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### G74-149 Bloat Prevention and Treatment (Revised July 1996)

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G74-149-A  
(Revised July 1996)

## Bloat Prevention and Treatment

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This NebGuide discusses the types of bloat which may occur in cattle and methods to prevent and treat bloat.

Bloat is a form of indigestion marked by an excessive accumulation of gas in the rumen. Immediately after cattle consume a meal, the digestive process creates gases in the rumen. Most of the gases are eliminated by eructation (belching).

Any interruption of this normal gas elimination results in gas accumulation or bloat. Bloat can be caused by:

- a condition secondary to acidosis indigestion
- certain proteins in forage
- the amount, rate of intake, and coarseness of the roughage
- the type of rumen microbial population
- host-parasite reaction following grub treatment
- choking
- enlargement of the lymph nodes between the lungs, which can compress the esophagus or interfere with the function of the vagus nerves
- an inherited tendency for bloat

Gases that are trapped and not eructated may form a foam or froth in the rumen that further prevents elimination. Froth formation can be caused by many factors resulting from interactions between the animal, rumen microorganisms, and differences in plant biochemistry. Bloat may be present also in the absence of froth or foam. These two types are described as frothy bloat and nonfrothy bloat.

Preventing bloat is desirable not only to reduce deaths, but also to reduce the negative effect of bloat on cattle performance. Pasture bloat can occur in animals grazing in wheat pasture or lush legumes (alfalfa, ladino, red clover) or being fed green-chopped legumes. Feedlot bloat usually refers to bloat in cattle fed high-grain rations that may or may

not contain legume forage. It often occurs secondary to acidosis and/or rumenitis.

Visual signs of bloat in cattle include: distension of the left side of the animal as the primary sign of bloat, discomfort as indicated by stomping of feet or kicking at the belly, labored breathing, frequent urination and defecation, and sudden collapse.

### Preventing Pasture Bloat

Type of forage, weather, time of day, mineral nutrition, animal characteristics, and rumen conditions all influence the likelihood of animals bloating. Alfalfa, many clovers (including white, ladino, sweet, and red), rape, and wheat cause bloat more often than other commonly grazed forages, especially if plants are young and tender. Some animals are more selective in their grazing and may consume a diet higher in bloat-causing plants than other animals.

Cooler than normal temperatures (especially nighttime) are usually associated with bloat. Reasons may include higher forage intake by animals during cool weather and the fact that plants initially are digested more rapidly when grown at lower temperatures. Cattle also tend to bloat more frequently in the morning, possibly because their biggest meal occurs at this time.

Bloat can be reduced by feeding purchased antibloating supplements, but this can be expensive. Often, proper grazing management can reduce or eliminate bloat problems as effectively as purchased supplements, and do it much less expensively. Proper grazing management involves providing a consistent and steady diet and controlling access to high bloat potential plants, especially under moist or succulent conditions.

Providing a consistent or gradually changing forage quality and plant species maintains uniform rumen conditions. It also reduces the chance of animals getting hungry and then overeating. Livestock graze the highest quality forage at

the beginning of the grazing period and the lowest quality at the end. Using rotational grazing (short grazing periods that leave substantial residue) results in relatively uniform forage quality throughout the grazing period. In addition, the diet change from a grazed paddock to a fresh paddock is minimized.

The following management practices can reduce the incidence or severity of pasture bloat:

