

"It's like moving to a different planet!"

This is how housing engineer Paul Andre Boucher describes adapting to the new robotic milking system at Ferme de la Pampa.

By Sarah Mellor

Opened in January, the farm hasn't yet been through its first winter, but Quebec dairy farmer Jean Richard Boucher and his four sons are excited about the future- they must be, they have invested in completely new buildings and their first robotic milking system. "You're never finished after a certain point". Agricultural housing engineer Paul Andre Boucher has built a lot of barns in his professional life, so when it was time to modernise the family farm, together with his father, Jean-Richard (company president) and three brothers, his job was to take care of the housing. After four months of operation he believes his job is 95% complete, but he thinks he will always be looking at adjustments and improvements, as the enterprise settles in.

A massive undertaking

The new premises of Ferme de la Pampa are located just across the road from the original farm, outside Montreal in Quebec, Canada, which now houses a beef operation, feed ingredients and the farm's silage bunkers. "There was nothing in these fields before the farm was built. Everything was started from scratch", explains Boucher. Being in the middle of nowhere was a necessity in many ways "Environmental protection is strict in Quebec", says Boucher, "you have to prove you can be environmentally friendly to get a license."

The farm was first established by Boucher's great grandfather, who rented a plot of about 60 acres (24 ha) in 1918. His son bought the farm in 1958 and his sons in turn joined the family business between 1972 and '76. The company was registered



One of four brothers, agricultural engineer Paul Andre was project manager on Ferme de la Pampa's modernisation programme.

in 1972 and incorporated in 1978. Now everything belongs to the company, including 700 acres (283 ha) of land, on which the forage crops are grown.

Boucher Junior designed the two new houses himself, one each for the replacement heifer and milking herds. Both build-

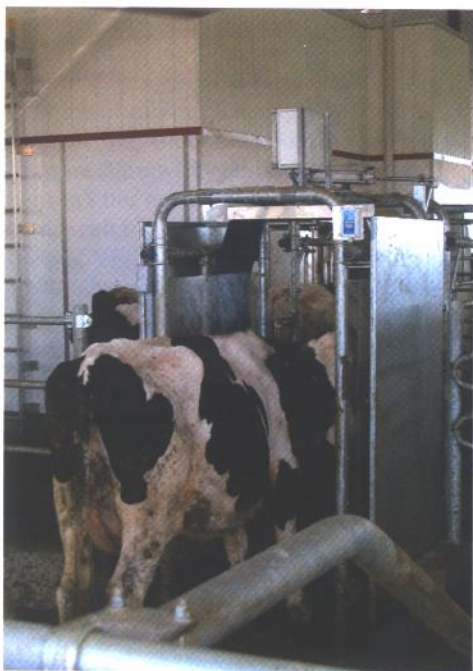


The milking barn was designed for minimal disturbance.



The open-sided housing and a modular structure are useful design features.

Housing



A cow queues for robotic milking. Adaptation was a big problem.

ings are open sided with automatic double vinyl side curtains, with warm air blown between the two for better insulation. "The cost isn't much more than a single curtain, but it is much more effective", says Boucher. "If one falls, there is always a second in place so the temperature doesn't change too much." He estimates the total cost of the new milking barn at around Can\$11350 (€7,180) per cow space, including the costs of building and infrastructure and Can\$3750 (€2,370) per heifer space for the replacement housing. "The total cost obviously depends on what equipment and technology you are prepared to use", he explained.

Where housing is concerned, Ferme de la Pampa's new buildings are state of the art. "Robotic milking is increasing in Quebec",



Cows receive a TMR based on maize silage.

explained Boucher, "The first was built only a couple of kilometres away from here. Since then I have been involved with about ten projects with robotic milking. Now, around 50% of all new barns built are robotic."

One obvious improvement of the new design is the lack of visible service pipes. This is one feature of which Boucher is particularly proud. "The outer and inner gradients of the roof are different," he explains, "so there is enough space between the ceiling and the roof for all the electrical cables, water pipes and even the grain augers to be hidden in the gap." Servicing can then be done from outside, on top of the roof, so that the animals are not disturbed.

Immense differences

Despite the improvements in housing, the obvious difference for the herd was the robotic milking. The dairy barn has two milking robots, currently serving 140 cows, but with capacity for another 10. The motivation for the whole modernisation process was to reduce labour costs. Whilst the replacement barn reduced man-hours significantly ("In a year or two we will probably have reduced labour input to below 100 man-hours, not including mechanics hours"), Boucher explains that the replacement barn takes only 45 minutes to service, despite the fact that all the heifers are still fed by hand twice per day ("and that includes the time spent looking over the gate!").

Drastic change

Although the buildings and milking robots are completely new, not all of the cows are. Moving proved a huge upheaval and wasn't 100% successful in terms of the cows' ability to adapt. Whilst heifers are typically able to adapt to a robotic milking system within a week or two, older animals and farm staff found it much more difficult.

"The change was as drastic for the people as for the cows," explains Boucher, "It's like moving to a different planet! You really have to change the way you think." But market forces were favourable, so the 15% of cows that weren't able to adapt were either sold to other stall farms or to the meat plant. "The cost of replacement animals

is cheap right now so we can be less patient," Boucher explains. There were initially some acidosis problems, "The cows took too long to eat or to go to the robot. Some animals had problems with circulation - they just didn't want to walk around."

The disruption of moving also incurred the inevitable drop in production. "From the 9,500 kg/year we were producing, we dropped a lot. We're now back up to 8,700 and still rising. We expect to get up to 10,000 kg/year."

Built for comfort

The building is not only ergonomic and well ventilated; the low roof is designed to minimise airflow and thus maintain a constant temperature - assisted by ceiling fans and the side curtains. Both buildings are designed for comfort - and that includes the comfort of the four staff in addition to the family. The lighting levels have yet to be optimised, but currently 400W bulbs are used down the centre of the building for staff and 250W at the sides for the animals and allowing eight hours of darkness at night. As with the ceiling fittings, the lighting system is integrated into the ceiling - the bulbs covered, to prevent accumulation of dust and dirt.

Boucher explains that not only does robotic milking make time more manageable but the cows are much quieter too. Although the barn layout allows a narrow path all the way around the outside, the maize silage-based TMR is given (by hand) twice a day down the middle, minimising disturbance. "The animals disassociate milking from people", he says, so staff and visitors can move around freely without disturbing the cows. "During the first few months there were people here twenty-four hours a day, to keep an eye on the animals and see what they were doing. We recently had a visit late in the evening from a group of people and there were children running around, making noise - none of the cows even got up."

So it seems that although moving to a new planet had its casualties, it was well worth the investment. And if he had to do it all over again...? Boucher had originally wanted to use more bedding and says that will be trying their best to keep all the doors closed permanently in future, mainly to keep birds out. Otherwise it is working as well as they'd hoped. In fact, the manure pit was intentionally dug an extra six metres to prevent it collapsing during extension. The building structure is not difficult to extend - the end walls of both barns can just be unscrewed and extension modules added so he has left plenty of space for future planning. □