulence" as its slogan and warned that corking cow gas might cause the animals to explode.

While California's dairy industry has risen to recent hurdles — and remains the country's biggest milk producer, accounting for about 20 percent of the U.S. market — growth has stalled over the past few years, state records show. Meanwhile, more traditional dairy states like Wisconsin have continued to boost production.

Meeting the latest regulatory challenge will be complicated by the lack of good options for cutting methane, Vandenheuvel said. The most promising techniques have received only mixed reviews.

Methane digesters, which work by isolating cow manure in airtight chambers where the waste breaks down and releases methane gas for power or fuel, cost several hundred thousand dollars and require considerable upkeep. Many of the digesters in California have stopped working.

Farmers and researchers have tried to tinker with cows' diets to make the animals less gassy, while some are looking to re-engineer the beast's digestive tract entirely. These efforts, however, have triggered concern about harming cows and tarnishing the natural integrity of milk.

One study contemplated bovine backpacks to catch the cow's exhaust directly through tubes. The idea was panned by farmers.

A more proven way to limit emissions is to get dairy cows out of their crowded stalls and into the pasture. This allows the manure to decompose naturally and spew less methane into the atmosphere. The practice, though, is criticized as time-consuming and land-intensive, even as some like Giacomini make a point of letting their herds run free as much as possible.

The real solution, some say, is for Californians to simply cut their intake of milk — and cheese, butter, yogurt and ice cream.

“I don't know exactly what is going to get us to our goal,” Vandenheuvel said.

The good news for dairies is that the new state law, which targets what are known as super pollutants and also clamps down on landfills, transportation fuels and aerosol products, was written with the intention of giving farms time to come into compliance.

The industry's required 40 percent methane reduction, from 2013 levels, doesn't have to be met until 2030. And the California Air Resources Board, which is charged with drawing up specific rules to achieve the cut, has flexibility to make adjustments.

The law, SB1383, also calls for \$50 million in grants to help dairy farms get to the goal. More funding is expected in future years.

Deanne Meyer, livestock waste management specialist at UC Davis, said it's unclear whether the required methane cutbacks can be reached.

“One of our greatest challenges is just going to be to have facts and information so we can guide in the right direction,” said Meyer, who has done extensive research on manure management. “You need people who understand these systems engaged on the research side.”

At Cal Poly San Luis Obispo, agribusiness Professor Wayne Howard wasn't optimistic: “I really don't know how they will go about reducing methane emissions by 40 percent,” he said. “That's a huge amount.”

At the same time, the cut may not be enough for some environmental groups that withdrew support for the bill after lawmakers made concessions to farmers.

“They're giving years and years to make reductions, and it's throwing millions and millions of dollars of public money to private business,” said Brent Newell, legal director for the Center on Race, Poverty and the Environment in Oakland. “What this bill did was totally undermine the kind of policy we need to have going forward for decarbonating what we eat.”

Newell noted that methane digesters, which he fears the industry will soon begin to stockpile, will slash methane but emit other pollutants like nitrogen oxide and particulate matter, which he said can be just as harmful, particularly for those living nearby.

The digester at Giacomini's ranch, which is smaller than some that are used on larger dairy farms in the Central Valley, was recently retrofitted with a new engine so that it runs more cleanly and efficiently.

He paid about \$100,000 for the upgrade, which comes on top of the \$600,000 outlay for the system. Grants helped him cover nearly two-thirds of the initial cost, and Giacomini says he couldn't have afforded the equipment without them.

The digester runs 24 hours a day. It collects runoff from cow stalls in a 2-acre drainage basin, where methane from manure is captured under a huge tarp and piped to a generator. About 70 kilowatts of electricity are produced, enough to power all the facilities on the ranch except the administrative building. In the evening there's surplus power to sell back to the grid.

Giacomini shrugged off the new methane law as just more regulation that he hopes his business can weather.

He credits his success and his optimism about the future to the strategic decision he and his four daughters made to enter the niche field of specialty cheese. The family's flagship Point Reyes Original Blue, introduced in 2000 and followed by a handful of other cheeses made on site from their 400 milking Holsteins, proved popular with consumers looking for a unique, homegrown product.

"There used to be a lot more dairies up here," Giacomini said, lamenting the economic hardships farms have faced. "We didn't know we'd be making cheese (two decades ago), but we knew we were going to have to do something different."