1. Plant pastures so that no more than 50 percent of the forage mixture is high-bloat potential plants like alfalfa or white clover. Use grasses and/or non-bloating legumes like birdsfoot trefoil, cicer milkvetch, sainfoin, and lespedeza for 50 percent or more of the mixture.
2. Avoid patches of palatable, high bloat potential plants. Interseed these areas with grasses or use herbicides to reduce concentration of high bloat plants.
3. Fertilize grass/legume pastures with nitrogen to stimulate grass production.
4. Feed anti-foaming chemicals like poloxalene, which prevents pasture bloat for about 12 hours if consumed in adequate amounts. Begin feeding 2 to 5 days before turning onto pasture. Poloxalene can be fed as a top dressing on feed, in a grain mixture, in liquid supplements, or in molasses blocks. Because poloxalene is relatively expensive, some producers reduce the dosage or eliminate its use after livestock have been grazing pasture for several weeks. Laureth-23 is a detergent that also reduces pasture bloat when consumed daily in proper amounts. It is available in molasses blocks.
5. Feed antibiotics like oxytetracycline (75 mg/head/day) or penicillin (75 mg/head/day) or feed ionophores like monensin (Rumensin®, 100 to 200 mg/head/day), lasalocid (Bovatec®), or Cattlyst®, in concentrate or in salt/mineral mixtures for moderate success in reducing bloat. Rotating antibiotics appears to be more effective than using a single antibiotic.
6. Fill animals with dry hay or grass pasture before grazing legume pastures.
7. Allow legumes to begin to bloom before grazing because maturity tends to reduce the tendency of plants to cause bloat.
8. Provide dry hay, grain, or crop residues along with bloating pasture to reduce pasture intake.
9. Manage grazing to encourage livestock to consume low or non-bloating plants and plant parts rather than just succulent top growth. For example, use daily strip grazing or use high stock density in multiple paddock systems rather than continuous stocking.
10. Never allow animals grazing high bloat pasture to get so hungry that they consume too much in one feeding. Always have sufficient feed available for them.
11. Avoid turning animals onto fresh, high bloat pasture that is moist with dew, rain, or irrigation water. Both rate of intake and initial rate of digestion are higher from moist plants, causing more rapid initial digestion.
12. Avoid turning animals onto fresh pasture that has frost on the plants. Frozen tissue is moist and some plant cells are ruptured, resulting in very rapid initial digestion.
13. Begin grazing fresh paddocks late in the day. This helps avoid moisture and frost. Also, carbohydrate content of plants is highest at this time, giving a better diet balance between energy and protein.
14. Avoid grazing the flush of new growth following severe stress, such as drought or hail. Rapid digestion and high concentrations of bloat-inducing compounds often occur in these plants.
15. Once grazing begins, do not remove animals from pasture or make frequent, major changes in the type of pasture being grazed unless animals have greatly distended rumens. Mild bloat is common on high bloat potential pastures. Frequent diet changes prevent rumen microbes and also prevent animals from adapting to bloat pastures.
16. Provide adequate sodium in the diet and avoid excessive levels of potassium, calcium, and magnesium. Froth production is stimulated and stabilized by potassium, calcium, and magnesium while sodium helps it disperse.
17. Graze with animals that have smaller rumen capacities, like yearlings and calves, rather than mature cows.
18. Select for low or non-bloating livestock in the breeding program because there are genetic and heritable differences among animals. Slow rumen turnover, low saliva production, and fast rate of intake are characteristics associated with animals prone to bloat. As a result, be especially cautious when grazing high bloat pastures with livestock that have no known history of grazing these types of plants.

### **Managing Feedlot Bloat**

Feedlot bloat is most frequently associated with indigestion caused by acidosis. Death losses are minimal in well-managed feedlots. Feedlot mortality studies indicate digestive causes of death are significant and bloat deaths are included in this category. Most cases are "subacute" rather than "acute." In acute cases, distress symptoms such as frequent

urination and defecation, labored breathing, and restless movements are evident. In some feedlot cattle, bloat is chronic, occurring repeatedly in a few cattle.

Poloxalene does not appear to be effective in preventing feedlot bloat even though foam (and often, slime) is involved. Ionophores (Rumensin®, Bovatec®, Cattlyst®) improve the feed efficiency of high-grain rations and help reduce overeating and the incidence of grain bloat. Thus, the use of ionophores is highly recommended.

