



Acidosis Alert!

The drought may be over, but hay/straw shortage certainly isn't. I fear the greatest threat we now face, and will do till silage/hay harvest, is fibre shortage in rations. This will be a cause of widespread acidosis in southern Australian dairying till December.

Acidosis is sighted as the number one metabolic disease in dairy cattle in a normal year. The problem will be far greater this year due to limited or no hay in grass based rations. A brief description of acidosis will help to understand the problem.

Acidosis occurs when rumen pH declines. A pH of 6.2 or greater is a relatively neutral rumen which will support good digestion and feed utilization. Bare in mind rumen pH declines with every meal, but the critical issue is the time pH remains low (below pH 5.8). Digestion of feed produces volatile fatty acids (VFA's) which are absorbed through the rumen wall into the blood stream supplying nutrient to the cow.

When the rate of production of VFA's exceeds the capacity of the rumen wall to absorb them, acidosis begins. Unfortunately, acidosis drives itself. Fibre digestion ceases at pH 5.8, this reduces cud chewing which inturn decreases saliva production, the cow's natural 'buffer', and rumen pH continues on a rapid decline.

As pH declines lactic acid producing bacteria multiply, secreting lactic acid which is 10 times stronger than the normal VFA's. It's the dam wall scenario – starts with a trickle then rapidly increases flow till the wall collapses producing a deluge.

Acidosis has 2 phases, subclinical, and clinical. Clinical acidosis, like the same state of milk fever, ketosis, mastitis and metritis are all know to the dairyman, and quickly attended to. However, sub-clinical is less obvious, and as with the above metabolic diseases, often goes unaddressed causing significant loss of profit through sub-optimal production and health of our cow.

Following are the signs to watch for in monitoring your herd for possible acidosis: low milk fat test, below 3.3%. This is the first indicator of low fibre which in our case will be the greatest cause of acidosis this season. Fibre digestion produces acetic acid (a VFA) and is responsible for milk fat test, and fibre is essential for rumen mat which fosters good, slow digestion, good cud chewing and lots of saliva production for buffering rumen pH. Butter fat test will tell us when ration fibre is too low.

Under good track conditions, sore feet (laminitis) are a good indicator of rumen pH issues. Diarrhoea is due to low pH in the intestines causing fluid to be drawn from the cow's body to attempt dilution, inducing dehydration as a bonus. Daily examination of manure should

be second nature to the dairyman, as manure tells many stories. It's the 'window' of the rumen, and our best diagnostic tool for identifying problems.

We all know what good manure looks like, 3 or more concentric rings, pasty 'shaving cream' texture, no pock marks from gas bubbles and 5 cms deep. Anything less is cause for investigating the ration, or feeding sequence.

Acidosis will increase the passage of feed through the digestive tract, so close examination of manure looking for undigested grass, milled grain and gas bubbles will alert us to less than optimal rumen function, and highly likely, an acidotic rumen.

Rumen acidosis is caused by rapid fermentation of carbohydrates, particularly sugars and starches. High levels of grain feeding, meals of 4 or more kgs of grain at a time will produce high volumes of acid (VFA's) in the rumen, in excess of the papillae's (rumen wall) capacity to absorb them: the pH cascade begins. The high quality pasture we grow these days is nearly equal in capacity to be rapidly fermented creating the same, or multiplying, the pH decline we started with 'slug' feeding grain in the dairy.

Normally I recommend 1 to 2 kgs of oaten hay/cow/day for the sole purpose of maintaining good rumen mat, cud chewing and hence controlled rumen pH. Oaten hay is not on the menu this year, and other sources of 'long' fibre, wheaten hay/straw, are both very scarce and expensive; however, still nowhere near the cost of acidosis. We must always be driven by profit, not cost. Milk over feed cost (MOFC) is the only guide to profitable dairy farming.

There is no substitute for adequate fibre in a ration. Every dairy manager must do all within their power to secure a minimum of hay/straw to provide at least 1 kg/cow/day over the grazing season.

This year, more than any other, we need to draw on all possible aids in controlling rumen acidosis. This year more than any other, the cost of not doing so will be far greater. Basic feed additives in any year are a very profitable investment in production through good cow health and nutrition, but this year will be even more so.

The use of ionophores, such as Rumensin and Tylan, suppress acid producing bacteria numbers, limiting excessive build-up of lactic acid in the rumen. I will be recommending higher than normal feeding rates of ionophores this year in herds with very limited fibre in their rations.

Magnesium oxide, as well as supply needed magnesium in the ration does have alkaline capacities. It needs to be feed in conjunction with lime as both rely on each other for absorption. Obviously, with cows producing up to 180 litres of saliva a day they require supplementary salt in the grain mix to sustain high levels of bi-carb in their saliva for buffering purposes. Salt also increases water intake diluting rumen pH.

In the case of no hay/straw being available, a last resort is to lengthen rotation time of paddocks to increase fibre in pasture. This will be costly in lost milk production, body condition and fertility, due to negative energy balance, especially in fresh cows.