
DAIRYTECH NUTRITION

Dairy Production Specialists

Performance Products - Nutrition Services

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BIOTIN

Biotin is a naturally occurring vitamin in pasture, but comparatively low in grain. Biotin is one of the B vitamin group. It is a cofactor for many enzymes involved in carboxylation reactions (transfer of carbon dioxide). It is produced normally in the rumen through bacterial synthesis, however, supplemental Biotin via vitamin mineral additives have demonstrated improved hoof health, particularly during wet weather. See extract from a paper on the reverse of this page.

About four years ago a herd I'm involved with had substantial lameness problems despite considerable investment in tracks etc. We added Biotin to the cow's diet via my premix pellets. After six months and the onset of winter, there was a very noticeable disappearance of lameness in this herd. When milk price fell in early 2009, due to cost factors, Biotin was removed as the farmer felt there was no longer a lameness issue. Twelve months later, and winter of 2010, we have lameness back in this herd. Needless to say, Biotin has been reintroduced to the premix at a cost of 1c/cow/day – minute compared to the loss of milk income and treatment of lameness.

Lameness, like most diseases that affect our cows' potential for production, has a major sub-clinical impact. By sub-clinical in lameness, I'm referring not to the cow trying to walk on three legs, but the herd that is slow walking from the paddock to the dairy and chooses the soft muddy edges of the track to walk on; the herd that stands outside the dairy with no inclination to walk to the paddock. Essentially; sore and tender feet – all four! These cows, when they do arrive at the paddock prefer to lie down; to get off their feet rather than graze aggressively.

The consequence is reduced grazing and initially less milk – lost income. Very soon after this the ration balance of grain and forage is disrupted creating another “hoof damaging” problem; ACIDOSIS! A diet that, by reduced forage yet same amount of grain rapidly creates high acid production in the rumen through rapid grain digestion and low fibre to stimulate cud chewing, a major producer of saliva buffering of rumens. Test inversions occur but only acidosis is sighted as the cause, when often the undetected sub-clinical lameness was the primary cause.

For these reasons I intend adding Biotin to my Dairytech 50 Pellet from September onward. It requires six months to have the desired effects of reducing lameness so before winter next year I want cows to be fully prepared. Essentially, Biotin acts like a glue or sealant preventing moisture from entering hoof fibre. Hormones produced at calving break down collagen in hoof fibre leaving cows vulnerable to moisture penetration and lameness in wet weather.

Extract from:

“NUTRITIONAL APPROACHES FOR CATTLE FEET CARE”

Dr R Elliott, Roche Vitamins Pty Ltd.

“RESPONSE OF BIOTIN SUPPLEMENTS IN PASTURE FED CATTLE”

It is often stated that the incidence of lameness is higher in housed cattle than those at grass. (Fay & Lescourret 1989). However, it is clear that white line lesions in dairy cows are relatively more common in countries which rely on grazing as the main system for milk production (Logue et al 1998). This primarily reflects the challenge of walking on tracks with problems of grit and small stones, especially when coupled with periods of wet weather. In year-round calving systems practised in dairy herds in Eastern Australia the incidence of lameness varies with season and is highly associated with rainfall (McLennan, 1988, Willianto 1991).

The relationship between wet weather and lameness was also clearly demonstrated in the experiment by Fitzgerald et al (JDS in press). Locomotion scores were significantly correlated to the number of wet days per month. In this experiment herds of cattle which received Biotin supplementation achieved better locomotion scores during rainy seasons. This effect was most apparent after a period of 7 months on Biotin. In the wet season the number of lame cows was significantly less for Biotin supplemented herds and they required fewer antibiotic treatments than cows in the unsupplemented herds. In addition, lower somatic cell counts in bulk milk were also recorded in the Biotin supplemented herds.”

Other research work has reported increased milk production, but I suspect this is due mostly to improve mobility and hence increased feed intake.