

NADIS Health Bulletin



Knowledge transfer to farmers

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Health Quiz

Hypomagnesaemia in beef cattle (grass staggers, grass tetany)

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Hypomagnesaemia is a common metabolic disturbance of older beef cows (more than four calves) that frequently leads to sudden death if not detected within hours of onset and treated correctly. NADIS data shows that hypomagnesaemia occurs in two peaks, in late spring (May) and mid autumn (October)

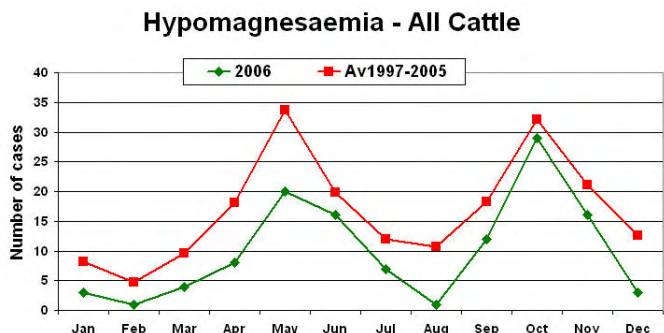


Fig 1: Various stressors such as adverse weather and handling could precipitate clinical hypomagnesaemia

It is important to appreciate that hypomagnesaemia is a potential group/herd problem and that numerous cows in the herd can have low blood magnesium concentrations and various stressors such as adverse weather (Fig 1) and handling could precipitate further clinical cases. Loss of a lactating beef cow exceeds £1,000 (Fig 2)

Clinical signs

Due to the high magnesium content in milk, cows calved one to three months (Fig 3) are most commonly affected but dry cows receiving no supplementary feeding may also be affected. Typically, hypomagnesaemia is seen during September, October and November in autumn-calving cows often following stormy weather, and during March, April and May in spring-calving herds often following turn-out onto lush pasture (Fig 4).

Hypomagnesaemia is a veterinary emergency (Fig 5). Cows are found in lateral recumbency with the head thrown back and may be "thrashing wildly". Cows may appear quiet at times but handling to sit them up usually precipitates seizure activity.

Early (mild) clinical signs of hypomagnesaemia are said to include a state of restlessness and excitability and the cow may appear unsteady but these signs may be difficult to detect. Tremors of the skin may be noted over the shoulders and involving the eyelids. However, cows with low blood magnesium concentrations may appear normal until stressed and develop "staggers".

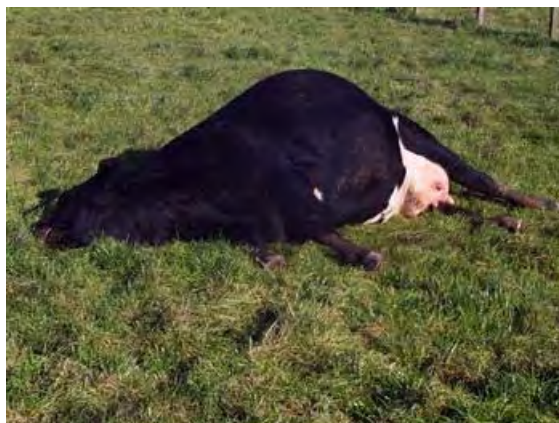


Fig 2: Loss of a lactating beef cow exceeds £1,000



Fig 3: Due to the high magnesium content in milk, cows calved one to three months are most commonly affected.

Welfare implications

Prompt veterinary treatment is essential.

Brief outline diagnosis and treatment

Diagnosis is based upon clinical signs and can be confirmed following collection of a blood sample prior to any treatments. It may prove difficult to differentiate hypomagnesaemia from hypocalcaemia (milk fever) in cows calved less than three days because low blood magnesium concentrations predispose to milk fever. Cows showing seizure activity are often first sedated by the attending veterinary surgeon then 50 ml of 25 per cent magnesium sulphate added to a bottle of 400 ml of 40 per cent calcium borogluconate solution and given slowly over 10 minutes by intravenous injection. The remaining 350 ml of the bottle of 25 per cent magnesium sulphate solution is given in two divided sites immediately behind the shoulder. It is essential to deal with the risk of hypomagnesaemia in the remainder of the group (see below). The main differential diagnoses for hypomagnesaemia your veterinary surgeon will consider include lead poisoning from discarded batteries etc. and listeriosis.

All sudden deaths in adult cattle must be reported immediately to the local Animal Health Office and tested for anthrax as directed. Once the tests have proven negative, samples of fluid collected from the eye or surrounding the brain can be tested for magnesium concentration, blood levels are unreliable after death. While blood sampling other cows in the group may identify low magnesium status, handling may precipitate clinical disease.

Main emphasis on control and prevention

Cows are unable to store magnesium in the body therefore daily intake is essential. Prevention of clinical hypomagnesaemia depends upon both reducing risk factors and ensuring daily intake.

Typically, daily magnesium is supplied during risk periods by feeding 1 to 2 kg of cattle cobs containing calcined magnesite (magnesium oxide) or other magnesium supplement (Fig 6). It is essential that minerals added to home-mix rations contain sufficient magnesium. Many straights do not contain sufficient magnesium and addition of minerals is essential. Ad-libitum minerals are not a reliable source of daily magnesium for all cows in the group (Fig 7). Feeding concentrates during the autumn to cows calving from August onwards is not a management concern because grass is often in short supply and cows require the extra feeding to maintain condition, lactate well and get back in-calf either before, or soon after, housing. The value of one dead cow could feed 100 cows 2 kg of mineralised barley for at least two months! Problems arise during the spring when there is plentiful lush grass and cows may be reluctant to eat poorer quality concentrates. Introducing the ration to be fed after turnout while the cows are still housed may help as well as restricting grazing initially.

Ad-libitum good quality barley straw helps slow the flow of lush grass through the gut and aids magnesium absorption.

Potassium interferes with magnesium absorption and therefore should not be included in compound fertilizers during risk periods, particularly during the spring months.



Fig 4: Typically, hypomagnesaemia is seen during October and November in autumn-calving cows often following stormy weather, and during March and April in spring-calving herds often following turn-out onto lush pasture.



Fig 5: Hypomagnesaemia is a veterinary emergency



Fig 6: Daily magnesium is supplied during risk periods by feeding 2 kg of cattle cobs containing calcined magnesite (magnesium oxide) or other magnesium supplement



Fig 7: Ad-libitum minerals are not a reliable source of daily magnesium for all cows in the group.

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NADIS Health Bulletins are designed to improve farm income, animal health and welfare by promoting disease control and prevention.

Discuss how health planning can improve the profitability of your farm with your veterinary surgeon.

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