TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE Boise, Idaho SOIL CONSERVATION SERVICE

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Grass tetany continues to be a problem in some of the Intermountain area. The following article appeared in "Range and Livestock Management," Cooperative Extension Service, University of Nevada. This article gives some additional information on causes and prevention.

GRASS TETANY

By Dr. Earl L. Drake
Extension Veterinarian, University of Nevada

Grass Tetany (Grass Staggers) (*Hypomagnesemia*)

This disease is a nutritional or metabolic disease of ruminants mainly affecting lactating cows grazing lush pastures. It is characterized by low blood serum magnesium. These levels will drop from a normal of about 2.0 mg.% to .5 mg.%. The calcium may drop from a normal of 9-13 mg.% to 6-7 mg.%. In many instances, it remains normal. Nearly 30 percent of all clinical cases end in death.

Contributing Factors

1. Cold, wet weather followed by warm weather
2. Heavily fertilized pastures high in nitrogen
3. Being in heat
4. Excitement
5. Excess exertion
6. Age of cow - usually 4 - 6 years old
7. High water content of feed
8. Unusually high levels of organic acids in some plant species
9. High concentrations of potassium
10. A pasture can become tetany prone after dressing N_2 and especially after potash and N_2 together.
11. An interdependence exists between carbohydrates and Magnesium absorption; a deficit of soluble carbohydrates may lead to reduced "Magnesium availability."

Post-Mortem Findings

No specific findings are known.

Prevention

1. Manage your cattle so that they do not go out on tetany prone pastures until the plants have matured.

2. Legumes in pastures tend to decrease its incline.
3. Dry lot pregnant and lactating cows during this period.
4. Graze tetany prone pastures with steers or heifers.
5. Have cattle used to eating a special supplement and if one is required later as a carrier for Magnesium.

Procedure to Minimize Loss

1. If tetany develops in animals, change feed immediately. High Magnesium content feeds would be best.
2. Observe cattle especially closely if the grass is growing rapidly and when it becomes wet and colder.
3. The use of fertilizer containing Magnesium, if less than 10% of the Magnesium in the soil is exchangeable. (Not too applicable for range grass areas.)
4. Dust or spray forage with Magnesium sulfate.
5. Feed a supplement.
   a. 6+-10 gms. of Magnesium oxide daily
   b. ½ oz. of Magnesium oxide three times weekly
   c. 6.2 gms. of Magnesium per day, plus 11.7 gms. of calcium per day, fed three times weekly.
   d. Daily ingestion of supplemental Magnesium is best.
6. Liquid molasses plus Magnesium oxide.
7. Compressed blocks of Magnesium + molasses.
8. Magnesium rumen bullets which release 10 gms. per day (Not readily available at local levels.)
9. Add MgSO (Epsom Salts) to water balance with care.

Treatment

Usual treatments include Magnesium and Calcium. Opinions vary on the advisability of intravenous Magnesium due to cardiac arrest risks. Magnesium-lactate is safer than Magnesium SO, for intravenous use. Calcium I.V. and Magnesium subcutaneous have much less risk. Calcium-Magnesium Gluconate is frequently used with much success. A sedative may be given separately or in the calcium. Calcium is often followed by improvement of acute tetany. If it is followed by 400 ml. of a 25% $MgSO_4$ solution subcutaneous, its rapid absorption returns the blood Magnesium to near normal in about 10 minutes. Intestinal absorption of the oxide is better than the sulfate or carbonate, and two ounces of oral Magnesium-oxide/day for 7 - 10 days is advised to prevent recurrences.