

Mixing in molasses

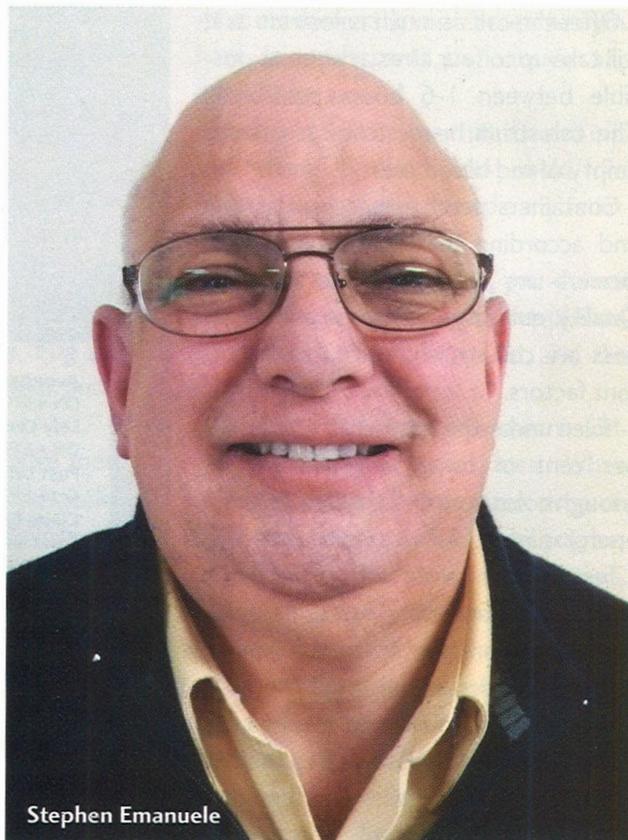
Dry matter intake may be increased by adding the syrup to the diet by KAREN DALLIMORE

HAVE YOU CONSIDERED ADDING molasses to your dairy cow rations?

At a recent lecture hosted by Liquid Feeds International of Innerkip, Stephen Emanuele, PhD, dairy nutritionist with Quality Liquid Feeds based in Wisconsin, explained how adding molasses to the diet could help increase dry matter intake, especially in early lactation, depending on how you balance the starches and sugars.

The trick when including sugar in the diet is to feed enough forage with good particle length so the cow produces saliva – the best rumen buffer there is. Encouraging her to chew her cud more will help to buffer the rumen, allowing efficient digestion.

There are three groups of sugars. The first, the ‘fast’, simple sugars like sucrose, glucose and fructose - are found in molasses, for example. The second group – the intermediate sugars – include those found in barley and liquid whey feed, or wet or dry brewers’ grains. These are maltose, galactose or lactose. The slow, more complex sugars – arabinose or ribose – are found in plant cell walls. They ferment at the same rate as the fibre surrounding them, and are found in small quantities in the forage component of a dairy diet. Are the three types of sugars used with the same efficiency?



Stephen Emanuele

The idea is to feed the right rumen bugs for high rumen pH, explained Emanuele. The “bugs with the black hats” love a pH below 6.0. Rumen bugs grow on carbohydrates, not fat or protein. The type of sugar makes a difference: the most beneficial rumen bugs grow best on simple sugars, says Emanuele.

How does feeding simple sugars translate into animal performance?

Sugars like those found in liquid feeds are rapidly used by rumen bugs and help increase fibre digestion. Rumen dynamics change: rumen fill is likely to be reduced due to this increased fibre digestion, leading in turn to greater feed intake. Cows will utilize the extra energy and protein to increase milk yield.

Fifty-eight years ago scientists discovered that adding molasses to diets increased cellulose digestion while starch decreased cellulose digestion. So if you want a higher rumen pH and starch decreases pH, maybe you should be feeding a lower starch diet? No, said Emanuele. He doesn't recommend a lower forage diet in an attempt to lower starch levels, noting that the responses to sugar are greater at higher forage levels. On diets at 45

percent forage, he recommends to stay at five to six percent total sugar.

How does feeding liquid sugar supplements affect DMI?

Research at the University of Guelph in 2012 looked at what the cows actually consumed. Using liquid sugar supplements, cows consumed more, chewed more, produced more saliva and as a result had a higher rumen pH. This translated into a cycle of higher dry matter intake and a higher level of total carbohydrates fermented in the rumen with the liquid supplement. The reason? As Emanuele said, "we grew more rumen bugs."

Emanuele wanted to dispel one common myth: adding liquid sugar supplements doesn't necessarily add liquid but it can increase feed consumption. The supplement basically adds stickiness that prevents sorting, with best

results obtained with longer particle feeds.

What did the cows do with that extra energy?

In early lactation, she's wired to make more milk. Efficiency was about the same but profit was higher, explained Emanuele. Nine of 11 trials reported increased milk on higher sugar diets, with very low forage diets giving the smallest response.

The bottom line? The response gets larger as you feed more forage.

"You don't get something for nothing," acknowledged Emanuele. To produce more milk she has to take in more nutrients; she can't milk off her back. Adding sugar supplements is one way to get enough DMI to the transition cow. The average increase in dry matter intake with liquid sugar supplements was 1.1 kg/day.

It's a cost, but is it efficient?

There's a 'sweet spot' where you get the best response, with no advantage to going above 10 percent total sugar in the diet. Emanuele suggests between 5.5 to 7.4 percent total sugar with 50 percent or more of that as sucrose, recommending somewhere between 0.68 to 1.0 kg of supplemental sugar gives the best return on investment.

In summary, Emanuele suggests that adding liquid feed supplements to the dairy diet increases the digestibility of the entire ration, reduces rumen fill and increases DMI. This will, in turn, increase animal performance, especially in early and mid-lactation, three to four weeks before and after she calves.

Liquid feed supplements are available in Canada from Liquid Feeds International in Innerkip, ON. 1-800-265-8335. **D**

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Barbara & Barton MacLean, Kevin & Jo-Ann MacLean, with daughter Adriana, Taylor Earl and Dustin Earl operate Ripplebrook Farm, Napanee, Ontario. They farm 750 acres and milk 130 cows.

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