Is your feed going to waste?

More than half of your production expenses are related to feed. Most of your time on-farm is spent checking that every aspect of your feed is optimized – from increasing forage yield, to minimizing storage waste, to perfecting your rations and feeding systems. You may be making the most out of your feed, but can you say the same for your cows?

Feed efficiency is how you can measure your cow's ability to convert feed at the bunk to milk in the tank. Animals all use feed differently and in different amounts – which means we have an opportunity to improve efficiency by using genetic selection. Our goal is to identify the most feed efficient animals and use them to create the next generation.

An animal's feed efficiency is measured by looking at the difference between how much you think your animal will eat, compared to what they actually eat. A cow that eats less than expected for her level of production, without losing body condition, is more efficient. Using this idea, we can account for the differences in feed consumption we see between animals due to their production level or body weight – and target the true metabolic feed efficiency.

The problem is that data targeting true metabolic efficiency isn't widely available. Feed efficiency is complex, and it's influenced by many biological mechanisms. It requires in-depth, detailed records on many characteristics of the cow. The most important are individual daily dry matter intake, which is expensive and labour-intensive to measure, as well as body weight. Thanks to the introduction of new advanced technologies such as genomics, and collaborations with other countries for data, we can now start to target the true metabolic efficiency of dairy cattle. Lactanet was involved in funding a major international research initiative, led by Canadian scientists, working to combine data from different countries to make genetic tools that improve feed efficiency in dairy cattle a reality.

Starting with the April 2021 genetic evaluation release, Feed Efficiency evaluations will be available for all Holstein females that are part of the animal inventory reported to Lactanet for herds enrolled on its milking recording services, including eDHI. For sires, genotyped Holstein sires in A.I. will also have Feed Efficiency published. We use raw data, from Canada and multiple other countries, to help make our published Feed Efficiency RBVs as reliable as possible by including data collected on cows in both research and commercial herds.

Like all functional traits, Feed Efficiency will be expressed as a Relative Breeding Value (RBV) with an average of 100 and general range from 85 to 115. For sires, the higher the RBV, the more efficient their daughters are expected to be in converting feed to milk production. This new trait targets Feed Efficiency in cows after peak lactation, minimizing stress during the transition period. For every 5-point increase in a sire's RBV for Feed Efficiency, the daughters are expected to reduce their total dry matter intake after peak lactation by 60 kg.

Outside of Canada, evaluations for feed efficiency in United States and Australia have been expressed as Feed Saved. In the US, the published evaluations reflect a combination of the reduced feed used by animals that are efficient as well as lower feed consumption normally required by animals of smaller body size due to lower maintenance costs.

Canada's new Feed Efficiency evaluation focuses on selection for improved biological efficiency without affecting production levels, body size or transition period. In early lactation, cows are already under a lot of stress as they transition from dry cows to the new energy demands of lactation. Feed Efficiency in Canada avoids decreasing dry matter intake in early lactation and is aimed at preventing a negative energy balance.

Energy in

Feed Intake

Energy out

Maintenance + Production
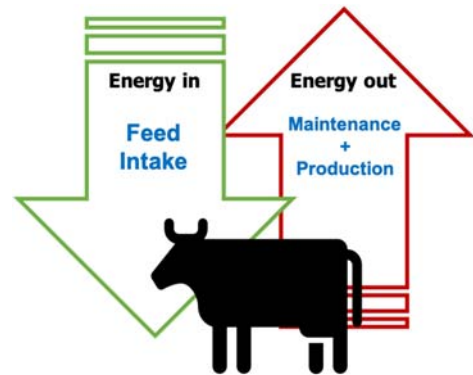
Using the collective global data, Canada now has a genetic selection tool for improving Feed Efficiency. Using Feed Efficiency RBVs is a simple, non-intrusive way of ensuring your cows are making the most of their feed – just like you are.

Interested in learning more? Click here for additional technical details.

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