



**Q: What is “grass tetany” and when are cattle most likely to have it?**

**A:** Grass tetany, also known as spring tetany, grass staggers, wheat pasture poisoning, winter tetany or lactation tetany, is due to a low level of magnesium in the blood. The amount of magnesium in the blood is completely dependent on the amount obtained from the daily diet. Deficiencies occur most often in beef cows when they are nursing a calf and grazing young, green grass in early spring. Fast-growing spring pastures are high in potassium (K+) and nitrogen (N+) and low in magnesium (Mg++) and sodium (Na+). Affected cattle often have concurrently low blood calcium. Fall calving cows may also experience grass tetany during the winter months.

**Q: Will feeding plain white salt to cows prevent grass tetany?**

**A:** This claim is shared every spring and, indeed, there are producers who only feed salt and their cows do not have grass tetany. How can that be? Simply put, for those few lucky producers, the minerals available in their soils and forages are enough to meet the needs of their cows.

A number of complex factors contribute to the ability of magnesium to be absorbed through the rumen wall. A “pump” mechanism actively transports the dissolved form of magnesium across the rumen wall to the bloodstream. This pump does not work when potassium in the rumen is high and sodium is low because this imbalance changes the electrical potential required to drive it. Adding salt to the ration will improve magnesium transport to the blood stream only when sodium is low in the overall diet. Too much salt will increase urination and will cause magnesium to be lost

# Grass Tetany Myths Debunked

University of Kentucky professors address some FAQs regarding grass tetany.

by **Dr. Michelle Arnold**, Ruminant Extension Veterinarian, University of Kentucky Veterinary Diagnostic Lab; **Dr. Jeff Lehmkuhler**, Extension Beef Cattle Specialist, University of Kentucky; and **Dr. Cynthia Gaskill**, Veterinary Toxicologist, University of Kentucky Veterinary Diagnostic Laboratory

in the urine. Salt, as with any substance, can be dangerous and even fatal at high levels.

Research has shown that the negative effects of high potassium in early spring grass cannot be overcome by simply adding large quantities of salt. However, high magnesium mineral mixes prevent grass tetany by allowing magnesium to passively flow into the bloodstream of the cow without the need for the active transport pump.

**Q: Have limited amounts of salt in trace mineral mixes led to an overconsumption of minerals?**

**A:** Regional soil types, soil fertility and diverse forage species result in different mineral needs for grazing livestock on every farm. A blanket statement disregarding these factors is oversimplifying a very complex situation. Trace minerals such as copper, selenium and zinc are all essential nutrients

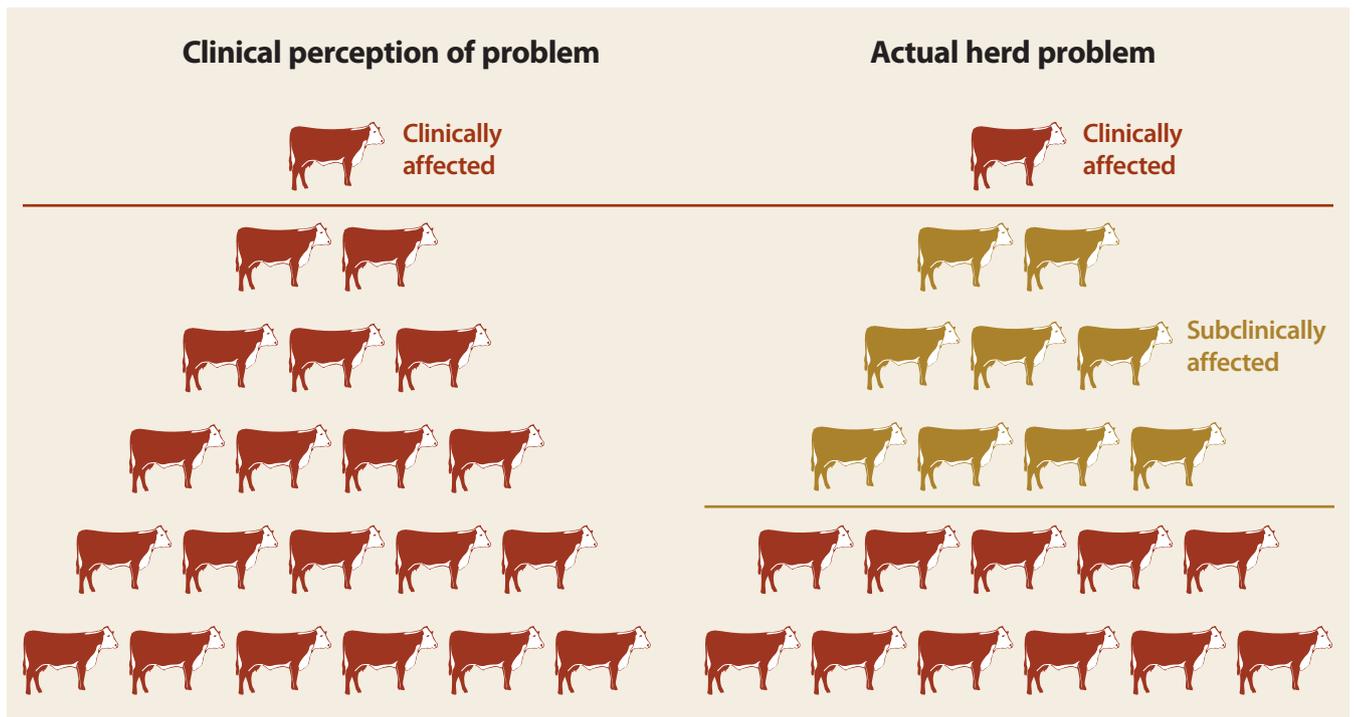
vital for proper growth, production and immune system function. Trace mineral deficiencies are common and can predispose animals to serious and sometimes fatal disease conditions. Interactions occur between all of the various metals, minerals and other elements in the diet, and optimal amounts of all elements are essential for proper nutrition.