Following are some changes that may prove effective in reducing the frequency and severity of feedlot bloat:

1. Coarsely chop the hay and mix with grain.
2. Increase hay to 15 percent of ration dry matter.
3. Feed 50 percent or more rolled corn, whole corn, or rolled grain sorghum (milo).
4. Use a coarser roll on corn and grain sorghum.
5. Substitute low quality legume or non-legume roughage for alfalfa hay (adjust the protein, vitamin, and mineral supplement appropriately).
6. Increase the concentration of the ionophore if possible. Feed intake will probably decrease.

Feedlot bloat that occurs on high concentrate rations usually can be reduced by providing 10-15 percent of the ration as coarsely chopped roughage. When separation of the grain or supplement from roughage seems to be involved, change the ration or improve mixing to minimize separation.

### Managing Bloat That Follows Grub Treatment

Sometimes bloat may occur 10-24 hours following grub treatment with organophosphate grubicide (pour-on or spray). The grubicide, if used late in the season, kills migrating grubs in the area of the esophagus, thus causing swelling in the area of the esophagus. The animal is unable to belch or swallow normally. Animals may try to eat, then spit out feed and saliva, followed by bloating and difficult breathing. If bloat occurs, do not feed the animal for a few hours and walk it slowly until the bloat goes down. If the animal is having trouble breathing, relieve the bloat with a trocar or large bloat needle. **Do not pass a stomach tube in animals that bloat following grub treatment.** The esophagus may be damaged and permanent injury may result. Antihistamines and corticosteroids should be administered under a veterinarian's direction.

### Treatment

Acute bloat must be treated promptly. In the last stages of severe bloat, a few seconds delay may result in the animal's death.

Plan with your veterinarian for emergency treatment for bloat before grazing season. Equipment needed includes: good handling facilities, a stomach tube or rubber hose about 3/4-1 inch in diameter and 8 to 10 feet long, a supply of defoaming agent, and a large trocar. If the trocar fails to relieve the bloat you will also need a sharp knife suitable for incising the skin and making an opening into the rumen.

In severe cases, a stomach tube can provide relief. If the tube does not provide immediate relief, the defoaming agent will frequently break down the foam and permit removal of large amounts of gas through the tube or by belching. The antifoaming agents can be added through the tube or through a trocar and bloat needle. Never drench a bloated animal. Fluid is apt to be inhaled during drenching, causing immediate death or pneumonia.

Large bloat needles may be adequate for relieving feedlot bloat. They are about 6-7 inches long and come with a wire stylet to unplug them if necessary. Insert the needle at a point halfway between the last rib and hook-bone on the left side 3-4 inches below the edge of the loin.

If the needle will not relieve the problem, a trocar with a wide opening may be used. Incise the skin with a knife and force the trocar through the muscle and rumen wall. Then remove the trocar from the canula. If foam is present and is so viscous that the trocar opening is not large enough to give relief, **as a last resort**, use a sharp knife to open a slit about 3 inches long and then spread apart with your fingers. Insert at least one finger through the incision until the bloat is fully relieved. Otherwise, the rumen may move, causing the opening in the rumen to shift away from the opening through the belly wall and skin. Prompt veterinary attention is needed in these cases to deal with potential complicating factors, especially with leakage of rumen contents into the abdomen.

Choking on foreign objects (esophageal obstruction) will prevent gas release, thus causing gas accumulation in the rumen. This should be relieved with a trocar or big needle, if possible. Then the obstruction should be gently removed from the esophagus. This is difficult and usually requires help from a veterinarian.

Chronic bloat caused by pressure on the esophagus due to muscle paralysis or other tissue pressure on the esophagus can be corrected by making a ruminal fistula. A veterinarian can surgically create a ruminal fistula in the left flank area to allow release of excess rumen gases. Generally, these openings are about 3/4 inch in diameter. The fistula is designed to remain open for 1-2 months. During this time the swollen tissues should decrease in size and normal belching can resume. Normally, natural healing will close the fistula. If not, a veterinarian can surgically repair it.

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