



Dairy Talk

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Dairy Sustainability: Show Me the Money

MAR 09, 2012

Until dairy farmers can convert a pound of CO2 emissions into convincing dollars and cents, they're not going to get excited about reducing greenhouse gas emissions and improving their carbon footprints.

A few years ago, at Dairy Today's Elite Producer Business Conference in Las Vegas, we had Greg Thoma outline his project to document the carbon footprint of dairy farms, large and small.

Thoma is a University of Arkansas engineer; the project was funded by the Innovation Center for U.S. Dairy.

I was excited about the project and the talk, thinking it would infuse fact and reality into the discussion about the dairy industry's contribution to greenhouse gas (GHG) emissions. At the time of the talk, in 2008, dairy and agriculture were being blamed for 20% or more of global emissions. In California, there was a belief that cows contributed more GHGs to California's smog-plagued skies than cars.

Thoma's talk came off with a resounding thud. Dairy producers understood that GHGs were a public relations problem for the industry; they even understood it could lead to more regulation. But if GHG reductions didn't lead to cost savings and/or improved profitability, dairy producers were about as excited about reducing emissions as having a root canal. It might be necessary—but it was going to cause a lot of discomfort in the process.

Fast forward to last week. The Innovation Center for U.S. Dairy announced its first-ever [sustainability awards](#). The four winning farms all have impressive environmental/energy/sustainability records.

- **Blue Spruce Farms**, Bridport, Vt., has reduced milking-time electricity needs by 60% through the use of a variable speed vacuum pump control, and have cut other electricity needs in half by implementing new technologies in lighting, milk cooling, ventilation and water heating.
- **Holsum Dairies**, Hilbert, Wis., is a large dairy milking 6,800 cows. It works with 40 local farmers and custom operators to supply forage for the herd. It has 11,000 acres under a single nutrient management plan—which allows Holsum to target manure applications to specific fields to reduce over-application and commercial fertilizer use.

- **Werkhoven Dairy**, Monroe, Wash., uses a methane digester to produce electricity for the equivalent of 300 neighboring homes while producing Grade A compost as a natural fertilizer for its fields and those of neighbors.
- **Brubaker Farms**, Mount Joy, Pa. (our [2011 Innovative Dairy Farm of the Year](#), by the way) also uses a digester and 10,000 square feet of solar panels on its heifer barn to produce electricity for both the farm and 200 neighboring homes.

All of this is good; all of it makes environmental sense. The problem--the reason rank and file dairy farmers have yet to get excited about any of this--is that we're still failing to document cost savings or profit opportunities. We fail to talk about hard numbers: The investment required, the payback window, the return on investment.

Two weeks ago, I traveled across the northern half of Indiana on a road show with the Indiana Professional Dairy Producers and Purdue University. One of the corporate sponsors of the tour, [Orion Lighting](#), guaranteed dairy producers it would their cut lighting costs in half by installing high-efficiency lighting. Orion should also be able to lay out what the investment in new lighting is, what the cost savings will be, how long it will take to recoup that investment.

Earlier that week, at the Indiana Grain, Forage and Livestock Symposium, Frank Mitloehner, a University of California air quality specialist, detailed dry matter losses from California silage piles. They're driven by oxygen penetration of the feed pack, which allows microbes to consume and volatilize carbohydrates in the feed.

Losses are at least 20%--often more. So a 40,000-ton pile of corn silage (which is 25,000 tons of dry matter) can lose 5,000 tons of feed dry matter—a staggering \$500,000 loss in feed, sweat and effort. By proper packing, covering and use of mechanical facers for feed removal, these losses can be reduced significantly, Mitloehner says. He is now in the beginning phases of a three-year study to document losses and potential savings.

The solution to getting dairy farmers excited about reducing GHG emissions and improving their carbon footprints lies in convincing them it is a key component to improved profitability. We need to be able to convert a pound of CO₂ emission into dollars and cents. Then farmers will really get excited.