Grazing Gazette

PENNSTATE
College of Agricultural Sciences in cooperation with USDA/ARS

GRASS TETANY

Lawrence Muller
Professor Of
Dairy Science
Penn State University

As pasture season starts, we need to be concerned about grass or magnesium (Mg) tetany. Grass tetany is a general term commonly used to describe a condition of tetany that occurs when cattle or sheep are on pasture. It is caused by low amounts of total or available magnesium in the diet. It is sometimes called hypomagnesemic tetany, lactation tetany, or grass staggers.

Grass tetany, as the name indicates, is most common when cows are turned out onto lush spring pasture. The first 4 to 6 weeks of the grazing season are of most concern to producers. The condition occurs more often on grass pastures than on legume pastures. Older cows are more susceptible than younger cows. Early lactation cows with higher Mg requirements are most susceptible.

In mild cases of grass tetany, milk yield is decreased and animals are nervous. These signs may indicate the need for preventative measures such as injection of Mg solutions. In more severe cases, affected cows have muscular incoordination, aggressive and irritable behavior, and excess salivation. Finally, general tetany, convulsions, and death can occur if not treated.

Causes

The exact causes of grass tetany are not known, and the occurrence within and between herds is variable and not predictable. Grass tetany is most common during cool, cloudy, and rainy weather and often occurs when cool weather is followed by warm weather. Changeable weather conditions seem to trigger grass tetany. It occurs most often when cows graze cool season grasses or small grain pastures.

Some dairy producers have had limited or no problems with grass tetany. Others have problems that vary between years. Five years ago we had one year with major tetany problems. Other years the occurrence of tetany has been minimal. Affected cows have low blood magnesium levels caused either by a diet cow in Mg or one from which the MG is not absorbed into the bloodstream. A normal blood Mg level is 2 to 2.5 mg per 100 ml of blood serum. Blood levels of Mg may drop to 1 mg per 100 ml blood or less with grass tetany.

Plant and animal factors related to the amount and utilization of Mg are associated with grass tetany problems. Factors thought to be related to causing grass tetany are:

- Low content of Mg in soil and in pasture. The NRC recommendation for lactating dairy cattle is that Mg be fed at 0.20 to 0.25 percent of the total ration dry matter (DM). In the spring, a Mg level of .30 percent or greater of the total ration DM (forage and grain) is recommended. The Mg content of grasses typically ranges from 0.17 percent to 0.23 percent, or less than the needs of the high producing cow. Legumes are usually higher in Mg than are grasses and range from 0.25 to 0.30 percent Mg. Magnesium levels are lowest in the spring and increase during the growing season.
- High rates of N and K fertilization and high amounts in pastures interfere with Mg utilization. Heavy N applications to pasture increase the incidence of grass tetany. High K interferes with Mg uptake by grasses. Many early spring pastures contain 25 percent protein (4 percent N) and in excess of 3 percent K. The excess K not only is a factor in causing grass tetany but can lead to imbalance in cations:anions in dry cows which can contribute to increased milk fever.
- Grass tetany is more likely to occur when Ca is low and when K is high. When the ideal ratio of Ca, K, and Mg is unbalanced, proper nerve impulse transmission fails, and tetany occurs. The grain ration or supplemental feeding needs to be programmed to contain adequate Ca.

Controlling Grass Tetany

Early lactation dairy cows require about 0.13 pound or about 40 grams of Mg per day. A cow consuming 28 pounds of pasture dry matter per day will consume about 25 grams of Mg. Most grain rations without supplemental Mg contain about .2 percent Mg. Therefore, grazing dairy cows need an additional 10 to 15 grams of Mg per day from supplemental minerals.

Magnesium needs to be added to the grain ration to increase the Mg content of the total ration (pasture plus grain) to at least .30 percent Mg. Often, .35 percent Mg is recommended. Magnesium oxide is the most common source of supplemental Mg. This means the grain ration may need to contain about 0.5 percent Mg. Cows often will not consume all the allotted grain with lush spring pastures, thus other supplemental methods may be needed. Oral bolusing individual cows with 1 to 2 ounces of magnesium oxide per day is effective. Free-choice minerals with elevated Mg content can be considered in addition to the Mg being force-fed in the grain rations. Not only can Mg help prevent grass tetany, but may help prevent a depressed milkfat test that often occurs on spring pasture. Providing 5 to 8 pounds per day of legume hay high in Mg can be helpful in increasing Mg intake.

For cattle with grass tetany, consult the local veterinarian for treatment. Dextrose solution with Ca and Mg is a common treatment. A saturation solution of magnesium sulfate injected under the skin places a high level of Mg in the blood in a short trial.

Top Lamb Takes $180

LOWELLVILLE, Ohio — Buyers from eastern Ohio, central and western Pennsylvania as well as Maryland bid enthusiastically at Yeo Farms' eighth annual Club Lamb Sale held at the farm Saturday, April 22.

Tim Basich of Leetonia, Ohio successfully bid for the highest priced lamb, which went for $180. Other top-selling lambs were purchased by A.F. Dussel Jr. of Kent, Ohio; Bob Crawford of Lisbon, Ohio; and Sherry O'Neill of Titusville, Pa. In all, 20 wether lambs were sold in the afternoon auction at an average price 27 percent higher than last year's average.

The Lawrence County 4-H Club provided a refreshment stand for the event. Larry Garner, of Carrolton, Ohio, was the auctioneer.