
A Problem of Luxury and Abundance

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Abundance and luxury are generally coveted, the common idea being that they will give happiness and freedom from problems. People often find that fulfillment of wishes does not necessarily bring happiness. Likewise, if cows think about things like this they probably dream about pastures swimming with lush, fragrant, green clover. This is very much like I did as a child dreaming about an ever full bowl of ice cream, a luxury in our farm household during the Great Depression.

This is the time of year we may encounter an abundance of clover in pastures, fulfilling a cow dream. Unfortunately, the clover may dominate a pasture and cause the serious livestock disorder - bloat. Pasture bloat can be deadly, causing death of animals. Precautions can reduce the potential for bloat, a problem that occurs on many farms each spring.

What causes bloat?

Succulent forage of clovers and some other legumes is quickly broken down during rumen fermentation, releasing soluble proteins which form a stable foam in the rumen. This very stable foam prevents belching by the grazing animal. Lush legume forage is also high in sugar which produces large amounts of gas. The combination of gas production and stable foam blocking the esophagus results in rumen swelling and respiratory paralysis with eventual suffocation of the animal. Animals affected will swell rapidly and death can occur within an hour. Cattle are more susceptible than other ruminant animals.

What plants cause bloat?

Legumes in Georgia with bloat potential are white or ladino clover, red clover, crimson clover, ball clover, and alfalfa. Some legumes rarely or never cause bloat. They include sericea

lespedeza, annual lespedeza, birdsfoot trefoil, arrowleaf clover, berseem clover, kudzu, cowpea, perennial peanut, and alyceclover. The reason why some legumes do not cause bloat is because of small amounts of tannin in the leaf tissue, inhibiting the formation of a stable foam. Plant breeders in New Zealand have attempted to find white clover plants containing tannin to make them bloat-free but so far there has been no success. Instead, work is in progress to incorporate tannins by genetic engineering.

Occasionally, bloat may occur in cattle grazing lush pastures of annual ryegrass, rye, wheat, or oats in spring. Feedlot bloat in cattle fed high grain diets can occur but it is not common.

What can be done to reduce bloat problems?

If one has lost a number of cattle from bloat, it might seem that the smartest thing would be to not grow clover. Some producers take this approach, using a grass-nitrogen pasture system which certainly reduces the risk of bloat. Volunteer clover can appear in grass pastures so herbicides may be needed at times to reduce the clover problem. However, legumes have much to offer in beef cattle pastures. In addition to supplying biologically fixed nitrogen to the pasture, the nutritive quality of legumes such as clover is higher than most grasses and results in improved calf gains.

Most cattle producers recognize the beneficial effect of legumes on cattle and their low cost so choose to keep some clover in pastures by planting seed and fertilizing as needed. However, some precautions need to be taken during the critical spring months when clover growth can be heavy and result in potential bloat. Some of these bloat management strategies are:

(1) Don't turn **hungry** cows into a lush pasture of clover, alfalfa, or winter annual grasses. If the pasture contains more than 50% grass, the chances for bloat are greatly reduced.

(2) Feed dry hay to animals **before** turning them into a lush legume or winter annual grass pasture. Continue to keep some hay available to cattle on such a pasture for the first week.

(3) An effective but more expensive approach is to provide salt-molasses blocks containing poloxolene surfactant, a detergent compound that reduces development of a stable foam in the rumen. Several types of ionophores are available that can reduce bloat potential.

(4) The most important way to reduce bloat losses is to **check cattle frequently**, especially the first few days they are on pastures containing large amounts of clover or alfalfa. Many cattle are lost each year because of failure to check on cattle when first placed on legume pastures. The first signs of bloat will be swelling of the animal's left side. When this occurs, remove the animal from the pasture immediately. If the gases continue to build in the rumen, death can occur rapidly so it must be treated promptly. An anti-foaming agent can be administered through a long rubber hose (3/4 to 1 inch in diameter and 8 feet long). If this is not effective, as a last resort a sharp knife can be inserted between the last rib and hookbone on the left side 4 inches from the edge of the loin to release the foamy rumen contents.

A final word

An abundance of clover is wonderful but like all luxuries, it should be managed carefully. Clover is a valuable part of pastures and can do wonders for cattle performance and cutting costs. Be careful when weather conditions favor lush clover growth and increase bloat potential. Most bloat is preventable - take care!