DAIRY MODERNIZATION

By Kathy Barrett

Data management on farms with robotic milkers

Robotic milking systems have garnered increased interest among NY dairy farmers. Much has been written about this new technology, new to NY anyway, and a number of open houses have been held.

With this change in milking system comes a change in management. Farmers put in robots for several reasons:

- fewer labor concerns
- better quality of life, including more family time
- less physical labor
- a flexible schedule that allows more time to manage other aspects of the farm
- more time to manage cows

The amount of information that is collected by the robots is impressive. This data can be overwhelming at first but is also a clear opportunity. Farmers get frequent individual cow data that they can monitor and base decisions on. Deviations from the norm for that cow can indicate that she needs to be checked out. A change in milk production and feed consumption might indicate the onset of a health problem. Coupled with increased activity the same information may mean she's coming into heat. As farmers use the data that is generated they become comfortable interpreting it and using it to make decisions. That's not to say that farmers make decisions based solely on data. Cow observation is critical, and because they are not tied up in the parlor, more time can be devoted to getting out in the barn and looking at cows. The data allows for an early warning system that coupled with cow observation can up the cow management level.

We've asked folks from two farms who have implemented robotic milking systems to share their experience with learning to effectively manage the data they now have available to them. Both farms have experienced the learning curve of changing their cow management system and successfully transitioned to a more data driven model.

Harold and Nathan Blesy, Blesy Farm, LLC, installed four Lely robotic milking stations in September 2009 in their existing freestall barn. The family milks 240 cows an average of 2.7 times a day. Previously they milked 280 cows twice a day. When the Blesys began exploring options to update their parlor, robotic milking systems intrigued them. The family discovered they could milk cows more often with less labor. They also liked the idea that cows would not be standing in a holding area. The Blesys are pleased with the performance of their herd in the robotic milking system to date. Milk production has increased by approximately 20%, from 65 to 78 lbs, offsetting their investment in the system. Nathan is a Cornell dairy management program graduate.

Glenn and Sheryl Taylor transitioned Tayl-Wind Farm, LLC in Cassville, NY to a robotic milking system in June 2012. Glenn and his parents built the original freestall barn and installed a Boumatic double six milking parlor in 1982 after relocating from central Massachusetts. By 2011, milking and related chores took two people about 12 hours each day for the 200 cow herd. Neither Glenn nor Sheryl was interested in growing the herd

Harold and Nathan Blesy, Blesy Farm, LLC

enough to justify a new parlor, and milking labor would still be required. They started touring herds in NY where the Lely robotic milking system was used and became taken with the cow culture and management information it provided. They also appreciated that the system would allow them to maintain herd size and retrofit their current facilities, while continuing to milk in the parlor. Both Glenn and Sheryl are graduates of the dairy management program at Cornell University.

1. What was the most challenging aspect of adopting the data technology?

Blesy: The most challenging aspect of adopting the robotic milking system was not the cows getting used to it, or the equipment itself, but rather the adjustment that was required in the way the humans do their jobs. It was an especially significant change in the way we collected information about our cows and their well-being. The "old" way was to visually see the cow, see the foremilk she produced, and the amount of milk in the weigh jar. With the new system we still check our cows visually, but by walking out in the herd, and taking the time to watch the cow's behavior, locomotion and general appearance. We then sit at the computer in the office to analyze and decipher the incredible amount of data that the robots collect. It is rather hard, at first, to trust all of the sensors, monitors and computer systems to make decisions about your herd. It's a lot less hands-on than we were used to.

Taylor: Probably the most challenging aspect was learning how to create and pull summary reports from the data. We, including our vet and nutritionist, were familiar with using Scout and DC305 for herd management information. We have continued to use Scout alongside the robotic herd management software (T4C) as we learned the process, but probably at some point we will stop doing that.

2. Which reports or data points do you use or review most often?

Blesy: There are four reports that I check twice a day, everyday. The first report is "udder health." This shows any cows that have a significant deviation in the conductivity or production of milk. The computer uses the individual cow's previous milkings as a baseline. This is our first indication that a cow may have mastitis. Once a cow shows up on this list, she is evaluated and treated accordingly.

The second report I depend on is "heat probability." This is a heat detection system that produces a list of cows that showed an increase in activity. This is the first heat detection system we have used. Previously we relied on our milkers to visually notice cows showing heats. Now that the robots do the milking we needed a different way to detect heats.

