



Vet Call

► by **Bob Larson**, Kansas State University

Grass tetany

A disease associated with lush early-season grass in many parts of North America is grass tetany. This disease is also called grass staggers or hypomagnesemia, and is caused when blood levels of the mineral magnesium become low due to a combination of plant and animal factors.

Observed most frequently in the early spring when soil temperatures are low and forage is growing fast, the grass has low levels of magnesium and sodium and high levels of potassium. This combination can lead to low blood levels of magnesium and the affected cattle can show signs of nervous-system problems such as staggering, convulsions, and being down and unable to rise. If not treated within a few hours, it can result in death.

Signs of tetany

Although young, growing animals can occasionally be diagnosed with grass tetany (particularly if grazing grasses associated with grain production, such as wheat, rye or barley), lactating cows are the most commonly affected. Milk contains relatively high levels of magnesium, and cows in late pregnancy and early lactation have a high dietary requirement for the mineral.

In addition, deficiencies of calcium or phosphorus, which are also required in high amounts in lactating cows, will increase the risk for grass tetany. If a heavy-milking cow is grazing forages that are low in magnesium, it can easily become deficient in magnesium.

In cases of grass tetany, soil levels of magnesium are typically not deficient. However, soil temperature affects magnesium uptake into the plants, and grass tetany is associated with early spring before soil temperatures are consistently warm or after several days of cold weather. Cool-season grass pastures, particularly if fertilized with nitrogen or a spring application of potash are

most commonly associated with grass tetany. However, even cows on unfertilized native grass pastures can have the disease if heavy spring rains promote rapid early forage growth. Forages that are prone to causing grass tetany are deficient in magnesium and sodium and have an excess of potassium. Potassium, which can be very high in lush early-growth forage, interferes with magnesium absorption from the gut, further decreasing the amount of magnesium available to the cow.

The first signs you might see in a cow with grass tetany are nervousness, appearing overly alert and a stumbling gait. These signs progress to more evidence of restlessness and possible aggressiveness. An affected cow's gait may vary from being stiff-legged to high-stepping to staggering. An animal that has fallen, is unable to rise and has convulsions must be treated soon to prevent death. In fact, because of the rapid course of the disease, simply finding dead cows with no previous signs of illness is commonly the first indication that you have a problem.

If cattle are identified early enough in the disease, treatment with a solution containing magnesium given into the vein will likely prevent death. If a cow has been down several hours, the outlook even with treatment is not as positive. A cow that was down or staggering, but that was treated successfully with an intravenous infusion to increase blood levels of magnesium can appear better for a few hours and then the condition can return. To avoid these relapses, additional magnesium is usually given by another route such as an oral paste, an enema with a magnesium sulfate or magnesium chloride solution, or subcutaneous administration of a high-magnesium solution.

Prevention

As a preventive strategy, cattle (particularly late-gestation and early-lactation cows) grazing wheat, rye or other cereal grain pastures or lush early-growth cool-season grasses should be fed a mineral supplement that is high in magnesium for about 30 days prior to turnout and while they are grazing forage that has a high risk of inducing grass tetany.

It is important that cattle have a daily supply of high-magnesium mineral while grass tetany is a risk; so check mineral feeders frequently to avoid cattle running out of their magnesium source. Magnesium oxide is the most common source of magnesium used in cattle mineral mixes, but cattle don't like the taste, and it must be mixed with molasses, grain, soybean meal or other palatable feed.

Magnesium supplementation should continue until soil temperatures remain consistently high and forage growth has slowed.

Grass tetany is a serious disease of cattle that can result in rapid death in a few or many cows in a pasture. It is important to know the situations, forage types and fertilization strategies that are most likely to be associated with grass tetany, and to have a plan to prevent problems with appropriate mineral supplementation.

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