



Management Practices that Promote *de novo* Fatty Acid Production

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PROFILab analysis of bulk tank milk samples already allows us to use fatty acid profile to evaluate rumen health and feed management practices.



It is mainly the *de novo* fatty acids, which are synthesized from rumen

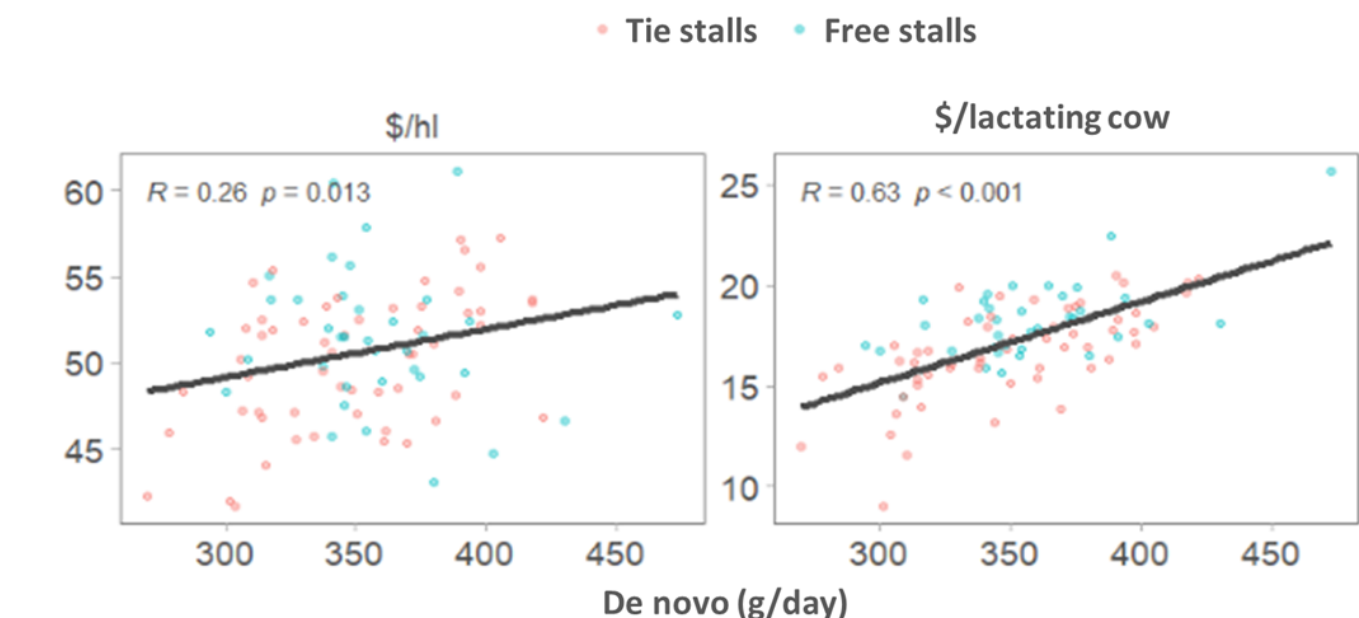
fermentation precursors, that reflect rumen health and [increase with milk fat](#).

From July to December 2020, we carried out a study on 102 dairy farms in Québec. The goal was to identify the management practices that promote the production of *de novo* fatty acids.

Highlights of the Study

Firstly, our results clearly indicate that the herds with the most *de novo* fatty acids also have the highest margin over feed cost. This is the case whether it is expressed in dollars (\$) per hectolitres (hl) of milk or in dollars (\$) per cow in milk (i.e., production unit) [Figure 1].

Figure 1. Margin over feed cost increased with increased *de novo* fatty acids for all 102 Quebec herds in the study



