

Looking more closely at dietary sugars will help unlock the value in this year's silages and help offset the consequences of more volatile major feed commodity markets. Dairy Farmer reports.

Time to consider sugars

Nutritionists will have to plan rations carefully this year, paying close attention to rumen health and function to maximise forage intakes and ensure cows get the most from forage.

This is the message from Georgina Chapman of molasses blends specialist ED&F Man, who says: "The good news is there are proven solutions to help tackle the specific characteristics of this year's forages and build effective diets."

Ms Chapman says that overall grass silages energy levels are slightly reduced, and sugar levels are significantly lower this year. Lignin levels are higher which will affect digestibility while rumen fermentable carbohydrates and proteins are also reduced.

"Many of the challenges when feeding this year's silages can be tackled by looking closer at the levels of sugars in the diet. Adding sugars, in the form of molasses blends can help improve fibre digestion which will release more of the nutrients in forage while also increasing diet palatability and homogeneity to stimulate intakes.

"Sugars will also stimulate microbial production and supply rumen fermentable carbohydrates without inc-



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reasing the sub-acute ruminal acidosis [SARA] risk and can increase dry matter intakes without causing excess rumen fill."

Requirements

Ms Chapman says most UK diets are typically about 2% sugars in the dry matter, which is significantly below requirements.

For optimum performance, early lactation cows require 6% sugars, and cows at peak production require 8%. Even late lactation animals need 6% sugar in the diet.

"Filling this sugar gap provides cows with valuable rumen fermentable carbohydrates to fuel the rumen micro-organisms, which will encourage better fibre digestion.

"When lignin and neutral detergent fibre levels are high, the energy in fibre is more difficult to extract. By stimulating the rumen micro-organisms, sugars accelerate fibre digestion, reducing the proportion of undigested fibres which are just excreted, wasting energy.

"Adding the optimal level of sugars in the diet also influences rumen fermentation in two significant ways. The first is that they contribute to increased microbial protein production, which is the most important protein source for ruminants.

"With volatile protein prices, optimising microbial production will be especially important this year. Sugars are more rapidly fermented than starches and fibres, providing the instant energy boost to promote more microbial protein synthesis."

Although rapidly fermented, Ms Chapman is quick to stress that sugars do not contribute to issues with SARA, commonly seen when cereals are increased in diets.

She says: "This winter it may be tempting to increase cereals in the diet to provide more rumen fermentable carbohydrates, especially if more cereals enter the

feed market due to reduced milling and malting quality.

"From a rumen health standpoint, increasing sugars is likely to be the better option."

Molasses blends offer an ideal combination of rumen fermentable carbohydrates along with regulated release protein to balance the reduced fermentable proteins in silages.

In trials at the University of Reading, collaborating with CIEL, cows were fed two diets. The only difference between the two was that in the trial diet some of the blend was replaced by Regumix, a 67% dry matter, 27% protein molasses blend with 53% sugars.

"The dietary impact of adding the molasses blend was to increase the sugar content in the diet to fill the sugar gap while also reducing the levels of starch."

Cows fed the diet with the molasses blend had higher dry matter intakes, and the yield of fat corrected milk was increased mainly as a result of significantly higher butterfat levels, indicating better fibre digestion.

In addition, cows fed higher sugars spent 35% less time above the SARA threshold pH of 5.8 indicating a better rumen environment.

Data

"All the data indicate that rumen function was more effective and that fibre digestion increased, but interestingly methane production reduced per day and per litre of milk produced.

"An increase in fibre digestion is typically linked to increased methane output. However, as this was not the case when a molasses based liquid feed was fed, this suggests that feeding optimum levels of sugars can help improve the use of home-grown forages while also being a sustainable option."



“Sugars are more rapidly fermented than starches and fibres, providing the instant energy boost

GEORGINA CHAPMAN