



# Sustainable development rooted in family farm

By Yvon Gendreau

**B**ased on the sustainable development initiatives undertaken at Ferme Sylvain Laquerre Inc. by Sylvain Laquerre, his partner,

Noëlline Dusablon, and their two sons, Maxime and Benoît, it is clear sustainable development is very important to this Quebec family, and is deeply rooted in their business and life philosophy.

According to Sylvain, “to ensure

farm sustainability it is important to establish a good balance between farm profitability, respect for the environment and human and animal well-being.”

Sylvain purchased the farm from his father Paul-Émile in 1988. The farm was first established in 1813. Maxime and Benoît are the seventh generation to work on it. Today, Ferme Sylvain Laquerre has 62 Holstein milking cows, with a total herd of 120. The family cultivates 160 hectares of land, with crop rotations consisting of 40 hectares of soy, corn, alfalfa and wheat for human consumption.

## Laying a solid foundation

In the early 1990s, Sylvain began to question his own cropping and environmental practices. He enrolled in environmental stewardship and organic farming courses at a local vocational college. He was eager to adopt practices that would foster sustainable development, but would not compromise his farm’s profitability.

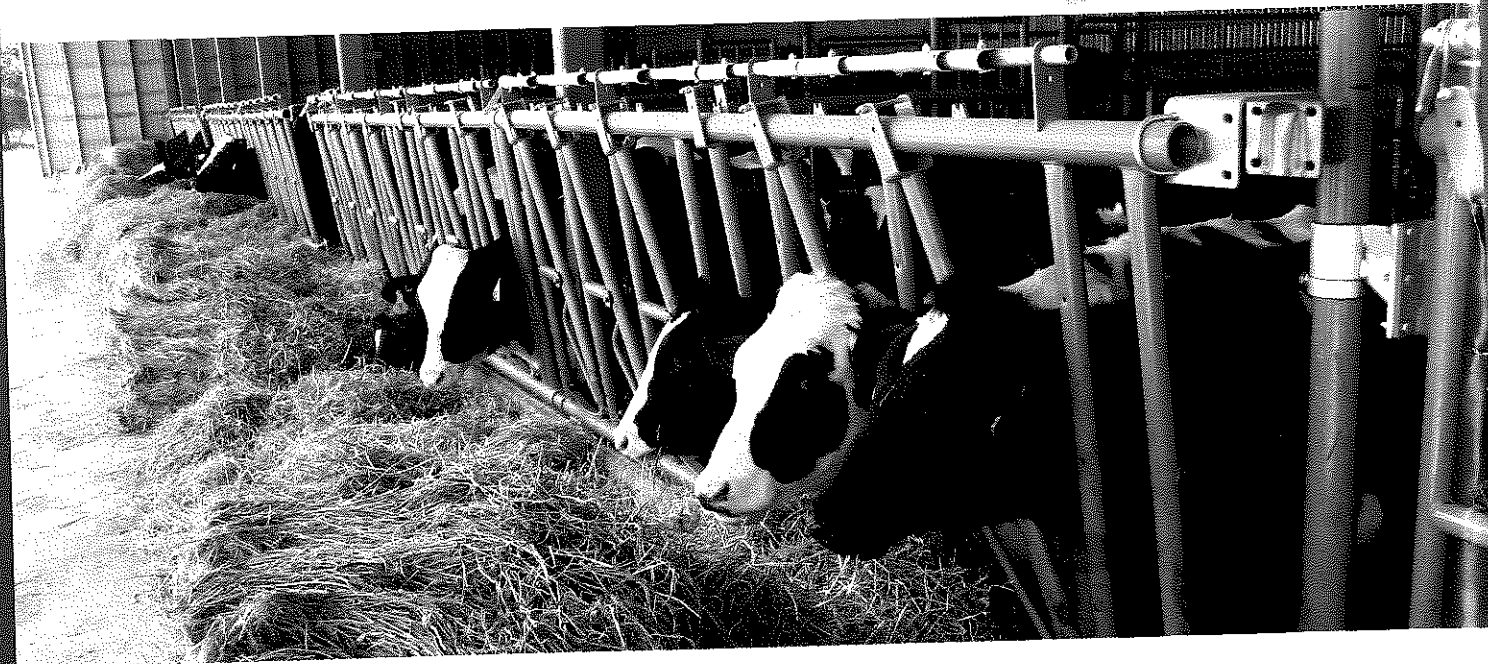
Sylvain quickly put his newly acquired knowledge to good use by planting riparian buffer strips to control erosion and soil loss, and installing windbreaks and shelterbelts around the buildings and manure storage area to reduce odours. Windbreaks and shelterbelts are semi-permeable barriers that reduce wind speed and provide shelter for plants.

