



Steve Maddox Photo By Jan Shepel

Innovation Center for U.S. Dairy focuses on farm energy audits that will help farmers save money, become more sustainable **Jan Shepel**

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Dairy farmer Steve Maddox knows that farmers are good stewards of the resources they use to produce milk and take care of their cows. But there may be things they could do to improve their energy use on the farm as technology improves.

Those changes can save the farm money as well as making the farm "greener", says Maddox, who is vice chair of the National Dairy Board. Working with the Innovation Center for U.S. Dairy, he spoke to farmers and farm reporters about farm energy audits during World Dairy Expo in Madison.

Robert Madeja, a business analyst for sustainability with the Innovation Center for U.S. Dairy, said not only can energy audits offer farmers a way to cut their costs and save energy, it helps them improve efficiencies. Inefficient equipment may be cutting into the dairy operation's profitability and affecting the bottom line.

Farmers who have done an energy audit, like Maddox, find that energy efficiency savings translate into

cost savings and a legitimate claim that they are reducing their emissions of greenhouse gases - what is sometimes called their carbon footprint.

Madeja says that by making changes that reduce energy use, farmers can reduce their monthly operational utility costs, boost their on-farm conservation efforts and help improve the public perception of the dairy industry. On-farm energy solutions and resources can be located at www.USDairy.com/SaveEnergy, he said.

That site guides producers to resources that are available for energy audits and financial incentives. In Wisconsin one of those resources is "Focus on Energy," he noted. Some of the things energy auditors test and analyze are lighting, ventilation and other kinds of electrical equipment.

The effort to boost farm energy efficiency was launched about two years ago, said Madeja. The audits help farmers learn about their energy use, find ways to reduce it and thus save money on their operations. It also gives the dairy industry a legitimate claim to making farms more sustainable in their energy use.

Maddox, who has a large dairy operation near Fresno, California - one of the first very large dairies in the nation - said the audit performed on his farm was "intense" and took about three days. For most farms an audit of this type can be performed in the span of about four hours, he hastened to add. When he found out what it was costing his operation in inefficient equipment, it was eye-opening, Maddox said.

Things like variable-speed vacuum pumps, chilling and pre-cooling equipment for milk, heat-recovery units as well as lighting and ventilation systems are prime places for farmers to save money, he said. The savings in energy is calculated into the cost of newer, more efficient equipment and a return on investment is given to the farm, he said.

Electric utilities in many areas have programs to help farmers with low-interest or no-interest loans so they can install more efficient equipment and begin saving energy, Maddox said.

"Margins are tight enough for dairy farmers without spending money on energy that they don't need to be spending," Maddox said. "It's good for the community to save this energy. It lessens the pressure on the grid. It's helping everybody."

A typical farm energy audit will plot out the return on investment for newer, more efficient equipment. Something like a variable speed motor can be paid for in energy savings in as little as 14 months, Maddox said. On the audits he has seen, farmers are pointed to ways that can save them anywhere from 10 to 35 percent of their energy use.

Maddox said his farm in Fresno had been given the term "the original mega-dairy" and now has 4,200 cows with 95 percent of them registered with the Holstein Association. In all, the operation has 10,000 animals, including the young stock. "We love cows," he said.

The family's herd, he said, has grown in size but also in terms of it's the quality of the genetics. Eighty head of cattle on their farm are rated Excellent and they export 3,000 embryos each year to eight or nine countries, he said.

Thirty years ago they felt they were doing a lot in terms of energy savings and energy sustainability, Maddox said. The family had even built a foundation for a methane digester, but he says they never

found one that they felt would work for them and perform well. Today many people still think only of methane digesters when they think of farm energy sustainability, but it's so much more than that, he adds.

In addition to bringing in dairy farmer checkoff money to the project, there are 200 member companies in the Innovation Center for U.S. Dairy and each comes at the challenge of sustainability from a different angle, and with its own set of resource, he said. "By leveraging money and bringing in partners, we can do more as a group than we can do separately," Maddox said.

One of those partners is the U.S. Department of Agriculture's Natural Resources Conservation Service. Rebecca MacLeod, the national energy efficiency liaison with the USDA agency, noted that a farm energy audit requires very little effort, time or cost to the farmer. Funds are available through the NRCS to finance farm audits. Farmers can contact their local NRCS office to request an Agricultural Energy Management plan or they can call a farm energy expert at 800-732-1399.

"We are urging farmers to act now," she said, during an interview at Expo. "Energy audits will give them a road map to the future. This is a priority for the USDA. It has been elevated to a resource concern."

The federal agency, she said, is supporting the program as a partner and there are field representatives who work with farmers on these concerns.

Some of the questions farmers can ask themselves to decide if they can benefit from an energy audit are these:

- Does your vacuum pump use a variable-speed drive in your milking system?
- Do you have a plate cooler in your system that uses ground water to cool the milk?
- Do you have scroll compressors in your bulk tank?
- Do you have a compressor heat unit or free heater?
- Are some of your circulation fans older than five years?
- Are there any large motors on the farm that are old and run for more than five hours per day?
- Are there older lighting systems on the farm like incandescent lights that could be upgraded to mercury vapor, metal halide or T12 fluorescent?

Maddox noted that improvement in energy use on these very systems can provide immediate benefit to dairy producers in hard cash through savings of energy.

In addition, the Innovation Center for U.S. Dairy and the Dairy Research Institute are beginning a new program to recognize dairy farms, businesses and collaborative partnerships for efforts that show economic, environmental or social benefit to help advance the sustainability of the dairy industry.

These U.S. Dairy Sustainability awards will be given in three categories - farming, dairy processing or manufacturing and energy conservation or generation. Farmers or those in the other categories can nominate themselves (there is no fee for the nomination process) or get more information at www.USDairy.com/Sustainability/Awards. The nomination period runs through Dec. 1 and the awards are

to be announced in February 2012. Those farms and businesses chosen for the honors in this program will get a chance to tell their stories to a national audience and advance the idea that the dairy industry is looking ahead to sustainability, Maddox said.

The awards program is being supported by the USDA and the World Wildlife Fund. A panel of judges who will judge the nominees in the contest was recently announced and it includes several Wisconsinites - Steve Larson, managing editor of Hoard's Dairyman and Dr. Molly Jahn, professors in genetics and agronomy at the University of Wisconsin-Madison.

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