

Preventing Grass Tetany

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Grass tetany is caused by magnesium deficiency. Magnesium (Mg) is required for proper function of the nerves that control muscle contraction. If Mg levels become too low, animals go into convulsions and many times, die. It is most common in mature beef cows with superior milking ability.

Magnesium levels are low in cool-season forages during the initial growth period in the spring. Gill et al. (2002) reported that pasture samples collected during the first 10 days of May during 2001 and 2002 average 0.22 percent Mg. This level is sufficiently low to be a predisposing factor for grass tetany.

O'Kelly and Fontenot (1973) reported that Mg availability from forage is low. The National Research Council suggests the range of availability of Mg from forage is 10 to 37 percent (NRC, 1996).

Other factors reduce magnesium availability. Potassium (K), for example, may interfere with magnesium utilization. Significant interference can be predicted at levels in the 2.5 to 3.0 percent range. The average K levels in samples reported by Gill et al (2002) was 2.7 percent. Using averages, this is a 12:1 K:Mg ratio, which suggests that K may be a common predisposing factor in grass tetany.

Approximately one-third of samples taken during May of 2001 and 2002 were over 3.0 percent K. This level (3.0 percent) is identified by NRC as Maximum Tolerable Concentration (MTC). The fact that such a large percentage of Tennessee samples exceed this threshold is of concern. Producers are urged to base potassium fertilizer applications on soil tests. Avoid pre-mixed blends that may drive forage potassium levels into the DANGER ZONE.

Prevention of Grass Tetany

The best time to take preventative measures is in advance of the danger. The most common measure is to feed a mineral that is high in magnesium. Most feed companies sell high-magnesium mineral supplements and commercial mixtures that are acceptable.

Grass tetany prevention steps include:

- For routine prevention of grass tetany, it is recommended that cows be provided at least 1 oz. per day of magnesium oxide to yield at least 0.6 oz. of magnesium. Herds which have had a history of serious grass tetany problems may need higher levels of magnesium, and additional management (discuss this with your Extension agent and / or veterinarian).
- Make certain the form of magnesium in your supplement is either magnesium oxide or magnesium sulfate. Magnesite and dolomitic

limestone sources of Mg are virtually unavailable to the animal.

- In general, loose mixtures are preferred in situations where there is a history of grass tetany in the cattle herd, while blocks may be adequate in low-risk situations where there has been little problem in the past.
- Do not stop feeding hay too soon. Keep hay available until cattle completely stop consuming it. Use the highest-quality hay available for lactating cows.
- Provide grain supplementation. A supplement containing a high percentage of cereal grains will provide the energy that cattle need to overcome energy deficits, but has the added benefit of improving magnesium status. Three to six pounds of concentrate supplement may prevent grass tetany and could help cows regain body condition necessary for successful rebreeding.
- After starting cattle on high-magnesium supplements, continue until danger is past. This is generally in late spring.
- Most producers use commercially prepared mixtures because the entire mineral profile is critical during the rebreeding period and commercial supplements are more likely to provide this. Often producers may prefer to mix their own. Recent information about widespread mineral deficiencies and imbalances have made it less desirable to “mix your own” minerals. For more details on the findings of the 2001-2002 Tennessee Forage Mineral Survey, including details about forage mineral levels in counties across the state as well as base recommendations, please visit: <http://www.agriculture.utk.edu/ansci/forageminerals>.

To prevent grass tetany, it is desirable to have magnesium intake at about 0.6 oz. per day. Part of this may come from forages or other feeds, but in serious tetany situations, it may be desirable to obtain most or all of this level from the mineral. To check the amount of magnesium obtained from the mix, use the chart below.

Mg% in Supplement	Consumption per Day (oz.)	Magnesium Intake (oz.)*	Comments ¹
4	2	.08	This will not prevent GT
4	4	.16	This is unlikely to prevent GT
8	2	.16	This is unlikely to prevent GT
8	4	.32	May provide marginal protection
12	2	.24	May provide low protection
12	4	.48	Should provide some protection
16	2	.32	May provide marginal protection
16	4	.64	Should protect in most cases

¹Mineral consumption is often decreased at higher magnesium levels. To obtain the

levels desired, it may be necessary to enhance consumption by adding something like cottonseed meal, dried molasses or other palatable feedstuff.

References

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National Research Council. 1996. Nutrient requirements of beef cattle. 7th Revised Edition. National Academy Press. Washington, D.C.

O'Kelly, R. E. and J. P. Fontenot. 1973. Effects of feeding different magnesium levels to drylot-fed gestating cows. J. Anim. Sci. 36:944.