During this time, a watershed organization, known as La Corporation d’aménagement et de protection de la rivière Sainte-Anne (CAPSA), was cre-



Photos by Le producteur de lait québécois

From left, Sylvain Laquerre, his partner, Noëlline Dusablon, and their two sons, Maxime and Benoît.



Milk production on the farm has increased from eight kilograms of quota in 1980 to 64 kg today, milking 52 cows.

ated. Its purpose was to cleanse the heavily polluted Sainte-Anne stream. This goal was very important to the Laquerre family, so Sylvain and Noëlline decided to work on numerous projects with CAPSA. In 2005, when a program was introduced to enhance the biodiversity in agricultural areas near the Niagarette River, which flows into the Sainte-Anne stream, the Laquerres quickly came on board and spearheaded the watershed pilot project.

The small Niagarette River runs through the entire length of Sylvain's farm, which consists of gently sloping fields of clay loam. Recognizing the need to assess and resolve environmental risks, Sylvain and Noëlline worked tirelessly to rally support from other producers in the region and convince them of the merits of revitalizing the waterway. Along with 30 other producers, Sylvain and Noëlline helped stabilize 1.5 kilometres of streams and provide 49.3 km of waterside buffer strips and windbreaks. Since 1993, the Laquerres have planted more than 6,000 trees, as well as shrubs and aquatic plants, which have helped revitalize the area.

All these efforts helped improve the quality of the water and shorelines, and increase wildlife diversity on the farm. Birds, mammals, reptiles, am-

phibians and fish are now part of the farm's landscape. The return of natural predators also helped reduce the number of rodents near the stream, such as muskrats.

The couple also installed birdhouses to attract certain bird species to help control insects. By preserving the streams, Brook Trout, a fish species that needs high water quality, returned to the waterway. The couple's success in bringing back fauna to this area was recognized by the Wildlife Foundation of Quebec.

### **Project spawns more education**

A provincial guide was published based on the Niagarette project and adopted for 50 similar watershed projects throughout Quebec. Workshops on waterside buffer strips, shoreline stabilization, soil profiles, hedgerow windbreaks, intercropping and direct seeding under live green cover, were set up for producers.

"Children were our greatest allies," Sylvain said. He invited the local community to participate in the project. "We asked students to plant trees and help establish trails near the watercourses.

"A producer who was not enthusiastic about the project in the beginning planted a tree behind his house

with his daughter. The daughter asked him where he had planted his tree when he was young. He could not give her an answer. That very evening, he called me to say he would take part in the project."

Sylvain said the biodiversity program was well received by the community. About 50 local organizations agreed to contribute to it.

Sylvain and Noëlline worked with several government organizations to evaluate the impact the changes they made had on the waterways throughout the Niagarette watershed project. They also collaborated with the Quebec Ministry of Sustainable Development, Environment, Wildlife and Parks and Ministry of Natural Resources to monitor water quality results.

### **Transition from reduced tilling to direct seeding**

In another initiative, in 2006, Sylvain and Noëlline gradually transitioned their soil from reduced tillage to direct seeding. They wanted to reduce greenhouse gases from the soil, while increasing its bearing capacity, improving its condition, minimizing soil and nutrient losses into the waterways and contributing to stabilizing the shorelines.

