

Cutting the cost of ketosis



Pioneering work by the Valacta milk-testing laboratory in Quebec, Canada is giving dairy farmers an early warning of ketosis in the dairy herd. With the typical cost of Ketosis at *\$350.00 per incidence for a single cow, farmers can gain much from the \$6 a month test to screen their entire herd. Over 60% of the laboratory's customers have joined the service since it started in July 2011.

Daniel Lefebvre, general manager of the Valacta milk testing laboratory can be satisfied with the decision to invest in a new option within dairy herd improvement (DHI) testing. The laboratory has collaborated with FOSS in developing a screening test for ketosis in dairy cattle – a condition that can reduce milk yield in by over 500 kilos per cow per year while also adversely affecting health and reproduction.

In the first six months that the new test has been available, around 60% of the laboratory's 5000 clients have taken up the new option. "The demand has exceeded our expectations," says Lefebvre.

Exploiting existing infrastructure

The test is provided by a service called KETOLAB which is offered as an option alongside the standard dairy herd

improvement (DHI) tests that help farmers to manage their herds, for example, tests for conditions such as mastitis. The ketosis test is performed simultaneously with the established tests using the same sample and existing installed equipment. The laboratory already has six FOSS MilkoScan FT+ instruments installed.

“It’s an item that really adds a lot of value to the DHI (Dairy herd improvement) sample,” says Lefebvre. “We are spending a lot of effort and money on collecting a sample from each cow and getting it to the lab, so adding an extra item is a way to make better use of that investment. It does have a lot of value to the customer because management of the cow around the time of calving is critical for the health and productivity of the cow for the rest of the lactation period. Previously we had very few tools to manage this period.”

He explains how existing methods for testing for Ketosis such as a blood test from individual cows are quite accurate, but costly and time-consuming. “Screening in the DHI sample is much more effective and convenient and the farmer does not need to think about anything,” he says.

Still, it is up to the producer to decide how to use the information. They can use their own contacts or Valacta have a team of advisors ready to help farmers use the results.

Early warning for an entire herd

Ketosis is only visible in the clinical stage so if it can be caught in the early sub-clinical phase a lot of milk and animal discomfort can be avoided. It is also rarely limited



Early warning: a new routine test spots ketosis in time to take action. The test costs \$6 a month for a dairy herd of 60 animals.

to individual cows and Lefebvre is keen to stress this herd-level aspect of the Ketolab service. “Sure, you can use it to pinpoint a specific cow,” he says. “But the real value is a baseline incidence rate for the entire herd. It can go up and down according to changes in management of feed. The value is picking up any changes that are increasing the incidence. If you see the incidence go up from one test to another you can right away look at the management right after calving and make sure that it is optimized.”

Dairy farmer Pascal Lemire, concurs. “For us, the KetoLab service has allowed us to identify the cows with subclinical ketosis and also to find the appropriate correction for a good start to the lactation. We can keep an eye on the monthly results and react quickly at signs of any slippage. We like this test for surveying the cows during the first 90 days of lactation.”

Team effort

The team at the Valacta laboratory helped FOSS to develop the new ketosis test, taking blood samples from

client's herds as the benchmark for corroboration against the results from the MilkoScan instruments. The results were also compared against reference tests with chemical analysis methods. "It was very collaborative," says Lefebvre. "FOSS were responsive and open to our requests. We were very happy with the service we got from the chemometricians to the technical support."

Ready-to-go

In total, milk samples from 2000 farms were used in the Ketosis calibration. Now that the instruments are calibrated, the maintenance is minimal with chemical analysis reference samples run on a weekly basis to keep an eye on performance of the MilkoScan instruments.

For any laboratories planning to offer Ketosis testing, the process of installing the new ketosis test is also quite simple. It is a case of getting the new calibration and using local support from FOSS to tune in to local samples.

According to results from Valacta, the test has great potential, not just for improving milk testing business, but also for improving milk production as a whole. Based on 50,000 milk samples tested by the laboratory, 33% of cows between the 3rd and 30th day of lactation were found to have ketosis.

Not surprisingly the Canadian veterinary community and feed industry are showing considerable interest in the new way to keep dairy cows healthy, happy and productive.

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Ketosis caught on the FTIR radar

Ketosis occurs in dairy cattle when energy output for milk production is too high relative to energy input from feed and uptake from fat deposits.

Sub clinical ketosis occurs when too little feed (or too low energy concentration in feed) is offered to the cow. Clinical ketosis occurs if the cow stops eating due to acidosis or other diseases while still producing milk.

In both cases, energy uptake from fat deposits is too high, as is the conversion of fat to glucose in the liver. As a result, acetone and beta hydroxy butyrate (BHB) are excreted as residues.

An indication of levels of the acetone and BHB residues can be provided by the Fourier Transform Infrared (FTIR) technology used in analytical instruments such as the MilkoScan FT+ Analyser. In response to requests from dairy herd improvement associations, FOSS has developed a calibration for the analyser that allows routine screening for ketosis as part of routine milk testing.

Valacta

Certified ISO 17025, the Valacta laboratory is one of the largest dairy laboratories in North America, serving the dairy industry for over 40 years.

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