

Grass Tetany (Hypomagnesaemia) in Cattle

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Introduction

Grass tetany continues to be a major cause of death in cows, particularly suckler cows, in Northern Ireland. It is caused by magnesium deficiency, which is common in lactating cows grazing lush spring pasture. A sudden deterioration in weather conditions can lead to severe outbreaks of grass tetany by dramatically increasing the number of cows deficient in magnesium. Therefore farmers need to be aware of the risks and take steps to prevent this disease, particularly during spring and autumn.

Clinical Signs

Animals with grass tetany become nervous and excitable. They may show muscular twitching or walk with a staggering gait. They may quickly go down, develop convulsions, become comatose and die. Because of the short duration of clinical signs, affected animals are frequently found dead.

Most cows that develop clinical grass tetany will have shown suspicious signs within the preceding few days. These signs include a drop in milk yield, loss of condition and a change in temperament. Careful observation of stock to detect such changes is therefore essential.

Magnesium deficiency alters calcium metabolism and thereby increases the risk of “milk fever” in recently calved cows at grass in spring (and especially in autumn).

Treatment

All animals with grass tetany require emergency treatment and therefore your veterinary surgeon should be called immediately.

A clinical case of grass tetany usually represents “the tip of the iceberg” as many other cows in the herd are likely to be severely magnesium-deficient. Therefore, providing increased magnesium supplementation of the remainder of the herd is also important.

The magnesium status of your herd may be checked by asking your veterinary surgeon to submit blood samples, taken from a representative number of cows, for testing at the Veterinary Sciences Division.

Prevention

Because of the high mortality associated with grass tetany, prevention is essential. It is based on providing additional magnesium in the diet and reducing other risk factors.

Providing additional magnesium in the diet

Cows cannot mobilise magnesium from body stores and therefore need a continuous daily supply of 30g of magnesium/cow/day (equivalent to 60g or 2oz of calcined magnesite/cow/day) especially during spring and autumn. Methods currently available for supplementing the diet with magnesium are shown in Table 1.

Adding magnesium to the diet or dusting onto pasture are highly effective methods of supplying additional magnesium. However, calcined magnesite can lower palatability and reduce intakes when added to concentrates. Heavy rainfall can wash calcined magnesite powder off dusted grass so that the treatment may have to be repeated.

Magnesium supplementation of the water supply is effective when water intake from troughs is high. However, it is likely to be low during cold, wet spells, when the risk of grass tetany is highest, resulting in a reduced intake of magnesium.

Magnesium bullets given orally will not necessarily restore blood magnesium levels to within normal ranges but do provide some protection for a 4-5 week period. In addition, some bullets may be lost by regurgitation, leaving those animals unprotected.

Those methods relying on the use of free-access licks or blocks do not guarantee sufficient intake by individual animals. Some animals may consume little or none while others may take in excessive amounts, which can lead to scouring. However, providing

access to licks or blocks may be the only practical means of supplying extra magnesium on some suckler farms.

Reducing risk factors

Reducing risk factors is vital for the successful control of grass tetany. The main risk reduction measures that may be taken include:

- Providing adequate shelter to reduce stress from inclement weather
- Avoiding sudden changes in diet
- Feeding silage or hay after turnout to slow the rate of passage of food through the gut, thereby allowing increased magnesium absorption
- Ensuring ample sodium (salt) in the diet to assist magnesium absorption
- Encouraging the development of clover-rich pastures that tend to have a higher magnesium content than grass swards
- Avoiding the use of potash, and excessive use of nitrogen, fertilisers in spring as they can depress magnesium uptake by spring grass and absorption through the gut

The magnesium content of pastures may be increased by applying magnesia limestone (dolomite), when liming is required. However, the effectiveness of this method depends on the soil type, being most effective on light sandy soils.

Despite the variety of available control measures, grass tetany remains a major cause of death in cows in Northern Ireland.

Adequate control measures need to be fully implemented, particularly during the high-risk periods associated with stressful weather conditions.

Your veterinary surgeon should be consulted for advice on the control strategy best suited to your farm.

Table 1. Methods of magnesium supplementation for control of grass tetany

Method	Type of magnesium/rate	Precautions
Mg-rich concentrates or dusting Mg powder over meal or silage	Calcined magnesite: 60g/cow/day (supplying 30g Mg/cow/day).	Excessive intakes of Mg can cause scouring.
Pasture dusting	Finely powdered calcined magnesite: a. 5-7 kg/acre - strip grazing b. 10-14 kg/acre - paddock or set stocking	Best done when grass is damp. a. Dust before each grazing b. One application can last up to 7-10 days depending on weather conditions
Mg added to water supply	Soluble Mg salts (acetate, chloride, sulphate): supplying 20g Mg/cow/day.	Use pump dispenser. Supplemented water must be the only source of drinking water!
Mg bullets	2 bullets given orally, 2 days before expected risk period.	
High Mg nutritional supplements: Molasses or pot ale syrup with added calcined magnesite	<i>Ad lib</i> using wheel or ball licks, or mix with silage or hay	Introduce before risk period. Place where cattle are likely to congregate.
High-Mg hardened blocks	Free access	Introduce before risk period. Place where cattle are likely to congregate. Provide an adequate number of blocks for the group size.