"We didn't observe any difference



in crop yields, but soil conditions have clearly improved. The direct seeding practice has enabled us to significantly reduce our fuel and machinery maintenance costs since less cultivation is needed and machinery breaks down less often," said Maxime. "This has allowed us to save a good deal of time. We don't have to plough in the spring since the worms do the work for us."

Sylvain and Noëline also make good use of manure and fertilizers on their farm. This has resulted in considerable savings in inputs and optimum yields. They spread fertilizer in such a way to ensure it is in the right place at the right time, and reduce losses. They also rotate crops to reduce disease risk and increase yields.

### Recycling and other energy-saving initiatives

The Laquerre family has also implemented energy-saving initiatives. Twenty years ago they installed a system that recycles the heat given off during milk cooling. The cooler location provides heat in the office and the dairy in winter, and ensures the heat is quickly vented outside in the summer. Using LED lighting has saved the couple 75 per cent in energy costs, and they last longer. Most of the plastics Sylvain and Noëline use on the farm are recycled, including the plastic used to wrap the crops and seed bags.

In the past, the Laquerres used the HOLOS software program to calculate and track greenhouse gas emissions. It helped guide them in making sustainable management decisions, such as balancing cow rations, optimizing machinery use and increasing productivity per cow.

The couple took part in a Nature Québec pilot project called Toward Zero-Carbon Farming. A book based on the subject was later published for farmers. The couple also participated in two animal welfare projects and two research initiatives on introducing waterside buffer strips with Laval University. They partnered with Va-



Transitioning from reduced tillage to direct seeding did not affect crop yields, says Maxime. Instead, soil conditions on the farm have greatly improved.

lacta in a study on time management and another one on animal comfort.

Animal comfort, health and care are some of the Laquerres' top priorities. They built an open-front cold barn for replacement animals and dry cows to give them more space and let them move around freely to stimulate weight gain. They have also implemented preventive medicine programs to ensure excellent animal health and rapid disease treatment.

### Efforts recognized

This is not the first time the Laquerre family has been recognized for its environmental and sustainable development efforts. In 2010, the family won the environment award from the Ministry of Sustainable Development, Environment, Wildlife and Parks, and in 2012, they were awarded the federated co-op environmental prize from

the National Order of Agricultural Merit. The family was also a member of a group who won the provincial union of agricultural producers Jean-Paul Raymond, the coalition of Quebec watersheds and the Chamber of Commerce Valoris awards.

Why did the Laquerres participate in the Dairy Farm Sustainability Award competition?

"We agreed to take part in this competition because we believe it is important to inform the general public about the efforts we are making to protect the environment," said Sylvain. "The environment is important since farmers will still be needed for the next seven generations."

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# Producing energy and milk

By Shelley Crabtree and Amy Reusch

**G**eorge and Linda Heinzle want to show the dairy farming community that pursuing sustainable initiatives on the farm can be rewarding and profitable. The couple's management focus is to create a sustainable dairy operation through energy conservation, manure management and energy production.

The Heinzles started farming on Terryland Farms in 1983. Their 900-acre farm is located in St. Eugène in eastern Ontario. They operate the farm with their son Terry, who is also co-owner. The Heinzles milk 150 Holstein cows twice daily and employ one full-time and eight part-time workers.

The couple's first sustainable initiative was constructing a 1,000-cubic meter anaerobic digester in 2006. An anaerobic digester produces methane or biogas by fermenting manure and other waste materials in an oxygen-free tank. The methane gas from the Heinzle's anaerobic digester powers two converted engines, which drive two 180-kilowatt generators. George and Linda have been selling all the electricity produced by the generators to Hydro One, Ontario's power utility company, since 2007. Terryland Farms is the first farm in Ontario to sell electricity generated from biogas.

In the first year of production, the Heinzles produced less than one million kilowatt hours (kWh) of energy. Today, they export about 2.1 million kWh of energy to Hydro One. This generates \$400,000 of revenue per year for the Heinzles. The anaerobic digester reduces Terryland Farms' methane emissions and odours by 90



George (left), Linda and Terry Heinzle at Terryland Farms Inc. in St-Eugène, Ontario. The Heinzles started farming in 1983.

per cent, says Linda.

