

Robotic milkers show the way

BY PETER GREDIG

“The robots are coming! The robots are coming!” It sounds like a trailer for a cheesy 1950s sci-fi movie, but it’s a common theme in both mainstream and farm media. The videos on social media of robotic weeders and apple pickers are very compelling but the truth is, robots are already here.

The first robotic milkers arrived in Europe in the early 1990s – almost 25 years ago! If you haven’t seen one in action, they are just as compelling as some of the futuristic prototype robots we see being developed for other sectors. The Canadian experience with robotic milkers provides a case study in ag robotics and gives us some idea of how robots might impact productivity and management in other sectors. With predictions of a labour gap of 114,000 ag workers by 2025, we may need more robots sooner rather than later.

Jack Rodenburg has a unique and unbiased perspective on robotic milkers. He was the dairy specialist with the Ontario agriculture ministry from 1974 to 2008 and was on the scene when the first robotic milker in North America was installed near Woodstock, Ont., in 1999.

“We didn’t know what to expect from the robot. Up to that point, advances in milking technology were all about making the human milker more efficient so farmers could milk more cows with less labour. But the robot was going to take the person completely out of the equation.”

In the early days, there were problems with the robots, but they were soon resolved. Uptake in Canada has been slow but steady. Rodenburg, who is now a partner in a dairy consulting company called Dairy Logix, estimates that 10 to 13 per cent of Canadian dairy herds are now milked by robots. In Europe, the number is over 20 per cent due to higher labour costs and the fact that the robots came on the market there eight years earlier.

So where do robots find the best fit? “Up until about two or three years ago, robots were being installed on smaller dairy farms that were looking to expand without having to hire labour. In a free stall environment, robots are becoming an affordable way to milk cows, especially if the operators are not interested in hiring help from outside the family.”

According to Rodenburg, the most vulnerable operation is one where there is one non-family employee. “Bigger operations with seven or eight employees can get by in the short term if one employee is sick or quits. A farm with two active family members and one employee is really challenged if they lose their help. Robots make a lot of sense here.”

In recent years, larger operations started taking another look at robots. As labour costs rise, the robots become more cost-effective in comparison. There is also a growing perception that cow comfort and health is improved in a robot system. “There is less stress on the cow because she doesn’t have to be penned or

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crowded while waiting to be milked in a parlour. Robots free up an hour or two for the cow to rest and eat without stress.”

The obvious upside to robotic milkers is the reduced labour required to milk the cows. Milk production tends to increase significantly if coming from a twice-a-day milking system. The increase is smaller compared to a three-times-a-day regime, but labour savings are higher.

Milk quality can be a challenge. The robot can't go beyond the basic cleaning and disinfecting process for a really dirty cow, and it can't detect a cow that might be developing mastitis the way a human can.

Rodenburg says that barn design for robots is different from a parlour design. It requires a different layout with handling

systems that make it easy to sort and access specific animals for treatment. If building a new barn, Rodenburg suggests using a design that facilitates a robot whether that is the original plan or not.

So what can we learn about working with robots from the dairy experience over the past 20 years? Rodenburg suggests that the most important step is to be really clear on what benefit the robot brings. Be precise in quantifying the benefit and the costs and compare honestly with existing processes. For dairy, it's reduced labour, improved cow comfort and increased production. For a robotic fruit picker it might be reduced bruising, faster harvest, better selecting for ripeness, etc.

“Looking back, there was definitely a significant cost to being on the bleeding edge of robotic milkers and it's hard to go it alone. If you are the first to implement a robotic system it's helpful to be compensated by the robot company for being the guinea pig. We also assumed at the outset that the cost of robotics would come down over time and this hasn't been the case. The robots get better and better, but it's a limited market so we're not seeing it get much cheaper.”

Lastly, robots require different management so personality comes into the equation. If you struggle with hired labour and like to have control over all aspects of production, you are a good candidate for robotic technology. ■