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SUB-ACUTE RUMINAL ACIDOSIS

DEFINITIVE diagnosis of sub-acute ruminal acidosis (SARA) is difficult, but there are a number of clues that, together with assessment of the ration, may point towards a herd problem.

Many of the indicators for SARA are straightforward to assess on farm with a quick walk around the cows. To begin with, estimate the percentage of cows in a shed that are chewing the cud, as fewer than 70 per cent can be a warning sign for SARA (Cooper, 2011).

Cows with SARA have a fast rumen throughput time and so faecal consistency tends to be loose with the presence of long strands of fibre, undigested grains and, sometimes, intestinal casts. Faecal consistency scoring of the herd can be carried out as well as faecal sieve scoring; these are reviewed in more detail by Atkinson (2009). Other signs include tail swishing, cud dropping and poor rumen fill due to reduced dry matter intake (DMI).

Rumenocentesis is often cited as the definitive test for SARA and is generally well-tolerated, but carries a risk of haematomas and abscess formation at the puncture site (Enemark, 2009). SARA is suggested to be present if four out of 12 early lactation cows have a rumen pH less than 5.5. However, Plazier et al (2007) suggest it is likely that cows differ in their response to depressed rumen pH, therefore, rumen pH alone is not adequate to diagnose SARA. Individual vets must do a risk analysis assessment for each case to decide whether diagnosis confirmation by

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in the second of a two-part article (part one VT44.01) discusses the diagnosis and management of SARA

rumenocentesis is necessary.

Milk fat depression is a consequence of SARA due to a decreased acetate:propionate ratio. The most useful parameter to monitor is the percentage of cows on milk recording day that have a butter fat of less than 2.5 per cent. SARA is likely if the percentage of cows with low butter fat is more than 10 per cent (Figure 1). Note that fat:protein ratio is not useful for diagnosing SARA as the effect on milk protein is not known (however, this parameter is useful for ketosis monitoring). Care must also be taken on farms that only carry out once-a-day milk recording, where factoring tends to underestimate butter fat.

Preventive nutritional management

Prevention of SARA depends on transition cow management to allow adaptation of the ruminal papillae to the energy dense lactation cow diet as well as keeping ruminal pH within the normal physiological range throughout the day (Enemark, 2009). As mentioned in part one (VT44.01), looking at the ration formulation for the warning signs of neutral detergent fibre (NDF) less than 35 per cent, and combined sugars and starch more than 18 per cent, may be helpful, but often this can look right on paper although the cows are not getting this exact ration at the feed face. This is a good example of when a working relationship between a farmer's vet and nutritionist can be very useful, as nutritional advisors are usually better at formulating the ration while vets are good at seeing the bigger picture in terms of how cows are coping with their diet.

It is important the ration is assessed at the feed face

(Figure 2). Questions to ask include the following.

- Is there evidence of any sorting of the ration (cows pick out the palatable concentrate portion and leave the fibre behind)?
- Does the ration appear to have good consistency?
- Is there adequate feed space (more than 0.8m/cow) or are there any other factors that could be limiting DMI for certain groups of cows?
- Does the actual ration resemble what it says in print and is the farmer actually following the paper ration?

In-parlour feeders are notoriously inaccurate, so these must be regularly calibrated. Cows should be fed no more than 3.5kg concentrate per milking (Cooper, 2013). If the total mixed ration (TMR) is inadequately mixed, cows are able to "sort" the ration so they get the acid-loading starchy portion of the diet without the benefit of the functional fibre. Feed space can also be an issue, with dominant cows having more access to the ration. The ideal is more than 0.8m/cow.

As a short-term fix, bicarbonate buffers can be added to the ration, although it is important the underlying causes are addressed so this strategy isn't used to compensate for poor ration management. Yeast cultures have also been sold as an additive to address SARA, but there is not enough evidence to recommend this (Enemark, 2009). Increasing the amount of physically effective fibre (peNDF) in the ration will increase the amount of chewing and improve rumen function. Adding pre-chopped straw to the TMR is a commonly used strategy, as is giving cows access to straw in a ring feeder if this isn't possible. Brewer's grains provide a readily available and

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palatable source of peNDF. Long-term strategies for the management of SARA should be based on improving forage quality, as this is "the greatest determinant of herd production" (Cooper, 2011). The ratio of maize:grass silage is important; Cooper (2011) recommends a ratio of between 70:30 and 60:40. Although SARA can be a difficult condition to diagnose, many of the management strategies are aimed at improving rumen function and so trying some of these may well be beneficial even if SARA isn't confirmed.

References

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Figure 2. Assessing a cow's ration.

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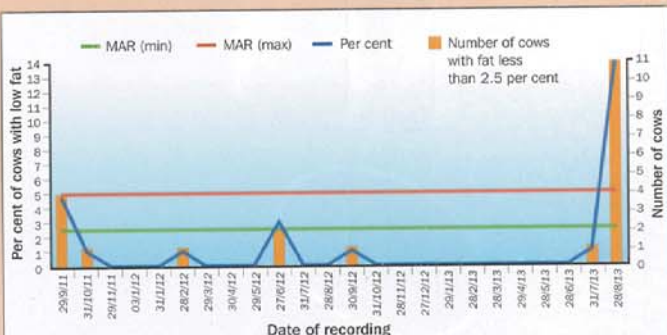


Figure 1. This farm had a suspected SARA problem in August 2013 (TotalVet, Sum-it software).