The manure from the 150 milking cows does not produce enough methane gas to run the two generators at capacity, says Linda. The Heinzles add off-farm materials to the digester to boost gas production and reduce waste. They receive about 100 tonnes of sludge every week recovered from the wastewater treatment plants of several large food processing facilities, such as Kraft and Olymel. The sludge, containing fats and oils, is added to the manure in the digester tank.

"Being able to use this waste to create renewable energy is a huge en-

vironmental benefit since the sludge was previously sent to landfill sites," says Linda.

The two generators create a lot of heat, which the Heinzles capture using a heat exchanger. Heated water circulates through insulated underground pipes heating their digester tank, house, workshop, swimming pool and milking parlour. They also use the heat to dry corn in the fall.

Their anaerobic digester also produces 11,000 cubic metres of digestate per year. Digestate is processed manure and sludge and contains almost no odours. Anaerobic diges-



tion reduces 98 per cent of pathogens from the digestate, says Linda. The couple uses it to fertilize their fields and for cow bedding.

"We used to purchase sawdust for bedding," says Linda. "The cost of sawdust was rising considerably. Instead of succumbing to these increased costs, our management team decided to do something about it."

To create cow bedding, the digestate is pumped to a press where solid materials, such as undigested hay and corn silage, are removed, she says. The digestate is dried and spread in the cows' stalls.

The liquid digestate is spread on the field. This saves the Heinzles between \$100 and \$150 per hectare in fertilizer costs and improves yields. The Heinzles grow barley, soybeans, grain and corn.

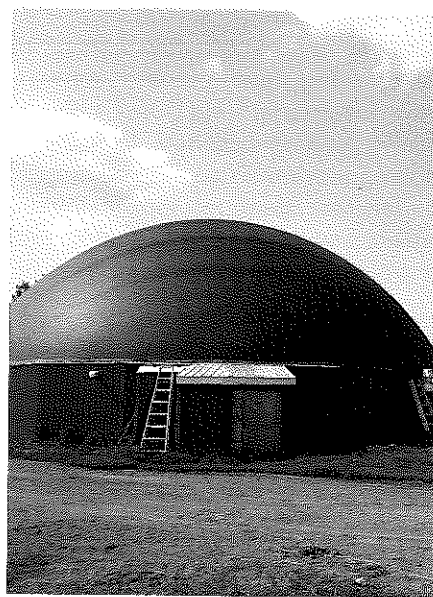
"The success of the anaerobic digester pushed Terryland's management team to jump even further into alternative energy production," says Linda.

The Heinzles installed 520 solar panels covering three south-facing barn roofs in 2010, she says. The electricity the solar panels produce is sold to Hydro One.

The Heinzles installed an oil pressing system to reduce their farm equipment's fuel consumption. The pressing system produces soybean meal and oil, using the soybeans grown on Terryland Farms, says Linda. The oil is mixed with diesel fuel to run the Heinzles' modified tractor. Using soybean oil reduces fuel costs by 20 per cent, and using soybean meal in cow feed reduces the need for commercial concentrates by 50 per cent, says Linda.

The Heinzles' farm is flat and mostly clay. The couple planted four kilometres of spruce and pine trees on their property to prevent soil erosion. The trees act as windbreaks and attract wildlife to the area. The Heinzles also reduce tillage by using a chisel plow, which minimizes soil erosion and manure run-off.

George and Linda have always been interested in caring for the environment. George grew up on an



**The Heinzle's biodigester produces digestate, which they use as fertilizer to spread on their field.**

organic dairy farm in Austria and worked with his father on the farm after graduating from agriculture college. He immigrated to Canada when he was 20 years old and bought a 100-acre farm in St. Eugene to start his own dairy operation. Linda's father was a dairy farmer in the early 1970s, but had to sell the farm for health reasons.

