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WILL THIS BE A BAD YEAR FOR GRASS TETANY?

The fall of 2004 started out great—early rains, warm temperatures, early grass growth and continued good prices for cattle. So what could go wrong? December has turned colder with significant fog in the valleys and sunshine in the foothills. So depending on future rainfall, temperatures and factors we can't always predict, cattle could be catastrophically affected by the condition known as grass tetany. This is a complex metabolic disease that usually affects lactating beef cattle in California; although, it can affect younger cattle on lush pastures, range, or wheat pastures. The underlying problem is a shortage of Magnesium (Mg) both in the cattle and in their diets. High levels of plant Potassium (K) and nitrogen (as ammonium NH_4^+) both interfere with Mg absorption by the animals. Therefore, fertilization with potash (K) and/or ammonium sulfate can increase plant growth and also increase the risk of grass tetany. The demands of lactation deplete the cow of both Mg and Calcium (Ca) and the clinical signs are caused by the combined shortage of Mg and Ca in these cattle. In addition to low Mg intake combined with higher levels of potassium and ammonia, cattle that are consuming low levels of Ca, phosphorus, and salt are at greater risk of developing grass tetany.

What might happen if we have a bad grass tetany year?

The cattle on lush feed can often be found dead with evidence that they may have struggled. This is most commonly seen as grass and dirt moved away from their feet and head where they thrashed about. If found alive, the cattle can be observed to have convulsions (tetany). Also, they can exhibit weakness, disorientation, and can become belligerent and attack people or inanimate objects (pickups and four wheelers). Signs or symptoms of grass tetany can therefore be confused with rabies, Listeriosis, BSE, or a number of other conditions that affect the brain or can cause sudden death.

How can we be sure we are dealing with grass tetany?

The diagnosis of grass tetany has been made easier by research done in the past few years. A diagnostic problem existed for some time, because many cattle are simply found dead and tissue and serum Mg levels can return to normal at or near death. However, it has been shown that the Mg concentration of fluid within the eye does not fluctuate upwards near death, so this material can be collected for many hours after death and analyzed for Mg content. The Mg concentration of this fluid can be easily interpreted to determine if the cow died of grass tetany. Your veterinarian can also collect cerebrospinal fluid (fluid found inside the brain) in cases where the eyes are not available due to predation and these samples can also be analyzed for Mg content. If live cattle are thought to be at risk for grass tetany, serum samples can be collected and analyzed for Mg. However, if grass tetany is highly suspected, you and your veterinarian should plan carefully for the collection of these blood (serum) samples, as the simple act

of running the cattle through a squeeze chute can precipitate life-threatening convulsions. By either method, appropriate samples can be collected, analyzed, and accurately interpreted to decide if grass tetany is the cause of the problem.

What do I do in the face of an outbreak of grass tetany?

Immediately supplement the cattle with alfalfa hay. Alfalfa has high levels of Ca and also has quite a bit of Mg. Additionally, they will usually eat more salt when fed dry hay and this is important in an outbreak. As soon as possible, move the cattle from the offending pastures or fields. Keep them on alfalfa hay and start to arrange for supplementation to prevent future grass tetany cases before turning them back onto the lush pastures.

What is the best treatment for grass tetany?

Treatment of grass tetany is usually accomplished by intravenous solutions of Mg and Ca. Treatment of sick animals can be very frustrating and recovery does not occur in all cases. In addition to intravenous therapy, 2 ounces of magnesium chloride or magnesium sulfate can be given in 200 ml warm water as an enema. Your veterinarian can prepare these materials for you ahead of time for use in an emergency. The blood Mg levels will increase 20 minutes after the enema. This can be particularly helpful in cows that are down and convulsing or belligerent—easier to deal with their rear ends than their heads when they are belligerent. To prevent relapses in cows treated under range conditions it has been recommended to give oral slurries of 3 ounces of magnesium oxide plus 3 ounces of dicalcium phosphate and 1 ounce of salt in 1-2 gallons of water. Usually it is best to move cattle that have had grass tetany into a corral or other area where they can be treated again if necessary. This can be difficult, because many of these cattle are not cooperative patients. **Relapses are common!** Any treatment decisions should be carefully discussed with your veterinarian prior to implementation as individual products vary widely with respect to effectiveness and safety.

What are the keys to prevention?

The first aid it to know grass tetany might occur—this could be a bad year. Second, have a well-formulated supplement for the cattle prepared and in front of them when they are on lush feed. Measures that help prevent grass tetany include: (1) extra Mg in their diet, (2) extra Ca in their diet, and (3) additional salt (sodium chloride) intake. There are a number of ways this can be accomplished. Salt-mineral mixes and molasses licks or blocks are the most common methods that are successful. Two homemade recipes are listed below:

1:1 magnesium oxide:molasses (free choice—should eat 2 ounces/head/day)

1:1:1:1 magnesium oxide:salt:dicalcium phosphate:corn meal (or soybean meal, Linseed meal, etc)

Consumption of this mixture should be 4 ounces per head per day, ***minimum***, mix-add more cornmeal (soybean meal, etc.) if less)

The main dietary goal is to supplement 1-2 ounces of magnesium oxide (or magnesium sulfate) and 1-2 ounces of dicalcium phosphate or other calcium source (limestone) per animal per day and encourage salt consumption. Any method that will get this done is a good method. The statement that "an ounce of prevention is worth a pound of cure" certainly holds true for grass tetany.

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