

Hale County dairies look for ways to turn waste into fuel

By RICHARD PORTER Herald Agriculture Editor | Posted: Thursday, July 7, 2011 6:00 pm

As the dairy industry continues to look for ways to reduce its carbon footprint, one option being considered is the conversion of manure to usable energy.

Those efforts not only are being driven by concerns over the possible global warming potential of fossil fuels, but also by a desire to become less reliant on those fuels, in general, through a shift to renewable energy.

From the dairy industry's perspective, according to Brandon Bouma with Legacy Farms, the process is being driven by a memo of understanding signed in 2009 between the industry, through its checkoff program, and the U.S. Department of Agriculture.

The memo of understanding aims at a reduction of the industry's carbon footprint in this country of 25 percent by the year 2020.

From that, Bouma said, has grown efforts to look into the use of anaerobic digesters to convert waste products from cows into usable energy. From that process, he added, methane gas could be used to run generators for power, scrubbed and sold back to the energy companies or even used to power vehicles.

"Another option we're looking at is to convert the methane to CNG (compressed natural gas) and use it to run our semi-trucks to haul our milk," Bouma said.

Unfortunately, he continued, a challenge must be overcome before any of that becomes a reality - economics.

Dr. Brent Auvermann, professor of agricultural engineering with the Texas AgriLife Extension Service in Amarillo, echoed that.

In fact, Auvermann said, in the absence of either government subsidies or "sweetheart deals," using anaerobic digesters is not economically feasible at this point, beyond possible one-to-one trade-offs for power usage on individual dairies. Even that is problematic, he continued.

Auvermann said if a dairy is able to use bioenergy to replace a significant portion of the energy it bought from the grid, without incurring a penalty from the energy company for not purchasing their energy, then the dairy could see a one-to-one trade-off that ultimately could bring some economic value.

Part of the problem, the professor said, is that energy companies do not want to buy excess energy that would be produced as surplus at the fair-market rate. Therefore, he continued, it would not make sense

for a dairy to build a digester that could produce more energy than the dairy itself could consume.

Even then, he said, the cost of the digester appears to be prohibitive based on the current lack of implementation.

Auvermann explained that for many years the technology surrounding anaerobic digesters was a bit iffy. It was either unreliable or the digesters were difficult to operate.

That part of the process has changed, he said, and there now is a more narrow range of reliable technologies that are easy to use.

"The technology is mature," he said.

However, it still is not being adopted, which suggests that either the technology is too expensive or is perceived to be too expensive to implement.

"The barrier is economics as perceived by those making the decision," he said, adding that the perception could either be by the dairy operators themselves or their financiers.

While the economics issue is indeed a challenge, Auvermann said one thing could render it a moot point. Government mandates have a way of artificially creating a market for renewable energy, he said.

"It's both coercive and distorting to the market, but it works . . . in the short run," he said. "It may not work in the long run as those market distortions catch up."

One such distortion could come from a carbon market, Auvermann said. The premise behind that is that the use of methane as an energy source ultimately could reduce global warming emissions.

The professor explained that methane, which is created and released when waste is stored in lagoons, has a 20-25 times greater global warming potential than CO₂. By burning the methane as energy, that would produce CO₂, which has a lower global warming potential and thus would be better for the environment than simply releasing the methane into the atmosphere.

A carbon market could help eliminate the difference between the cost of purchasing energy from the grid and producing energy with a digester, Auvermann said.

Bouma said that cost difference currently is about five cents.

In the meantime, the dairyman said, it is important to continue to study the process.

"We're currently in the process of conducting a feasibility study," he said, "and that is the first step to getting any of these processes going."

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