

Genesis™ Pour-on

Ivermectin Endectocide for cattle

Leucaena and the use of Macrocytic Lactone pour-ons

Leucaena leucocephala is proving to be an important feed resource in many parts of Queensland and is being planted in increasing quantities. Care must be taken in its use, however, because of potential toxicity to cattle grazing on the plant. Toxicity problems can be avoided by seeding cattle with a bacterium that breaks down the toxic compounds. Some producers have expressed concerns that chemicals used to kill parasites may kill the bacteria, but there is no evidence of significant impacts being caused by the Macrocytic Lactone ('Mectin') family of parasiticides.

Cattle solely eating fresh green shoots of *Leucaena* can get a high dose of mimosine (an unusual amino acid) which can lead to an acute disease with frothing at the mouth and rapid death. Where cattle are grazing older leaves or eating a fair amount of grass as well as the *Leucaena*, a chronic toxicity resulting from a degradation product of mimosine (called DHP) can result. This manifests as excessive salivation, oral lesions, hyperexcitability, reduced feed intake, ill thrift and weight loss, hair loss and goitre (impaired thyroid function), but these effects can be reversed by removing the cattle from access to the *Leucaena*. Scouring is not associated with either form of the disease.

The bacterium *Synergistes jonesii* (the '*Leucaena* bug') breaks down the mimosine and DHP, thereby preventing the development of toxicity problems. It can be seeded into a herd by dosing a proportion of the animals with a culture obtainable from the Department of Primary Industries & Fisheries. It is passed from animal to animal through direct contact/passage of saliva. It cannot be picked up from faeces. It takes about six weeks to build up sufficiently in a herd to be protective.

There are no reports in the scientific literature of any evidence of significant antibacterial activity from the Macrocytic Lactones (MLs). Antibiotic activity is rarely specific, so if the MLs were capable of killing the *Synergistes* bacteria, they would kill the majority of bacteria in the rumen. This would shut down the rumen function of treated animals, resulting in animals that were very ill. Clear impacts would be seen wherever MLs were used to treat either sheep or cattle.

Unlike oral drenches, MLs in a pour-on or injectable formulation are unlikely to reach high concentrations in the rumen. Excretion of chemicals from the gut wall occurs at the back end of the gut, so most of the ML that reaches the gut from a pour-on would do so in the large intestine and would have no impact on the rumen bacteria.

There is also circumstantial evidence that MLs have little or no antibiotic activity. Dairy processors do not test for the presence of MLs in milk even though several products have a nil milk withholding period and any presence of antibiotics can be detrimental to cheese and yoghurt making activities.

Treatment of cattle with an ML pour-on should therefore have no significant impact on '*Leucaena* bug' populations within the rumen and no signs of *Leucaena* toxicity are likely to occur. Any other signs of ill health (such as scouring) are likely to be caused by some other problem and should be investigated to identify the cause.

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