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As we look ahead to winter feeding, there is much to be considered. Input costs are high, raw material markets are volatile and forage quality is variable. Feed and forage account for 40% of the average dairy's cost of production, therefore improving feed efficiency and maximising milk from forage is essential.

Feed Microbes to Feed the Cow

It is important to remember that the stress induced by transition from grazing to housing in autumn, coupled with variability in the quality and quantity of forage, induces instability within the rumen. This can lead to a loss of digestive efficiency and predispose the cow to metabolic diseases, invariably impacting milk yield, milk solids, fertility and overall health. To achieve high levels of feed efficiency and milk from forage therefore, whilst mitigating risks, a focus on rumen function is critical.

Feeding the Rumen

The rumen is the engine of the cow - an environment in which a diverse community of anaerobic micro-organisms exist. Through fermentation of feed, these microbes are largely responsible for the supply of energy and protein needed by the cow for maintenance, lactation and reproduction.

This microbial community is resilient, acclimatising and adapting constantly, nevertheless many keystone species are sensitive. Where changes are sudden and/or feed quality highly variable, instability within the rumen disadvantages these species. At housing in particular, the diet transition can be dramatic as herds move rapidly from a grazing-based diet, supplemented with a complimentary compound and/or buffer feed, to a full winter ration. Aside from the obvious loss of feed efficiency, cows are predisposed to sub-acute ruminal acidosis (SARA) and - in severe circumstances - clinical acidosis.

Feed Efficiency

'Feed efficiency' is the energy corrected milk (ECM) produced from the ingestion of one kilogram of dry matter (DM), expressed as a ratio. Where 30kg of ECM is produced from 20kg of DM for example, a value of 1.5 is obtained. While influenced by a range of dietary, genetic, environmental and management factors; efficiency is ultimately limited by rumen function. Optimising rumen function should be a priority therefore as an increase in feed efficiency can positively impact both profitability and sustainability.

If yields in the above example rose by 1.5kg for instance, without a change in DMI, feed efficiency would rise to 1.575, a 5% improvement and dilution of the maintenance cost of each kilogram of milk. As such, in a herd of 100, the original yield is obtained for the cost of just 95 cows. Such advances are targeted in several ways, from improving forage quality to feeding more concentrates, but the most positive responses come from optimising the rumen environment.

Focus on Forage

Described by many as 'natural capital', forage is the most cost-effective feed source available to a dairy. Dr Mark Leggett of Volac highlights that the most profitable 25% of herds within the UK and Ireland produce over 50% of their milk from grazed grass and/or silage.

Variability is an inevitable issue due to differences in species mix, plant maturity and growing conditions between swards. Further variation develops when multiple cuts are stored within a clamp as ratios differ within each meal. High quality is essential to achieve intakes of 15 kg DM/cow/day, nevertheless inconsistency will still impact the nutritional composition of the diet fed each day, forcing the rumen's microbes to adjust constantly.

This season in particular, protein levels have been low as cold and dry conditions delayed grass growth. Farmers who cut early largely avoided this drop in quality, at the expense of quantity, however those who delayed also saw high NDF levels and low D-values.

Early analysis by Trouw Nutrition GB suggests that fermentation quality is good overall, with pH and lactic acid levels moderate and sugars low. The average ME was 11.7MJ/Kg DM and crude protein (CP) 14.6%, however ranges are significant, and many crops have analysed as low as 10 and 7.5 respectively. Significant variation was also seen in NDF levels, which ranged from 29-63%DM. While fibre is key for butterfat synthesis and stimulating rumination, excessive NDF levels at the middle to top end of this range will ultimately reduce feed efficiency.

Some simple, practical solutions can be utilised within an effective plan to optimise rumen function and so performance this winter, despite the challenges:

1.You cannot manage what you do not measure, therefore analyse samples from the clamp face once a month. When the quality and nutrient value of your forage is known, rations can be tweaked for consistency.

2.Change diets gradually over a period of 2-3 weeks to provide the microbes time to adjust in profile, size and activity. Grazing by day and housing by night throughout this period is often successful. Adapting to weather conditions and managing grass availability are also key considerations.

3.Present mixed rations in a consistent way by calibrating and maintaining wagons, loading ingredients in size order (smallest first) and mixing for the same consistency every time. Structural fibre such as straw should be chopped to the width of the cow's muzzle to reduce sorting.

4.Provide at least 65cm of head feed space per cow, ensure neck rails are high enough to allow cows to reach for feed and distribute the diet consistently to ensure all have access.

5.Feed Actisaf® Sc 47 live yeast to optimise the rumen environment and increase the speed of acclimatisation. While minimising losses, Actisaf® also adjusts the microbial profile, promoting highly efficient fibre-digesting and lactate-utilising species. Thus, more energy is harvested from the diet for milk production whilst lactic acid is utilised, rather than accumulating and causing acidosis.

ActiSaf Sc 47

Summary

To increase profitability, herd management plans must focus on improving feed efficiency, maximising milk from forage and mitigating the impact of variability and inconsistency. Variability in the quality of forage, though particularly problematic this year, is inevitable and environmental changes unavoidable. As such, the careful execution of transitions, management of feed and balancing of forage will be essential to lessen the impact of stressors on rumen function. It is important to remember that we feed the microbes and the microbes feed the cow.

For further information, please do not hesitate to contact your local DN Sales Specialist or email our Veterinary Technical Manager, Debby Brown:

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