

Monitoring Udder Health In Robotic Milked Herds

Dr. Ann Godkin, Veterinarian, OMAFRA

Robotic milking changes the way things are done on a dairy farm by adding greater precision to many tasks. Not only does it add precision to what we do, it can also add precision to how we think, and mastitis is no exception.

Newer technologies have arrived but do not replace the information we get from established SCC programs.

Assessing bacterial invasion of the udder (mastitis) by testing for inflammation in the milk has been done routinely for over 30 years by doing somatic cell counts (SCCs) in cow milk samples. Newer technologies have arrived with robots but do not replace the information we get from established SCC programs. While producers would like to have one test that answers all mastitis questions, that is unlikely to happen. Not all mastitis is the same, nor are the problem with mastitis the same from farm to farm.

As we hone our approaches to deal with a variety of mastitis issues, the tests we need are those that:

1. Detect clinical mastitis so proper intervention can occur for affected cows and abnormal milk (milk not for human consumption) is kept out of the bulk tank.
2. Detect cows with high SCCs so milk can be diverted from the bulk tank so milk sold will have low SCCs.
3. Identify patterns of mastitis so that we can take preventive action and be able to tell if it worked.

Clinical mastitis (CM) is visible mastitis meaning changes in the milk or cow occur. Two systems can detect CM. Traditionally, observation of the cows and the milk at milking time by milking staff has been the way. With robotically milked herds, people are not involved at milking time – these systems must incorporate CM detection technology such as electrical conductivity (EC), colour change or metabolic changes (LDH) to take the place of the people no longer present at milking time. To date most of these technologies have not been completely satisfactory. Research on EC systems (algorithms are used to combine test



results and cow history) where comparisons to standard tests for CM is done shows that the test sensitivity, the proportion of CM cases detected, ranges from 50 to 90%. Unfortunately the trade-off for tests with a higher detection rate is a higher false positive rate, sometimes up to 50% of signals. The high false positive rate remains a frustration on many farms, especially if the farm has mostly mild mastitis cases that rarely require therapy.

What really adds value to the DHI SCC system is the ability to track udder health over time

Subclinical mastitis (SCM), where inflammation is present but there are no visible changes in milk or the cow, is far more economically important on most farms than clinical mastitis. SCM can occur, causing significant reduction in milk production without a producer's knowledge and thus prevention of future cases does not occur. As cases accumulate, the bulk tank milk SCC rises and the quality of the milk sold is reduced. Since there is no visible warning to trigger sampling for testing, detection of SCM requires routine SCC testing, as provided by monthly DHI program. Appropriate testing for SCM is currently lacking on robotically milked herds not enrolled in DHI SCC testing.

Monthly SCC testing has proven to be a cost-effective way of screening for SCM. While cows with CM certainly have high SCCs, because the DHI testing occurs at monthly intervals not all cows with CM will be detected. Detecting CM has never been the objective of the DHI SCC system. The DHI SCC testing

monitors SCM, those cases where cows have high SCCs that last from weeks to months but show no visible signs.

What really adds value to the DHI SCC system is the ability to track udder health over time – the ability to see the herd's mastitis rate this month compared to last month, last season, or even last year at the same time. Collating and summarizing the data over time to evaluate cows grouped by lactation stages, age or by other risk groups in the herd is what really counts. When changes are made to management, milking procedures or to housing to improve udder health, it's the cow SCC results summarized at the herd level that show whether or not success has occurred.

Cow side tests to detect clinical mastitis, can't replace DHI monthly SCC which monitors subclinical mastitis.

Cow side tests to detect CM can't replace DHI monthly SCC as an ongoing monitor of SCM and herd udder health performance. Recognition of the difference in information that the two systems provide is important to producers, herd advisors and the milking equipment industry. Without monthly SCC testing and information assessment, herd owners have no mastitis history on their herd. When seeking to reduce BMSCC, evaluating the herd SCC history to identify problem areas is the first step towards timely and cost-effective intervention.

For robotically milked herds, to detect CM, continuous (daily) cow-side testing is a good system. For conventionally milked herds, examination of the cow and milk at every milking works well. For both kinds of herds, recording of CM data is needed for proper treatment and prevention decisions. For detecting SCM, routine testing of all cows using the only validated system we have, the monthly DHI SCC testing, is essential for both robotic and conventionally milked herds. All farms need both systems to be assured of adequately monitoring mastitis rates and ensuring good milk quality and cow health.

DAIRY COMP AND ROBOTIC SYSTEMS

Dairy Comp software plays an integral role for herd management on many Canadian dairies, and that includes in robotic milked herds. Dairy Comp interfaced and integrated with the dairy's electronic milking system is very popular, with almost 450 dairies in Canada with that set up.

With the increase popularity of robotic milking, there has also been an increase in the setup of Dairy Comp software integrated with robotic systems. When Dairy Comp is integrated with any milking system, animal event information is sent to the milking system to be imported, and information from each milking session is loaded back into Dairy Comp.

Data entry is efficient because it is done once in Dairy Comp and then sent to the milking system so that it knows which cows need to be milked. Dairy Comp will load back accumulated milk weight information in addition to some other milking data parameters, which can assist with the monitoring of production of the herd.

Currently, CanWest DHI supports 45 dairies that have integrated their Dairy Comp 305 software with a robotic milking system and that number is growing.

Dairy Comp has proven to be a great complement to those dairies. Its ability to store all herd information in one location and to customize reports and herd analysis to meet each dairy's management style are features that are proven to provide great value to each herd.



"We really like Dairy Comp because of its ease of use, the quick and easy data entry and its adaptability to exactly meet our management needs."

Korb Whale, Clovermead Farms

Korb Whale operates a dairy in midwestern Ontario with 3 Delaval robots and uses Dairy Comp 305 to generate many of his daily herd action lists and for his overall herd management.

Korb comments, "We really like Dairy Comp because of its ease of use, the quick and easy data entry and its adaptability to exactly meet our management needs."

"I use Dairy Comp for a lot of my herd data analysis, especially for reproduction management, which is so important."

Allen Kampman, Spring Breeze Dairy

Dairy Comp has many tools and options to help effectively manage important areas like reproduction, the transition period, mastitis, health status of the herd and heifer management. Allen Kampman is a dairy producer in Manitoba using

Dairy Comp with a 4 Lely robotic milking system. Dairy Comp plays a key role in the management of his herd. Allen comments "I use Dairy Comp for a lot of my herd data analysis, especially for reproduction management, which is so important." He adds "With Dairy Comp, I can easily monitor trends in many aspect of herd performance which allows me to stay on top of things and take action when required."

Another key feature that adds value for all herds, including robotic is the ability to easily link to the advisors. Given that most dairy advisors in Canada use Dairy Comp, an efficient transfer of herd information can take place and the herd advisor can then easily monitor herd performance.

For herds on CanWest DHI testing service, data transfer on test day is simple and loading of DHI results back into Dairy Comp is easily done as well. Recent changes to Dairy Comp have allowed not only standard test day information to be loaded, but also milk test results for disease and pregnancy testing, as well as animal LPI values, which provide the dairyman with the convenience of maintaining an even more complete set of information for their entire herd in one spot.

Additional Dairy Comp features like registering animals with Holstein Canada or colored breeds and being Canadian Quality Milk (CQM) compliant make it an all-encompassing herd management tool.