

Power up production by

Feed for function

Think of the rumen as the 'engine' of the cow. That's the advice from two leading dairy nutritionists, who believe that some producers forget – at their peril – about rumen pH when formulating and feeding winter rations.

text **Rachael Porter**

Dairy producers need to be 'more pig and poultry' when it comes to feed conversion efficiency. This parameter receives relatively little attention on most dairy units, particularly when compared to the monogastric sectors. But, with improvements to rumen efficiency capable of reducing feed costs and boosting production and improving cow health, the impact on profitability can be substantial, according to AB Vista's nutritionist Nicola Walker.

She says that it's the ration that is the cause of most sub-optimal rumen performance and that should be the starting point when looking to improve efficiency. Optimising fibre digestion and microbial protein production will extract greater value from home-grown and bought-in feeds. And while avoiding transition diseases and sub-acute ruminal acidosis (SARA) will eliminate yield losses – up to 2.7kg/cow/day for SARA – as well as the costs associated with lower milk quality, reduced cow health and poor fertility.

"Stimulating good rumen function and minimising the time rumen content is below pH 5.8 – the levels at which microbial activity and fibre digestion are compromised – should be the top priority," she says. "Limit in-parlour feeding to 2kg/cow/day, and ensure rapidly fermentable starch and sugars are buffered by sufficient digestible and structural fibre."

'Effective' fibre

UFAC's nutritionist Mike Chown agrees. "It's vital to ensure that there's enough 'effective' fibre in the diet. It's also important to balance any excessive lactic acid in the silage and to take care when adding rapidly fermentable energy sources to the ration. Both can seriously compromise the rumen's ability to produce bicarbonate; its buffer against falling pH." Grass silage is pretty acidic – at a pH of between 3.8 and 4.2. Lactic acid levels are extremely variable and it's not possible to tell by smell alone. So Mr Chown says he tastes silage to see if it's high in lactic acid. "If it is, it'll sting your tongue!" For less

adventurous producers, he recommends that they test their silage regularly, so they can monitor and take remedial measures to regulate the lactic-acid load in the ration. He fears that many producers will be adding high levels of relatively cheap cereals to rations this winter, in a bid to boost energy levels.

"But this will ferment quickly and rapidly reduce rumen pH. The lactic acid produced is difficult for the rumen to deal with and often results in SARA or clinical acidosis. Dry matter intakes will then fall, so producers looking to get more energy into their cows will end up doing the exact opposite."



optimising rumen pH

n and efficiency

Dairy rations should promote optimum rumen function and maximise dry matter intakes and milk production from forage. “Then add concentrates and rumen-inert fatty acids, like Dynalac or Omega Cream, to avoid upsetting rumen pH.”

Mr Chown likes to see 80% of the herd cudging just 1.5 hours after feeding. “I like to see them frothing at the mouth, particularly on the lower jaw and with droplets on the ground. That’s a sign that the rumen’s working efficiently and that its environment is optimal for good dry matter intakes and milk production.



Super drool: Mike Chown likes to see cows frothing at the mouth – a sign that the rumen is working efficiently

“I encourage my clients to view the rumen as the engine of the cow and what leaves the rumen is fuel for the carburettor – the liver and milk production.”

Reducing SARA

Nicola Walker says that formulating rations to balance both the amount and rate of fermentable energy and protein release in the rumen will certainly help to optimise microbial growth, stabilise rumen pH and reduce the risk of SARA.

“Balance the high levels of rapidly degradable protein in grass silages with rapidly fermentable energy, usually starch or sugars, to drive the microbial growth needed to capture the nitrogen released.

“Conversely, high starch rations may need additional nitrogen. Using a controlled release nitrogen source like NitroShure, for example, has been shown to allow ration starch levels up to 25% without inducing SARA.”

Cereals can also be treated with caustic soda to slow the rate of fermentation in the rumen to better match protein release. Liquid feeds are typically the most cost-effective source of sugars, which also bind ration ingredients together to minimise the chance of cows sorting out all-important fibre.

Where the risk of SARA is still high, Dr Walker recommends including a specialist rumen buffer or live yeast to help optimise the rumen environment. Live yeasts like Vistacell scavenge oxygen and stabilise pH, increasing populations of fibre digesting microbes and increasing yield by up to two litres/cow/day.

Rumen buffering

“Don’t be tempted to use sodium bicarbonate as a rumen buffer, though. Research has shown it performs poorly compared to a slow-release rumen conditioner, has a lower buffering capacity, and works by increasing the rate of feed passage, so reducing feed efficiency,” she adds.

In a trial comparing a high quality slow-release rumen conditioner to sodium bicarbonate, the rumen conditioner not only produced the highest yield (see figure 2), but also increased feed efficiency by 8%, compared to the untreated diet, and by 11%, compared to the sodium bicarbonate diet.

“And don’t forget the importance of good transition management,” Dr Walker says. “Only feed low energy/high bulk rations containing large volumes of straw to maintain rumen fill. And use similar ingredients to the milking ration to allow rumen microbes to adapt well in advance of joining the herd post calving.” |