

GRASS TETANY – HYPOMAGNEAEMIA

Grass tetany is a condition in lactating cattle resulting from insufficient Magnesium. The usual finding is simply one or more dead cattle. Found in the morning, especially if the weather is very cold. There are usually signs of short but violent convulsive period before death, and often there will be white foam from the mouth and nose. Some cattle may “drop dead” without any sign at all, while others will be found still alive, agitated / “stirry” and difficult to handle. Convulsions may be brought on by any excitement handling, feeding out etc.

Contributing factors

Grass tetany is a production disease – it only occurs in high producing animals – lactating cows, and then usually in 5 to 6 year olds (maximum milk production age).

Blood magnesium levels fluctuate throughout the day – the cows stop eating through the night, and levels fall – so most cases occur in the mornings.

Grasses contain lower levels of magnesium than broadleaf plants, especially when newly shooting. Beware on newly sown pastures in early winter!

Grass tetany is not simply due to low magnesium. Like other conditions, there is a complex interrelationship between different elements. These must also be considered. Sodium, or more particularly the sodium: potassium ratio, is of critical importance. Sodium is found in common salt. If there is insufficient sodium, magnesium cannot be absorbed into the bloodstream. Recent use of potassium (potash) or nitrogenous fertilisers will depress magnesium availability. “Red Gum” soils are naturally higher in potassium, so therefore present a greater risk.

Concurrent low Calcium (subclinical Milk Fever) will exacerbate low magnesium.

Prevention

1. Hay feeding – this does not need to be high quality for the purpose of aiding Magnesium levels (it does for overall nutrition of course!) Cost dependant on quality.
2. Causemag – Magnesium oxide powder – at 50 to 60 grams per head per day – mixed with water and sprayed on hay. This is a very messy and tedious job. Causmag is not very palatable, so it needs to be applied to highly palatable fodder. Cost about 5c / cow / day, plus the supplementary feed.
3. Magnesium blocks – 10 to 30c / cow / day, but intake is very irregular between animals.
4. Magnesium capsules - last 90 – 100 days @ about \$9.00, to be administered two weeks before the anticipated problem period.
5. Salt (note – NOT the same as either the above-mentioned Magnesium blocks, or Epsom salt) – Sodium Chloride, just the same as table salt. Sold as “Stock salt” for \$7 – 8 per 25 kg bag. Aims to improve the sodium: potassium ratio and increase the absorption of available Magnesium. Put it out in a non-corroding trough as a lick.
Warning – this mechanism is not widely known by many resellers and some clients have reported they were talked into using Magnesium Sulphate (Epsom Salts) instead – forget it!
Note that hay feeding is very important for other reasons as well – ruminants use the fermentation process for body warmth, so without hay, useful energy is wasted simply producing heat!
6. Magnesium Sulphate – (epsom salts) – an old world compound, with very limited use. It has very poor absorption in the gut – remember that it is used sometimes as a scouring out drench – it does that because it is not absorbed, and goes straight through the gut pulling everything else along with it! You can not therefore expect to get any useful amount absorbed. The recommended dose is 3g / litre put in drinking water. Of very limited effect, and of none whatsoever if there is alternative water available.

PREVENTATIVE PROCEDURES

Must Do's	Good Practice	Sometimes ok	Don't Bother
Hay Hay Hay - get the point?	Causmag, or Bullets + Salt with either	Magnesium blocks	Magnesium Sulphate (Epsom Salts) orally

Treatment

On occasion, cattle will be found down, affected to varying degrees.

1. Minimise stimulation to the affected cow – only go near her to treat her, and if at all practicable, move the remainder of the herd away – but don't stir them up unless you want another case!
2. First Aid – administer 1-2 packs each of
 - A) a "4 in 1" preparation such as Vetcal® or Calcigol® and
 - B) Magnesium Sulphate solution, both preparations given under the skin, then massaged out to aid absorption.
3. Leave her alone again!
4. If the cow is beyond just being down and jittery, and is convulsing, expect the worst. On rare occasions, such cattle will respond to intravenous therapy, but intravenous magnesium has a fairly high incidence of causing acute heart failure.
5. For a "pure" grass tetany case, expect recovery over one to several hours. Cases resulting from a combination of milk fever (low calcium) and grass tetany will often respond within the hour, as the hypocalcaemia component recovers quickly.

Don't ignore the messenger!

Remember that the first affected cow is telling you the remainder are in trouble – commence prevention management.

Differential Diagnoses – What else could it be?

Irritable, unco-ordinated cattle

- Ketosis/Acetonaemia – always pre calving
- Phalaris staggers – is phalaris present, are any "dry" cattle affected?
- Other toxins – access to toxic weeds, fermented grain, vineyard waste etc.

Down cows

- Acetonaemia – always pre calving
- Milk Fever – usually are dopey rather than excited – look for neck bent around to flank, dry nose, no faeces passed.
- Physical injury, cow mad! – While upset, cow is obviously alert – often the forelegs and head will be normal.

Cows found dead

- Enterotoxaemia/pulpy kidney – each year, several (different each year) properties lose 1-6 adult cows. Look for rapid decomposition, bloat after death, blood stained foam or discharge from orifices.
- Bloat – usually on pastures not associated with grass tetany eg high legumes. Bloat recedes after death.

Post Mortem Samples - grass tetany and milk fever may be diagnosed up to 24 hours post death by analysis of the aqueous humor – the fluid from the eye. Discuss collection with us. Cost – approx \$40.