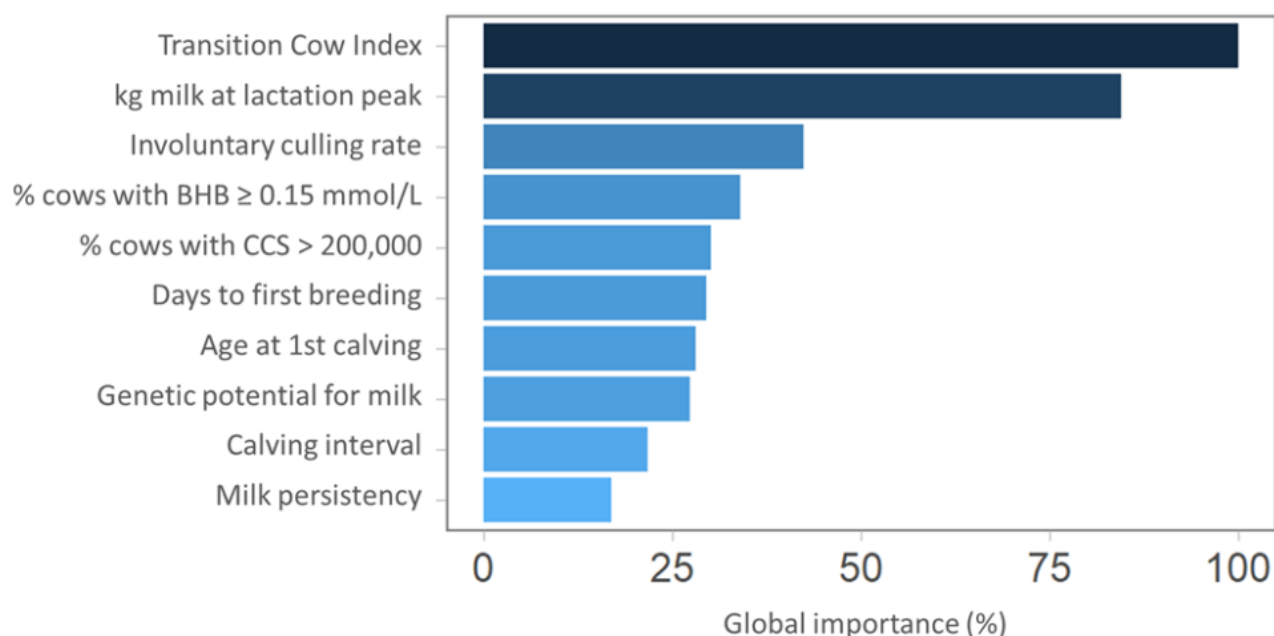
Good Transition, Good *de novo*

Yet another good reason to maximize *de novo* fatty acids in the milk. But how? First, use good transition management as depicted in the graph below [Figure 2]. The top 10% of herds in terms of *de novo* fatty acids have an average transition cow index which is extremely positive at 1300, whereas the bottom 10% have an average transition cow index which is negative (-10 on average).

There are also some other indicators that are related to a good transition: herds with more *de novo* also have better milk yield at peak lactation, a lower involuntary cull rate, and lower ketosis (BHB \geq 0.15) and somatic cell count (SCC > 200,000) values.

Our results also show that in addition to genetic index, there are several other strategies that can be employed to increase the synthesis of *de novo* in the short term.

Figure 2. This graph shows the importance having good transition and reproduction management to maximize *de novo* fatty acids in g/day



How can I use *de novo* fatty acids to help optimize margin per cow?

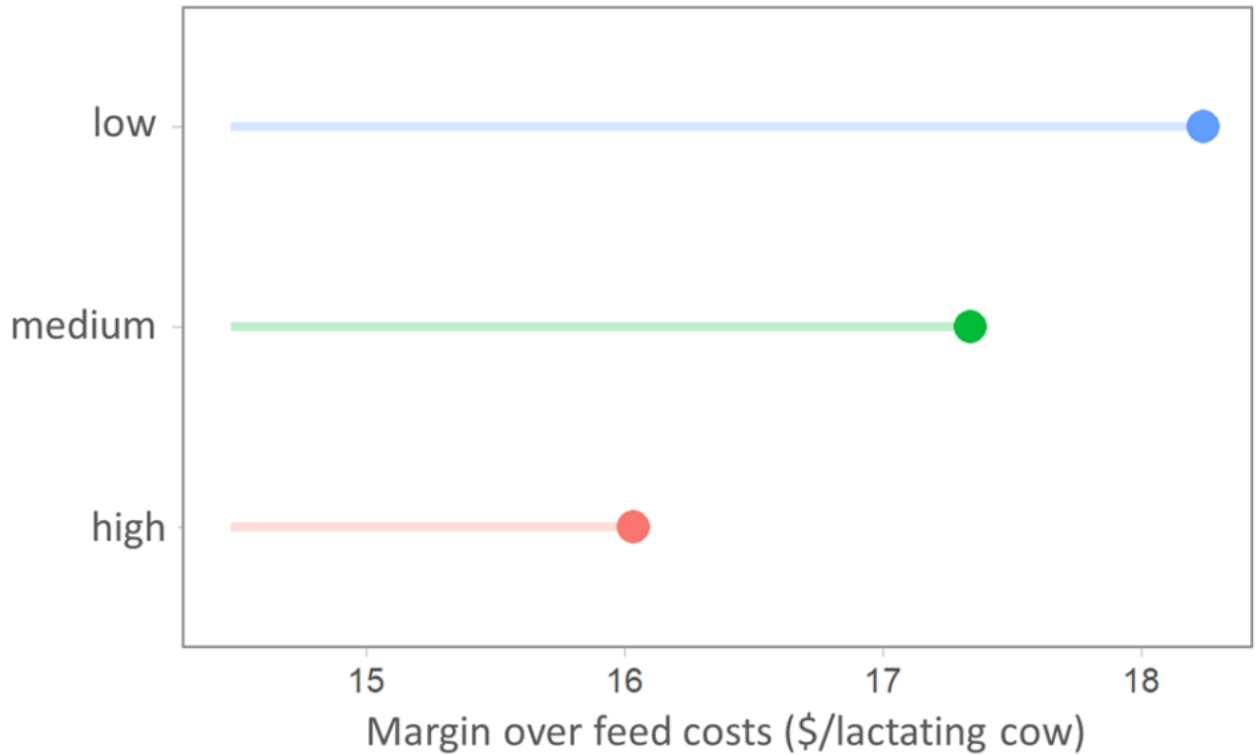
A more in-depth analysis of individual cow fatty acids for these 102 farms suggests that we should target low *de novo* fatty acid variation within the herd, since the margin per lactating cow decreases with a greater dispersion [Figure 3].

Lactanet is presently working on developing a tool that will promote a better understanding of fatty acid profile in individual cows (milk recording samples). This is a good example of an indicator that can be integrated with PROFILab to deliver added value and provide a wider range of solutions using your farms results!

Figure 3. Margin over feed cost per cow increases with less dispersion of *de novo* fatty acids among the cows in the herd

Dispersion represents the median absolute deviation of *de novo* fatty acids in g/day adjusted by the number of cows in milk.

Variation in *de novo* fatty acids (g/day)



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By Daniel Warner



By Débora Santschi agr., Ph. D.

By Josiane Prince

By Camille Boulanger