



## Lameness and Rumen pH

July and August are traditionally months of high incidence of lameness in both cows and first calf heifers.

Obviously the physical conditions associated with this time of year have a significant impact on dairy cattle's feet. These physical conditions are all fairly obvious to the dairyman, even if they are not being addressed. Wet weather is not controllable and constantly wet feet will reduce the hooves effectiveness in protecting the cow from lameness. Other factors including surface condition of laneways, stock handling methods on rough and abrasive surfaces will impact significantly on the incidence of lameness.

As the title of this article suggests I wish to address another major causative factor in lameness of fresh cows and heifers. Low or fluctuating rumen pH and its inherent companion, acidosis. Every dairyman knows full well, lameness in milking a cow will cost him the lactation's profit on that cow, by severely reducing her total lactation potential without even considering veterinary costs.

Unfortunately, acidosis induced lameness has a considerable time lapse between cause and effect in many cases. Certainly current bouts of acidosis will create metabolic conditions in the cow to produce lameness now. I am addressing this issue now while lame cows are very visible to enable you to prepare for the period of common cause that you may reduce the incidence and significant cost of lameness next July/August. Late September and October are the high risk periods for pasture induced acidosis.

Acidosis causes damage to newly forming hoof material which takes 9 to 12 months to become the sole layer of the cow's hoof. This poor quality sole layer, which was being formed last spring, is then very predisposed to puncture from sharp stones, particularly when softened further by constant wetness. The puncture site is ideal for the establishment of a bacterial infection. Tenderness of discoloured patches on the sole is a result of hemorrhaging caused by laminitis due to acidosis.

Fast growing spring pasture contains every ingredient conducive to acidosis. Low NDF (fibre), high levels of rapidly fermented forms of energy and high levels of very digestible protein. The high energy produces excessive amounts of lactic acid in the rumen, lowering rumen pH due to the cow's inability to utilize it as fast as it is being produced. Similarly, highly digestible crude protein produces large volumes of ammonia in the rumen

contributing further to pH fall. If all this is not enough the lack of adequate fibre speeds up the passage of feed through the digestive tract through reduced cud chewing and acidic conditions, multiplying rumen pH decline by inadequate salivation from lack of cud chewing.

The problem may seem complex yet the answer is simple.

The addition of buffers to grain mixes is a very worthwhile investment. It is estimated that the return on investment in buffering is \$4 - \$5 on every \$1 spent. Buffering grain mixes is the first step to controlling acidosis, however, the addition of 1 kg of hay to the spring ration will supply adequate fibre for both dietary and 'effective' fibre. Effective fibre is essential for formation of rumen mat which slows down the passage of feed through the digestive system. This allows for good digestion and feed conversion and contributes to controlling rumen pH drops and acidosis. Many farmers are loath to feed out hay when they have an abundance of grass in the paddock. The above reasons of cow health and efficient feed conversion demand this addition of minimal hay. Lead feeding cows and heifers, amongst other very profitable benefits, can also have a significant impact on early lactation acidosis, a real threat to peak milk potential and profit.

Lameness in cows is related to the age of the cow. The older the cow, the greater the risk of lameness. Lameness in first calf heifers is a contradiction to this fact so justifies further discussion.

Often the grazing scenario of mated heifers in spring is that of a limited number of stock in a large out-paddock with abundant feed. This scenario enables selective grazing. Heifers can select the most succulent grasses and clovers in the paddock, which are also the most volatile from the point of view of rumen acidosis. They will leave the more fibrous grasses and simply re-graze the succulent pasture four or five days later when it is very young. This is the perfect recipe for rumen acidosis. If it is at all possible within any particular grazing situation to limit the area available to prevent selective grazing and most importantly to enable 1 kg of hay/heifer/day to be eaten, you will have made a major contribution to limiting lameness in next season's first calf heifers.

Clinical disease is rarely the most expensive issue in cow health. Sub-clinical acidosis, like sub-clinical milk fever, ketosis and metritis, is by far the most costly to farm profits because it usually goes unnoticed and untreated. Preventative management is proactive profit making.