"At Terryland we've always pushed hard to realize environmentally-friendly projects," says Linda. "The farm's expansion and diversification has proven to be financially profitable, which makes it possible for us to keep our employees well paid, and easier and more interesting for the next generation to join the farm operation."

In addition to their sustainability efforts, cow comfort is also important to the Heinzles. Their cows walk mainly on rubber flooring and sleep on pasture mats in a freestall barn. Three large fans in the barn keep the cows cool in the summer and bring heat down from the ceiling during the winter. The Heinzles prepare a weekly footbath to control foot rot. Cows are checked daily to maintain hoof health and are observed for signs of

lameness. If the Heinzles detect any problems, they take quick action to trim hooves.

The Heinzles are involved in many community groups. George was the director of the Prescott County milk committee for 13 years and is currently a committee member. He is also founding member of the Agri Energy Producer's Association, a non-profit organization supporting Ontario's biogas industry. Linda was the Prescott Federation of Agriculture's secretary-treasurer for two years.

The Heinzles host tours for students from the University of Guelph's Alfred Campus and McGill University's Macdonald College campus. They have also hosted tours for individuals from Ontario, Quebec, Vermont, New York, Austria, Germany and Chile.

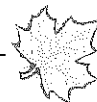
The Heinzles were recipients of the 2006 Premier's Award for Agri-Food Excellence, and received a 2008 certificate of recognition for long-term commitment to conserve electricity. They received the Producer of the Year Award for agri-business excellence from the Canadian International Farm Show in 2010. Terryland Farms was selected by DeLaval Canada to attend the International Dairy Federation conference in Scotland in 2008. The conference focused on dairy farming's environmental challenges.

The Heinzles take great satisfaction in pursuing sustainability projects on their farm. They have reduced operating costs, increased profits and made the farm exciting for the next generation to take over. George, Linda and Terry regularly communicate with their employees to ensure they feel valued and share their environmental sustainability goals.

"Everyone at Terryland Farms works hard to ensure farming can have a prosperous future," says Linda.

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# Pasture-based farming is key

By Shelley Crabtree  
and Sharon Laidlaw

**A**lberta dairy farmer Jan Slomp firmly believes in letting nature do its job on his farm. Making sure his cows are healthy and the land on which his farm sits is managed in a sustainable way are his guiding principles.

“Understanding biology, symbiosis and ecology is the cornerstone of knowledge for sustainable wealth creation,” he says.

Jan and his wife, Marian, have been farming in Rimbey, Alberta since 1989. They milk about 65 cows twice daily on 425 acres of slightly rolling black loam soil surrounded by parkland in central Alberta. The Slomps studied Holistic Resource Management practices in the 1990s and have been applying them on the farm ever since. Jan first heard about the holistic method through Holistic Management International, a U.S. organization that helps farmers, ranchers and other land managers enhance the health, productivity and profitability of their land.

Meticulous attention to management has helped the Slomps meet and maintain sustainability goals on their farm and in their community. They follow a comprehensive plan and ensure each decision and action reflects the social, environmental and economic sustainability values cited in their goals.

At Rimrose Dairy Ltd., dairy cattle



Jan Slomp and his wife, Marian, have been farming in Rimbey, Alberta since 1989. They milk about 65 cows twice daily at Rimrose Dairy Ltd.

graze on pasture from mid-May to November every year. Grazing management is a sustainable and cost-saving practice, says Jan. He wouldn't farm any other way, he adds.

“Pasture is such a blessing. Our pastures are extremely dense and provide much of the nutrients our cows need to maintain good milk production,” says Jan.

Jan's rotational grazing system ensures his cows move every day to stimulate pasture regrowth and ensure good pasture quality. Allowing the soil to rest and replenish nutrients and enhance biodiversity is crucial

with pasture-based farming, he says. This recovery period also lets the grass grow deep, strong roots before the cows are let out to graze again.

The pasture at Rimrose Dairy consists of grass, alfalfa, vetch, red and white clover and legumes, says Jan. Red clover, alfalfa and vetch were established through seeding. White clover grew naturally after they stopped using nitrogen fertilizer, he adds.

