

Summer diets, more or less forage?



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Rumen acidosis results from an excessive acid load in the rumen not neutralised by salivary or feed buffers. Changes in physiology, metabolism, and behaviour of heat-stressed cows increase their susceptibility to both sub-acute (SARA) and acute acidosis.

Researchers from University of Missouri observed lower rumen pH (6.1 vs. 6.4) when cows were fed 65% forage diets under warm, humid conditions (29.4°C - 85% relative humidity; RH) compared to cooler, drier conditions (18.3°C - 50% HR). When forage in the diet was reduced to 35%, the differences in ruminal pH were higher (5.6 vs. 6.1 for warmer and cooler conditions, respectively). The main herd problems observed with SARA during warm weather are a reduction in milk fat and an increase in lameness.

As feed fermentation in the rumen generates heat, to maintain constant body temperature during hot weather, one of the strategies employed by the cow is to reduce feed intake. Additionally, other mechanisms (i.e. panting) that operate to dissipate heat increases the maintenance energy requirements, making it necessary for the diet to have a higher energy density. In general, nutritionists accomplish this by increasing concentrates and reducing forages in the diets. This is a sound approach, however sufficient effective fibre should be maintained

in the diet to stimulate cud chewing and rumination, thereby, maintaining adequate rumen pH.

The latest National Research Council suggests the concentration of forage fibre (NDF) in the diet should be between 15 and 19%, depending on the amount and type of non-fibrous carbohydrates present in the diet. This suggestion should be taken as an absolute minimum, as it was developed for total mixed rations based on alfalfa of adequate particle size. The reason why part of the dietary fibre needs to come from forages is to ensure an adequate amount of effective fibre.

Forage fibre stimulates rumination, and thus cud chewing, which increases saliva production that neutralises rumen acidity. The best way to achieve adequate concentrations of effective fibre is by maximising forage quality. Using forages of high energy concentrations allow for an increase in their inclusion rate in the diet. Once the forage: concentrate ratio is increased the risk of acidosis is reduced.

In summary, dairy cows under heat stress are more susceptible to subclinical rumen acidosis. To maintain a healthy rumen, cows require adequate amounts of effective fibre in the diet. During periods of warm weather it is advisable to use energy dense forages having highly digestible fibre concentrations.

