

Milk fatty acid profile: a new tool is available

Débora Santschi

Agronomist, Director of Innovation and Development

Julie Baillargeon

Agronomist, Knowledge Transfer Expert and

Daniel Warner

*Research and data analyst
Lactanet*

We can always squeeze more information from a sample. In addition to analyzing components, urea and BHB, testing for pregnancy and detecting certain diseases, we now introduce the milk fatty acid profile.

The fatty acid profile reflects rumen health, and producers will be able to use this new information to adjust their herd rations or feed management practices.

Lactanet's innovation, development and laboratory teams have devoted four years to developing, fine-tuning, validating and standardizing the analytical procedure for the milk fatty acid profile. We worked with Foss, a Danish manufacturer, to increase the accuracy and rigour of the analyses. We also involved Rachel Gervais and Yvan Chouinard, Quebec's two world-renowned experts on fatty acids, to refine the prediction algorithms based on the actual metabolism of the cow. We are now proud to provide you with PROFILab, a rigorous, validated and sensitive tool, combined with benchmarks specific to Quebec making it easier to interpret the results.

First the bulk tank

In the first phase of implementation, the PROFILab analysis will be done on bulk tank milk samples, taken every second day from the farm. The results will be available to all Quebec dairy producers who subscribe to this service, whether or not they are enrolled

in milk recording. The results will be available on the Lactanet-Valacta website (www.valacta.com), in the secure area commonly known as "My Site."

An interactive report will provide producers with graphs showing the curves representing *de novo*, preformed, mixed and polyunsaturated fatty acids, in addition to the basic milk components. Benchmarks for each analysis will be displayed on the screen to help interpret the results. For herds participating in milk recording, benchmarks for different breeds, production levels and housing types will be displayed. Otherwise, each component will be compared with the provincial average.

Meanwhile, we will continue our development work toward the analysis of samples from individual cows. These analyses will provide a clearer picture of a cow's energy status and rumen health, particularly for cows in early lactation.

How are the results interpreted?

There is no ideal numerical level for each type of fatty acid (FA). Herd values depend on breed, diet, production level, season and a number of other herd management and environmental factors. For that reason, comparisons with similar herds are the best way to find out where a herd stands and make sure it is achieving its potential.

Give preference to *de novo* fatty acids

De novo fatty acid levels are an indicator of rumen health, so this should be the first group of fatty acids to focus on. A high level of *de novo* FAs is a sign of good rumen health; if it is low, it suggests that the cows could be "pushed" a bit to get a little extra milk.

Data for Quebec confirm that *de novo* fatty acids have the strongest relationship to milk fat and protein (Figure 1). Hence, anything that can be done to



Work to develop analysis of samples from individual cows is ongoing. These analyses will provide a clearer picture of a cow's energy status and rumen health, particularly for cows in early lactation.

boost the synthesis of *de novo* fatty acids, such as minimizing sorting or fine-tuning degradable protein, will have a positive effect on components.

How can PROFILab be used at herd level?

A fatty acid profile of bulk tank milk every second day provides useful information that serves firstly to assess rumen health in the herd and to maximize ration utilization. The FA profile is interpreted in relation to the basic components (fat, protein and urea), taking into account events that occur in the herd.

In the short term, consulting the fatty acid profile on the Lactanet site once a week when all is well, and every second day when there is a problem or a change to the ration or management practices seems to be a sound strategy.

Eventually, the report could generate alerts to inform producers that there is a change in the herd's status.

How to make the most of this new tool

In addition to support from your adviser, detailed notes pertaining to any changes to feeding or management practices are your best allies in getting the most out of this new tool. PROFILab detects any number of small changes that may appear to be insignificant, like a change in forage that went unnoticed or an error in the mixer on a busy morning.

Interpreting the results may seem complex. To take full advantage of this new tool, don't hesitate to consult a Lactanet adviser to get answers to all your questions.

A herd management tool that is one of its kind in the world

PROFILab contains a wealth of information useful to maximize ration utilization and herd potential. People are talking about the FA profile elsewhere in the world, but we are the first to offer producers such a tool on a continuous, every-other-day basis, and to link it to milk recording performance and to provide benchmarks. This information extracted from your milk samples is already collected and analyzed in our laboratories – an innovation that enables us to support you in better managing your herd.

Figure 1. Correlation between *de novo* and mixed FA and milk components.