Herd health, natural mineral cycling and reduced machinery use for feeding or cleaning the barns for four to five months of the year are low-cost alternatives to housing the animals



year round, Jan says. Grazing also reduces the need to feed concentrates during the pasture season. Instead, Jan prefers to feed his cows highly nutritious grass. Doing so saves him about \$35,000 per season compared with dry lot feeding, he says.

Jan feeds his cows very few minerals since they are frequently cycling through the grass, rotating every 12 hours to a new patch in the field. Clipping the fields at the right growth stage ensures good quality grass with high nutrient density and significant yield, he says.

Milk production drops slightly during the summer months due to lower overall dry matter intake, but it is something “you have to be comfortable with,” says Jan. He estimates his cows are eating about 25 kilograms of dry matter daily from consuming grass alone.

“What drives me is animal health and concern for the natural systems in our world,” he says. “I am very concerned about desecrating crops. We must be very careful about how we use the land around us.”

Jan grew up in the Netherlands on his parent’s dairy farm. He remembers how devoted his father was to pasture-based farming. His father believed wholeheartedly in its benefits. At the time, the Dutch agriculture department was investing in a lot of research into the benefits of grazing. When Jan came to Canada 24 years ago, he knew he would follow the same practices his father followed.

“Back in my dad’s time, the average production per cow was a little over 3,000 litres per year. Today, my cows produce three times as much and yet they are healthier,” he says.

All organic waste, including manure and wash water, is applied as fertilizer to pastures and cropland on the Slomps’ farm. Liquid manure

is treated with bacteria to enhance aeration, reduce odours and improve nutrient use. This supports the core practice of managed grazing, which is to maximize nutrient cycling naturally. Jan does not apply artificial nitrogen on pastures or forage growing acres. Instead, he uses small amounts



“Back in my dad’s time, the average production per cow was a little over 3,000 litres per year. Today, my cows produce three times as much and yet they are healthier,” says Jan Slomp.

on grain growing acres. Also, because nutrient cycling is optimized, phosphorous and potassium fertilizers are hardly needed, he says.

Jan and Marian want to preserve biodiversity on the farm. They’ve incorporated perimeter vegetation on the farm, fenced out forest areas, and only treat pasture and forage producing acres with organic remedies for pests and weed control. Riparian areas are fenced off. As well, fauna and flora in and around the farm’s creeks are rich and flourishing, and undisturbed by cattle. Jan leaves vegetation on run-off trajectories to prevent soil run-off. Doing so provides oxygen-rich water in the creek that runs through the land.

The couple is committed to producing high-quality milk and participates in the Canadian Quality Milk program. They, along with family friend, Marcel Peter, the only other full-time

worker involved in the farm, maintain the farm’s sustainability model and goals. Jan and Marian exclusively feed their cattle farm-grown feed and have strict protocols in place to handle medicine. They set high cow comfort and animal welfare standards.

Jan and Marian regularly contribute to their community and strive to share their sustainable practices to produce food. The couple will sometimes organize tours through the Grey Wooded Forage Association and Alberta Agriculture Extension services for other dairy producers to learn more about grazing, as well as classroom sessions to share their grazing management practices. They’ve presented to the Western Canadian Dairy Seminar, and opened the farm to elementary school visits. The Slomps also provide three acres of land to Rimbey residents to grow vegetables for their own use free of charge.

“Our decisions are made while questioning the short- and long-term effects they have on the community and the ecology, as well as the immediate and long-term effects to our bottom line,” Jan says.

Jan and Marian believe grazing dairy cattle takes patience, good management and special attention to the cows’ nutritional needs. The payoff can be potentially lower feed costs, while maintaining good milk revenue and higher profits.

“If you’re tired of borrowing money to increase productivity, try reducing your costs and learn about grass farming because it can give you a way better lifestyle through cost savings, better animal health and peace of mind,” Jan says.

*Shelley Crabtree is a communications specialist based in Guelph, and Sharon Laidlaw is editor of The Milk Producer.*