Trace mineral mixes are formulated to meet the needs of cattle, including their need for salt. The keys to using a free-choice product are to ensure cattle have access to the mix 100 percent of the time, to use a palatable product and to make sure cattle are consuming it at the expected level. Remember, a 50-lb. bag of “hi-mag” mineral to be fed at four ounces per head per day will last only four days in a 50-head cow herd. If the cows have calves that are eating minerals, too, a bag may last only three days.

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If using a free-choice trace mineral mix, make sure the product is palatable, and that cattle always have access to it and are consuming it at the expected level.



Hypomagnesemia is often referred to as an “iceberg” disease because only a few clinical cases occur. However, there are many unobserved or subclinical cases that may become problems after a stressful event such as a weather change.

**Q: Does grass tetany occur only in the spring?**

**A:** No! “Winter tetany” in beef cattle is caused by a diet low in energy and an insufficient intake of magnesium over a period of time. It may also be observed when feeding wheat or rye silage during the winter since wheat and rye silage are often high in potassium and nitrogen but low in magnesium. Clinical signs of grass tetany are triggered by a stressor, such as a severe cold snap, in affected cattle with borderline low blood magnesium concentration.

**Q: How can grass tetany be prevented?**

**A:** Prevention is based on providing magnesium in the diet during times when conditions are right for grass tetany. As long as the active transport pump for magnesium is working well and driving magnesium across the rumen wall, grass tetany problems should not develop. However, when factors prevent this pump from working — such as when potassium is high in lush spring grass — the second, or “backup,” pathway depends on increasing levels of magnesium in the diet with a high magnesium mineral mix. A high rumen magnesium level will allow magnesium to passively flow into the bloodstream of

the cow without the need for the active transport pump.

Supplementation with a high magnesium mineral mix should begin at least 30 days prior to calving. Cows require 20 grams of magnesium daily or four ounces per day of a 15 percent magnesium mineral mix, especially during the late winter and early spring if pregnant or lactating. Do not allow mineral feeders to become empty because consistent intake is important for clinical disease prevention. University of Kentucky Beef Integrated Resource Management (IRM) recommends that minerals for free choice supplements for grazing beef cattle include 15 percent salt and 14 percent magnesium in the complete mineral mix and that magnesium is sourced from magnesium oxide (not dolomitic limestone or magnesium mica). These complete mineral mixtures also supply the necessary sodium in the form of salt to aid in offsetting high potassium intakes. Consumption should be monitored because cattle will not eat enough trace mineral if poor-quality products are being used. In addition, feeding an ionophore such as monensin or lasalocid has been shown to improve magnesium absorption efficiency. High

magnesium mineral mixes may be discontinued in late spring once the grass is more mature, the water content of the forage has decreased and daily temperatures reach at least 60 degrees Fahrenheit. In addition to providing supplemental magnesium, several management factors can decrease the risk of grass tetany. These include:

- 1) Soil test and apply fertilizer based on soil test results and do not use more than the recommended potassium levels since grasses are luxury consumers of potassium.
- 2) Consider feeding legumes, which are high in magnesium and will help offset the problem, although their growth is often limited in late winter.
- 3) Feed small amounts of hay and/or grain to cattle on lush pasture during susceptible periods or limit grazing to two to three hours per day.
- 4) Graze the less susceptible or nonlactating animals (heifers, dry cows, stocker cattle) on the higher-risk pastures.

In summary, increasing magnesium intake by supplementing with magnesium oxide, offering adequate salt to prevent sodium deficiency and increasing total energy intake with good quality forage or supplemental feed are all effective tools in preventing grass tetany. These are exceptionally important when moving from winter rations to young spring-grass pasture, especially in heavily milking cows. Grass tetany is considered a true veterinary emergency requiring prompt treatment with magnesium to prevent death. **HW**



PHOTO BY LYDIA RICHARDSON

“Winter tetany” is caused by a low-energy diet, insufficient magnesium levels, or feeding wheat and rye silage that is too high in potassium and nitrogen.