The third list I rely on is called "fresh cows." This is a custom report I created to more closely monitor the health of cows in the first 30 days in milk. This report shows daily milk production, milk deviation, body weight, weight deviation and conductivity. At a glance you can see if cows are gaining on milk or losing too much weight. This has been beneficial in diagnosing and monitoring metabolic disorders that sometimes occur shortly after freshening.

The fourth report I am certain to check is the "failed milkings." This list includes all of the cows that failed within the last 24 hours. This information tells me if there is a "problem cow" that has not yet acclimated to being milked, or if a particular milker is in need of maintenance. A quick glance here can help identify small problems before they become larger.

Taylor: Two or three times each day we use the "late cow" list to determine which cows need to be brought to the robots for milking. This shows the time since each cow has been milked and her expected milk production. While most often the "late cows" are either in training or regular "late" milkers, this list may help us find a lame or sick cow that prefers to stay in her stall. Also, every morning and night we look at the udder health report for mastitis concerns,

Sheryl and Glenn Taylor, Tayl-Wind Farm, LLC

the heat probability list for potential breeding candidates, the visit behavior list and the sick cow list for cows that have milk deviations that may need attention. To monitor the equipment performance we look at the robot performance report.

3. When do you look at data?

Blesy: I look at the PC data twice a day. The first time is as soon as I enter the barn in morning, usually around 5:30 am. A quick glance at the data tells me which cows I need to look at for further evaluation. The second time I look at the PC is in the evening, again usually around 5 or 6 pm. I spend 10 to 15 minutes evaluating the data each time.

Taylor: We look at reports multiple times per day, often more on slower days, and less on busier days, weekends or holidays. Most don't take long to create. The sick cow list, and needed individual cow cards, are reviewed before herd work. Our robots have a screen right on them so we can look at reports as needed while watching a cow milk versus using the main computer. All together we probably spend 10 hours a week on average looking at reports. Sometimes it's a minute or two while other sessions may last 30 plus minutes.

4. How do you take cow information from the screen and interpret what they mean to the cow's health and performance?

Blesy: When looking at the udder health list an elevated conductivity with a drop in milk generally is an off quarter, whereas just a large drop in milk could be an indication of indigestion or lameness. An elevated conductivity with normal milk production can be indicative of a cow in heat, a cow kicking off the milker, or some other mechanical failure.

On the fresh cow list, a drop in weight usually means a metabolic disorder. This weight drop generally precedes any drop in milk, so it is a good early warning sign.

All of these reports only give you a place to start. You still need to put your hands and eyes on the cows to see what they are telling you.

Taylor: The cow information we look at most are milk production deviation, rumination deviation, udder health concerns, body

temperature concerns and heat probability. Usually the cows that require intervention will have multiple alerts. Through the data review we create a list of cows to physically look at and/or monitor. Our vet would say now that we are trying to diagnose cows that we never would have known about prior to the RMS system. It is a challenge sometimes to know which cows are just having a bad day and which cows are headed for something worse.

5. What are the biggest benefits you're realizing from this data now available to you?

Blesy: The availability of all of this data means we are able to identify problems at an earlier stage. It has aided us in early detection of problems such as mastitis, pneumonia, ketosis and lameness. Since we are detecting the problems earlier we can treat them earlier, which often leads to a better outcome. I believe we have a healthier herd of cows since this data has been available to us.

Taylor: Probably the most beneficial information has been the heat probability reports. We are breeding/rebreeding many cows before the vet finds them open. Also, the udder health report seems to be very accurate to track udder issues. We really look at the rumination report on fresh cows and the whole herd for consistency. We also have the ability to look at very specific groups of cows to track their performance.

6. How has the robot data changed your management of cows and the herd?

Blesy: Our farm went from paper records and an Agway breeding wheel to T4C. It was a huge step up for us! Now that we have used the system for 4 ½ years, we have tons of data at our fingertips on each cow and, in some cases, the mother of the cow. It helps us make better decisions on breeding, treating and culling. At the herd level, having milk, fat and protein levels available for each cow group allows us to make or monitor ration changes with more accuracy.

Taylor: With the RMS we are able to react quicker and sometimes understand why milk production is changing. We now manage much more by exceptions and deviations. The data very often confirms what we see walking through the herd and vice versa. ❐