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Technology helps increase dairy efficiency at Lingen Dairy

By Jenny Kirk

When Minnesotans think about dairy farming, the images that usually come to mind are of hard-working farmers who are rarely able to leave the farm because of the necessary milking time commitments. And while dairy farmers still work very hard, many of them are beginning to take advantage of improved technology to take a different operating approach.

The Lingen Dairy Farm in rural Balaton grew their business six years ago with the addition of an automatic milking system. The Lingens then doubled their investment 18 months ago with a second pair of Lely Astronaut robots.

"It's the daily milking that kills you," Lingen said. "It's a hard life. If you don't have this type of equipment and family and everybody working toward a common goal, it's tough."

Lingen Dairy milks 300 cows using the four robots in the enormous free-stall barn that was built on the family farm site in Murray County. Another 100 are milked the old-fashioned way.

"The robots are milking 24 hours a day," Lingen said. "It never stops. New mothers get to milk up to six times a day. Late lactation cows that are just about ready to go dry and get ready for having another calf milk once a day. And the computer controls it all. I set the parameters and the computer does the work."

A "Fitbit" type necklace is assigned every animal on the property.

"They all get a life number and it starts tracking data from the day they are born and all the way through their life," Lingen said.

Founders Cornelis and Arij van der Lely of The Netherlands invented the Lely Astronaut automatic milking system in 1992, as well as hundreds of other ground-breaking products that helped changed the face of the agricultural section. Lingen said his dad had the opportunity to meet Alexander van der Lely, who currently serves as chief executive officer for the company.

With the automated system, cows roam around freely and decide when they want to be milked.

"Within half a second when a cow walks in, the robot knows who it is and how much milk she has in her udder," Lingen said. "While they're milking, they get a 'candy,' which is based on their milk speed — the robots know how long it's going to take to milk her. Normally, the milking process takes between 6-7 minutes."

Lingen said it take about a week to train a cow to use the robotic milking process. As soon as one steps alongside the robot, data starts getting collected.

"Each time a cow milks, a scale weighs it and keeps track of it," he said. "Soft brushes clean (the udder and four teats). Then (the robotic arm) cleans the brushes and washes the area again. You'll hear a little 'whoosh' after that when it dries them. Then the lasers will find each of the teats. It'll attach and begin milking the cow."

The Lely Milk Quality Control (MQC) system activates during each milking, providing valuable information such as somatic cell count, color, conductivity. The automatic process checks the overall cow health and immediately converts it into useful information.

"The robot tells me 125 pieces of information every time a cow milks," Lingen said. "It checks the white blood cells in the milk to know if the cow is healthy or sick. It also checks conductivity levels and gives you the amount of butterfat, protein and all that."

Dairy farming is a way of life for Josh Lingen and his family. Lingen is pictured with a few spring calves — some of which will be sold and some of which will be raised as future replacements for retired dairy cows in the herd of 400 currently being milked on the Lingen Family Farm in rural Balaton.

A cow's milk gets pumped into a large jar as the computer system determines what to do with it.

"While the next one is getting ready, it's pumping her milk out, so the jar is at zero," Lingen said. "That way it can weigh the milk. And if it's (not of high-quality) it gets pumped down the drain. It flushes between each cow, so there's never cross-contamination."

High-quality milk automatically flows into the 6,600-gallon tank. Lingen said milk hauler Russ Legler transports about 55,000 pounds — or 6,000 gallons — from the farm every other day. The milk goes to Land O'Lakes.

If any problems occur, Lingen is automatically alerted by the computer system.

"Anytime of the day, if any one of the robots need assistance, it'll call my cellphone," he said.

A typical day starts at 5:30 a.m.

"I come out and check out my cows that have calved, if any," Lingen said. "But I have sensors that tell me when they're calving, too. There are sensors in the cows' vaginas that tell me when they're going to calve, so I don't even have to get surprised. It's pretty cool technology."

Lingen's parents, Denise and Randy Lingen, as well as his brother-in-law, Reed Steppe, contribute daily in other areas of operation.

It's a family effort," Josh Lingen

Lingen Dairy:
See page nine