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Farm Energy Audit Helps Nebraska Dairy Identify Savings

With today's tough economic climate and soaring input costs, dairy producers seek to streamline efficiencies and create savings. While the energy used to provide lighting, and run fans and motors may seem rather insignificant, an Agricultural Energy Management Plan (AgEMP) has helped dairy operations like **Prairieland Dairy** identify areas that contribute to higher-than-necessary utility bills.

"We are all business people. If something is sustainable and makes us money we should implement it," said Dan Rice – representing one of four dairy farm families who co-own and -operate a 1,500-cow dairy farm in Firth, Neb.

Blueprint to Energy Savings

This past year, Prairieland EnSave, Inc. to conduct an energy audit on the farm's milking parlor and livestock facilities.

"An energy audit is, basically, a report that looks at your dairy operation in detail to see where you are using and where you can be saving energy," Rice said. "It's a great management tool to be used by you and for you only; gives ideas for energy savings; and provides information on the payback or the return on investment that an improvement will have."

When the audit results were completed, it highlighted modifications that – if all changes were made – could save the farm more than \$18,000 per year.

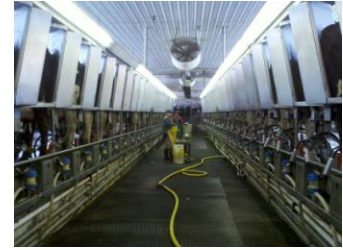
"The great thing about a farm energy audit is that it adds to your overall management plan and serves as an energy blue print that is good for several years to guide best practices," he said. "It's not mandated. And, the dairy producer determines 'if' and 'when' to implement changes, depending on what he or she can afford and return on investment."

Rice and his producer partners – the families of Cliff and Dave Obbink; Bill, Mike and Andy Goossen; and Al and Harvey Eickhoff – targeted several simple, but significant, changes that made an immediate and positive effect on their bottom-line.

Action 1: Lighting

The audit reinforced Rice's belief that lights carry an impact. Adding energy-efficient lights to the farm's maintenance plan could reduce energy use by \$7,000 per year.

As they burn out, Prairieland Dairy will replace 400 watt metal halide light fixtures with high performance, six-bulb, four-foot, high pressure T8 fixtures. Not only will the lights save energy and reduce electrical bills, they will improve light quality, making conditions safer for employees and cows.



Action 2: Detergent



Prairieland Dairy converted to a new high efficiency and low temperature detergent for cleaning milk equipment and systems. The detergent, combined with turning down hot water heaters to 120 degrees, will save an estimated \$7,000 a year in propane costs. More importantly, the farm maintains a top quality wash. This is critically important to Prairieland's owners, who take pride in processing, packaging and marketing their own farm-direct fluid milk and dairy products.

"We turned down our hot water heaters. We get 120 degree water off of the compressor's free-heaters. So now, very little propane is needed to wash the parlor," Rice said. "There was no capital outlay on the heat and, while we did increase our detergent costs, the propane saving was significant. We estimate our return on net savings for this change will be \$4,000 per year."

Action 3: Demand Rate

They also changed the demand rate of one electric meter that was at a different rate.

"That minor adjustment shaved \$1,500 a year from our utility bill," said Rice.

In the Future: A Manure Irrigation Motor

Rice is now planning to replace a diesel irrigation motor with an electric motor with a variable speed drive. The motor has an anticipated four-year payback, which could save up to \$6,000 a year on energy use.

This type of equipment upgrade can often be funded through the Environmental Quality Incentives Program (EQIP) for producers who are approved and have qualified AgEMPs. (EQIP, available through USDA's Natural Resources Conservation Service, is a voluntary program that provides financial and technical assistance to agricultural producers through contracts up to a maximum term of 10 years in length.)

Rice worked with his local NRCS field office in Lancaster County to file an EQIP application. "This is important to producers," said Rice. "Their local NRCS office can help with the EQIP application. It's worth the wait because if the application is approved, it can make a big difference in making energy-efficiency sustainable."

Like many others across the dairy value chain from dairy producers to processors, Rice is a member of the Sustainability Council for the **Innovation Center for U.S. Dairy®**. The Innovation Center – supported by U.S. dairy producers and managed by Dairy Management Inc. – has named farm energy efficiency as one of 10 sustainable initiatives to improve and grow the livelihoods and opportunities for U.S. dairy producers and benefit consumers.

"Energy efficiency is just one more way dairy producers can improve their economic bottom-line, while giving back to the environment and the community," said Rice, who encourages producers looking for efficiencies to consider an audit.

"There are things we can do to reduce utility bills, but it starts with measurement. In order to save energy, you need to first know what is being used and how and where to improve it," Rice said. "The audit is the measurement tool, and it's the industry's goal to keep us informed about programs that may be out there – often through EQIP and other utility programs -- to help producers to pay for it. "

Free energy resources

Producers don't have to invest anything to get farm energy efficiency ideas. The Innovation Center – with funding from USDA -NRCS-- developed the SaveEnergy Web Resource for producers. It provides case studies, sample audits for operations of all sizes, a survey to help producers determine if an audit would benefit their operation, a USDA-NRCS tool to calculate savings and other information. The site also features the SaveEnergy Finder or interactive map that helps producers locate available financial assistance for energy audits and equipment upgrades.

The site also encourages producers to call a farm energy expert, toll free, at 800-732-1399.

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