

INSPIRING RURAL COMMUNITIES

Inspiring Rural Communities is a collection of stories from rural Ontario communities. It is inspired by people who see economic potential in their home towns and are eager to share their experiences.

Dairy Farm Generates Green Electricity

Prescott-Russell County – George Heinzle’s cows are doing more than putting milk in your refrigerator. Now the black and white Holsteins are supplying electricity to run the fridge too. “Just imagine, with six or seven dairy cows I can supply an average home with all the electricity it needs,” says George Heinzle, a farmer in Prescott-Russell County. “My herd of 130 milking cows plus the replacement heifers and calves can supply 30 homes with green, renewable energy.”

Heinzle’s enthusiasm is shared not only by his wife, Linda, and son, Terry, who operate the system with George, but by his brother, Josef, who has also built a system at his farm just down the road.

While the cows don’t know they are generating electricity, the Heinzle brothers are sure they would approve. The brothers capture the methane gas from the herd’s manure and let it fuel an on-farm generator. They can generate enough electricity to sell it back into the electrical grid.

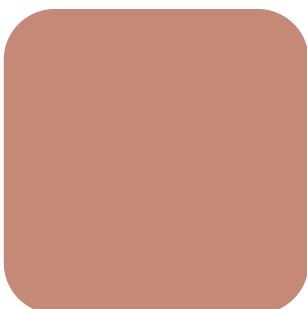
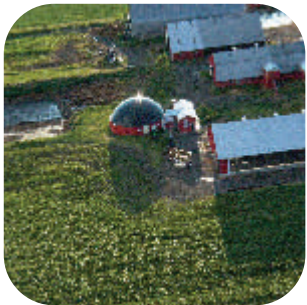
The methane fuel is often called *biogas*. The equipment that produces it is called an *anaerobic digester*.

George Heinzle starts the process by loading manure into the anaerobic digester. The manure is broken down by natural bacteria in the digester and the breaking-down process separates the methane gas from the solids. The methane gas is piped, as fuel, to a combustion engine which powers an electrical generator. The remaining manure becomes virtually odourless. The Heinzle brothers use it to enrich their fields.

Without knowing it, Heinzle’s herd of cows are pushing the green energy movement forward just by eating their normal diet and letting nature take its course.

The on-farm generator gives off heat as well as electricity. The heat is piped as hot water to the farm house and out buildings to replace the need to turn on the conventional furnace. At Josef’s farm, heat is also used to operate his on-farm organic yoghurt factory.

George Heinzle is one of the first farmers to build and operate an anaerobic digester capable of generating enough electricity to sell back to Ontario’s power grid. In 2007, his work was awarded a Premier’s Award for Agri-Food Innovation Excellence.



Using an anaerobic digester to produce biogas has been in the back of the Heinzle brothers' minds since friends in Austria built a biogas system. With the help of engineers and the Ontario government's Rural Economic Development Program, the brothers followed up on the idea.

"Our Rural Economic Development Program invests in projects that support sustainable rural economies and community partnerships," says Leona Dombrowsky, Minister of Agriculture, Food and Rural Affairs. "This green energy technology has the potential to stimulate Ontario's agricultural economy. It is a promising new business for Ontario's farmers and by working together we are making things happen."

The project supports green energy, helps the environment and shows promise as a new facet of the rural economy.

The Heinzle brothers' green energy project also involves the Alfred Campus of the University of Guelph. Alfred researchers, Anna Crolla and Chris Kinsley, are working with OMAFRA engineers, Agriculture Canada and Dairy Farmers of Canada to fully evaluate the environmental benefits of the technology. The Heinzle's project provides opportunities for graduate students in the college's research program. "They'll be looking at the operation of the digester and evaluating how the digester benefits the overall environmental picture," says Kinsley. The brothers' farms have become an important demonstration site for Alfred Campus students and interested farmers.

George and Josef Heinzle have a long list of benefits they are eager to share with those who want to learn more about what they're doing. "We can reduce greenhouse gases by capturing the methane gas and using it to generate electricity. We can reduce the odour of the manure by 90 percent. We can reduce the pathogens in the manure by 97 percent, and the process kills weed seeds in the manure," adds Josef. The anaerobic digestion also transforms the manure's nutrients into a form that plants can easily and quickly absorb.

Kinsley and Crolla, along with their students, will be crunching the numbers on this project as well. "We will have concrete financial numbers that we can provide to other farmers that are interested in doing similar projects. That will really help clarify the economics of the technology," says Kinsley.

When Kinsley tours the demonstration site with farmers and students he can hear the excitement in their comments and questions. They quickly realize its potential as an alternative revenue source for farmers and its potential impact on the rural economy and environment.



For more information about the Rural Economic Development Program which partnered with the Heinzle brothers, contact the Ontario Ministry of Agriculture, Food and Rural Affairs at 1-888-588-4111 or visit the Website at www.ontario.ca/rural.

A program called the Ontario Biogas Systems Financial Assistance Program was launched on Sept 7, 2007. Details of this program are available at www.ontario.ca/biogas.