



How CMZ benefits Feedlot Cattle & Cattle in general

INTRODUCTION

There has been a lot written about the putative benefits of Zeolites for cattle, some of which is patently wrong or, at best, unproven. Included in these statements are the following:

- Increases rumen microbial activity... pure speculation!
- Reduces acidosis...unsupported by research data nor any biochemical mechanism.
- Buffers rumen...unsupported by its chemistry. It has effectively no buffering potential. Even at 100-150 meq/100g CEC zeolite has no buffering potential at rumen pH! Negative logs are very small!
- Replaces bentonite as a rumen buffer...I can find no research data from studies of the role of bentonite in changing the pH of the rumen in the first place.
- Increases binding of aflatoxins....I am advised that there is no research in vivo on binding of aflatoxins. (There is data on some American zeolites reducing mortality in cattle from aflatoxin(s) poisoning.) There are many different types of fungal toxins & several different aflatoxins with different chemical structures.
- Reduces sodium in manures...not supported by research or by chemical analysis.
- Calcium &/or magnesium zeolite produces different & better buffering than sodium zeolite...not supported by any data, nor any chemical mechanism.

BUT CASTLE MOUNTAIN ZEOLITE (CMZ) DOES INDEED BENEFIT CATTLE IN FEED LOTS & IN PADDOCKS: IT INCREASES THEIR GROWTH.

CMZ & GROWTH

- * Data from graziers, CSIRO & large animal vets show increased N incorporation, measured by mass gain, at high feed N input or in high pasture N (>15%). Under these conditions of low C/N ratio, cattle belch ammonia (NH₃) to regulate this ratio.
- * It should be noted that when N in the diet is low (<10%), there is little or any benefit from CMZ in the diet. Under these conditions of high C/N ratio, cattle belch methane (CH₄) to regulate this ratio.
- * Data from graziers show increased increased N incorporation, reduced nitrogen excretion & growth from supplements containing CMZ, minerals & urea on country with various mineral deficiencies, as measured by hair testing.
- * Client data shows that, in the dry in the tropical North, high urea containing CMZ lick blocks facilitate growth of cattle in times with effectively no nutrition, except fibre in the grasses, & only the bark & leaves on trees in the forest upon which to graze.
- * Data from overseas demonstrates that, in cattle, improved feed conversion & gains in cattle are common outcomes with feed rations including urea.
- * Australian Zeolites show similar effects.
- * At 1.75% addition to feed rations Zeolite is equivalent to the use of rumensin.
- * Although we recommend 2-2.5% addition to feed as the most cost effective addition of CMZ, some feed supplement manufacturers use up to 5% addition in their supplements, particularly where a large component of their N intake is urea.
- * Dependent on the current price of grain, CMZ is used as an ingredient in least cost formulations for feeds &/or supplements.

122 STATION STREET POST OFFICE BOX 54, QUIRINDI NSW 2343 AUSTRALIA
 TELEPHONE 02 6746 3555 FACSIMILE 02 6746 1723
 EMAIL sales@cmzeolites.com.au WEBSITE www.cmzeolites.com.au

- * Consistent & repeated observations by veterinary practitioners provide evidence for reduced activity & contentment of cattle (& other animals) fed rations or supplements containing CMZ. This reduction in energy usage may be associated with increased mass gain & growth.
- * In high density feed lots in the summer, heat & humidity combine to produce respiratory distress from regurgitated ammonia. In studies by CSIRO in Queensland, studies of cattle growth under these conditions were less affected with CMZ in rations or in air treatment. These studies were initiated to examine the effects of climate change on growth & performance of cattle in the tropics.
- * CMZ appears to increase tolerance to the palatability & safety of feeds, supplements & lick blocks with increased content of urea.
- * Graziers report that, after consistent rain, cattle &, in particular calves, suffer less & have less mortality from scours. There is some anecdotal evidence that this may be due to fungal or bacterial toxins. In the USA a claim for binding aflatoxin(s) is allowed. Obviously scouring cattle do not gain nearly as much mass as those without scours.
- * In the manufacture of lick blocks soluble cations, including some derived from elements of the transition metals, can be loaded into the zeolite so as to be more bioavailable in these lick blocks.

MALODOUR CONTROL

- ❖ Less N & less moisture excretion in faeces from cattle fed CMZ effectively reduces malodour & the potential for the generation of even more malodour due to microbial growth & proliferation. This is particularly true in tropical climates, with both heat & humidity or during summer further S in higher latitudes.
- ❖ CMZ absorbs gases of low molecular mass eg NH₃ & H₂S, provided there is some moisture present in liquid or gaseous form.
- ❖ Another benefit of CMZ is the reduction in presence of flies.
- ❖ CMZ has a client in Queensland who uses 5% addition of CMZ to the feeds he supplies to his clients. He claims he can tell when he approaches a cattle transport if the cattle therein have been raised on his feeds as they have no odour.

OTHER BENEFITS

- Free range cattle produce faecal pats that are easier for dung beetles to bury in the soil, thus increasing the CEC of the soil, its mineral composition & its fertility.
- Manure handling in feed lots is easier due to increased solids in the faecal pats.
- Derived manures are easier to sieve or screen for use on farm or as a component in composting.
- Reduced escape of liquid manures containing N from feed lots, complying within EPA guidelines.
- CMZ in soils provides the following benefits: it controls the movement of water between the soil particles & plant root hairs & it acts as a slow release fertiliser of nutrients bound therein.

NB. Under the new rules of the APVMA, CMZ is an allowed additive in animal feeds & supplements with no permit required as it is a natural mineral, is not toxic & makes no therapeutic claims.

Please be aware that all information and advice given is offered in good faith and with the best available information, however you are advised to seek independent and expert advice before acting upon any information supplied. Though all care is taken, no warranty is given or implied

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