

Mastitis and Nutrition: so what's the connection?

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The links between production and feeding are well defined. We are also beginning to understand the influences of feeding on fertility. However, the relationship between feeding and mastitis is certainly less clear, yet equally important. Nutrition affects the incidence of clinical mastitis and cell counts in four fundamental ways, which can be addressed by adopting the following straightforward solutions to help keep the herd focused on minimising incidents and achieving that target somatic cell count of 120,000 or less.

1. Milk leakage

Better nutrition may mean higher yields, however at the extreme it may cause milk leakage and subsequently provide the perfect environment for mastitic bacteria on the beds and opening the first line of defence, the teat canal between milkings. Herds consistently averaging over 30 litres on twice daily milking will recognise the challenge this presents.

Solutions: A move to 12 hour milking for the highs or three times daily obviously offers the solution. Improving teat end condition through dips and milk machine settings may also mitigate some of the effect.

2. Minerals

Poor management of sodium, potassium and starch may cause oedema that also interferes with blood supply to the udder, teats and affects their ability to form a good seal to prevent bacterial penetration. Mycotoxins can also occasionally cause problems with oedema.

Solution: If udder oedema is occurring in any cows resample all forages checking mineral levels. Review minerals in the whole diet including bagged supplies which can be very high in salt and prove disastrous in the dry cows. If these levels are below the threshold of less than 0.3% sodium, less than 2% potassium for example in milk cows or 0.2% and 1.5% respectively in dry cows, then check the starch supply and reduce if necessary.

3. Faecal contamination

Faeces carry the common pathogens *Strep Uberis* and *E.coli* along with many others; they form the perfect medium for these pathogens' proliferation providing heat, water and food for the mastitis bugs. The heavier the contamination, the more likely it is that the critical square millimetre of the teat end will be exposed.

Solutions: to strategically tackle the problem, take a look at your cows with your vet and decide where the teat end soiling is originating:

- ✍ is she defecating on the bed?
- ✍ is it heavily contaminated feet contacting the udder when she's lying down?
- ✍ or is it a tail smeared with watery faeces that she's applying carefully all over herself?

Cows tend to be looser if there is insufficient effective fibre, too much starch, sugar or acid, or if the ration is over the top with degradable protein. The latter example is massively over diagnosed, and in my experience latent acidity is to blame in most situations in housed conditions.

Two things make a loose cow much worse from a mastitis point of view. The first is obviously flies because of the extra tail movement. The second is acidosis because the hindgut fermentation makes the faeces acidic, the cow becomes 'hot arsed' and she has exaggerated tail flicking movements that spread the liquid faeces more widely.

I'd recommend adopting the following six points:

- ✍ scrape out passages frequently, the more the better unless foot contamination is made worse by the action of the scrapers
- ✍ bed the cubicles generously and sanitise
- ✍ clip tails
- ✍ flame udders
- ✍ check faecal consistency
- ✍ avoid acidosis

Don't forget to apply the above actions to the dry cows. Up to 50% of mastitis infections may be picked up during the transition period.

4. Immunity

A cow's immune status and her ability to respond to infection will be determined by her environment, and both weight and antioxidant status.

Solutions:

A - Stress releases steroid hormone that suppresses her response when bacteria enter the udder or those already there begin to grow. Ask yourself the following fundamental, yet frequently overlooked, questions:

- ✍ is she comfortable?
- ✍ is she lame?
- ✍ is she being bullied?
- ✍ is she being beaten and stressed by the new, ignorant, yet very cheap staff?

B - Liver function: avoid fatty liver by monitoring cow condition in the dry period, and feeding carefully to avoid condition loss or gain. Diet extremely fat cows that are set to have long dry periods before they get close to calving, no closer than six weeks. The liver is the power house of the body and produces many of the hormones that mediate immunity as well as being intimately involved in energy metabolism. If its function is impaired through most commonly fat infiltration from the dry period the cows ability to respond to infection is also and she is more likely to sicken if she is infected rather than just shrugging the infection off.

C - Antioxidant status:

1. check selenium levels by GSH-Px measurement in a blood sample - these should be high, not just simply be above deficiency level. Measurement types vary so consult your vet.
2. check vitamin E levels by blood sampling. In the event of a toxic mastitis outbreak supplement heavily - over 1,000 iu per cow per day, over 4,000 iu for dry cows.
3. check iodine status. This is critical for the selenium to work. Recent cuts in the maximum legal limit may well make this become more of an issue so check current status and monitor in the future.

Adopting Management for More than Milk, M³ will challenge you to think beyond the routine practices to mastitis control and towards applying that further necessary attention to detail to improve margins. Richard Vecqueray can be contacted on 07921708655, and further information on M³ can be obtained from Dugdale Nutrition, Bellman Mill, Salthill, Clitheroe, Lancashire BB7 1QW, call 01200 420200 or email: info@dugdalenutrition.com