

## Bloat Prevention and Treatment in Cattle

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This publication covers the problems, prevention and treatment caused by bloat in cattle.

Bloat is a form of indigestion marked by 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
- rate of digestion of grains as a result of processing (grinding too fine)
- 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

Trapped gases that are not eructated (belched) may form a foam or froth in the rumen that further prevents elimination of gases. Froth can be formed by many factors resulting from interactions among the animal, rumen microorganisms, and differences in plant biochemistry. Bloat may also be present with no evident froth or foam, described respectively as frothy (pasture) bloat and non-frothy (dry) bloat. The most common is frothy bloat where gas builds up in a foam or froth above the liquid/semi-liquid fraction of the rumen content and the normal belching is inhibited.

Preventing bloat is desirable not only to reduce deaths but also to reduce the negative effect of bloat on cattle performance. Pasture (frothy) bloat can occur in animals grazing wheat pasture or lush legumes (alfalfa, ladino, white clover) or being fed green-chopped legumes. Feedlot (dry) bloat usu-



**Figure 1.** Bloaty calf. Viewing the calf from the rear, left side distended indicating bloat.

ally 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. Cattle consuming feedlot diets may have bloat caused by the grain portion being ground too finely. Fine-ground grains are digested rapidly, causing rapid fermentation and gas production.

Visual signs of bloat in cattle include: distension of the left side of the animal as the primary sign (*Figure 1*), 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 (adapted to feeds/forages), and rumen conditions all influence the likelihood of animals bloating. Alfalfa, forage rape, wheat, and many clovers (including white, ladino, sweet, and red) cause bloat more than grasses or other commonly grazed forages. Some animals, more selective in their grazing, may consume a diet higher in bloat-causing plants than other animals.

Cooler than normal temperatures (especially at night) are usually associated with bloat. Reasons may include higher forage intake by animals during cool weather and 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.

You can reduce bloating by feeding purchased anti-bloating supplements, but this can be expensive. Often, proper grazing management can reduce or eliminate bloat problems as effectively as purchased supplements. Proper grazing management techniques involve providing a consistent and steady diet and controlling access to high bloat-potential plants, especially under moist or succulent conditions.

When you provide a consistent or gradual change in forage quality and plant species, you maintain uniform rumen conditions and reduce the chance of hungry animals overeating. Livestock graze the highest quality forage at the beginning of the grazing period and a lower 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.

### **Management Practices to Reduce the Incidence or Severity of Pasture Bloat**

#### **Pasture Establishment and Management**

- Plant mixtures of legume and grass with legumes providing no more than 50 percent of the available forage. Observe plant growth rates and legume-grass proportions throughout the growing season.
- Plant non-bloating legumes like birdsfoot trefoil, cicer milkvetch, sainfoin, and lespedeza or lower-risk legumes like sweet clover and red clover.
- Avoid patches of palatable, high bloat-potential plants. Interseed these areas with grasses or use herbicides to reduce concentration of high bloat plants.
- Fertilize grass/legume pastures with nitrogen to stimulate grass production.

#### **Livestock Diet Supplements**

- Feed anti-foaming chemicals like poloxalene, which prevents pasture bloat for about 12 hours if consumed in adequate amounts. Begin feeding two to five days before turning onto pasture. Poloxalene can be fed as a topdressing 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.
- Provide supplements or molasses blocks containing bloat-reducing compounds such as an ionophore (example: Rumensin®).

- Provide mineral supplements with adequate sodium (salt) and avoid excessive potassium, calcium, and magnesium.
- Allow livestock free-choice access to portions of pasture windrowed several days prior to grazing or to dry-grass hay, grain, or crop residues while grazing lush, high bloat-potential plants.

#### **Grazing Management**

- Never turn hungry livestock into a pasture containing a high proportion of bloat-causing plants.
- Fill animals with dry hay or grass pasture before beginning to graze high bloat-potential pastures.
- Avoid turning animals onto fresh, high bloat-potential 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.
- Make paddock rotations mid-day or later to help minimize moisture and increase plant carbohydrate concentration.
- Avoid dramatic changes in forage quality when rotating from paddock to paddock by leaving adequate residue.
- Observe livestock closely the first several days and remove any “chronic-bloating” animals.
- Avoid grazing legumes before they begin to bloom. This may not be possible if spring grazing or if grazing season-long. Make closer observations for bloat when many plants are at a younger growth stage.
- 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.
- Never allow animals grazing high bloat-potential pasture to get so hungry that they consume too much in one feeding. Always have sufficient feed available.
- Once grazing begins, don’t 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 animals from adapting to bloat pastures.
- Be extra observant for cattle bloat when high bloat plants show a rapid flush of growth such as during cloudy, wet periods in the spring and after a plant stress event such as hail or drought.
- Delay grazing high bloat-potential plants for three to five days after freeze damage.
- Graze with animals that have smaller rumen capacities, like yearlings and calves, rather than mature cows.

## Managing Feedlot Bloat

Feedlot bloat is most frequently associated with indigestion caused by acidosis. Death losses are minimal in well-managed feedlots.

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 (examples: 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 grind 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.

Feedlot bloat that occurs on high-concentrate rations usually can be reduced by providing 10 to 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 to 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 that area and preventing the animal from belching or swallowing normally. Animals may try to eat, then spit out feed and saliva. This is 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

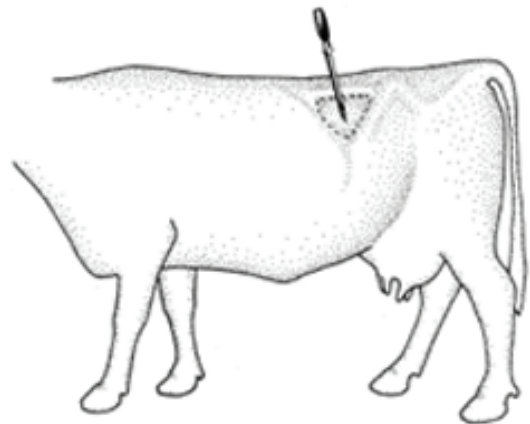
Acute bloat must be treated promptly. In the last stages of severe bloat, a few seconds delay may result in the animal’s death.

Plan with your veterinarian for emergency treatment for bloat before the grazing season. Equipment needed includes good handling facilities, a stomach tube or rubber hose about 3/4 to 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.

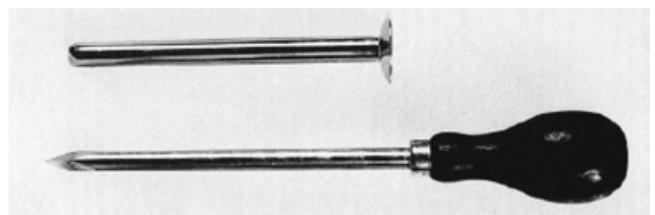
In severe cases, a stomach tube can provide relief. If the tube doesn’t provide immediate relief, the defoaming agent will frequently break down the foam and allow large amounts of gas to release through the tube or by belching. The antifoaming agent can be added through the tube or through a trocar and bloat needle. Never drench a bloated animal. Fluid is apt to be inhaled during drenching, causing immediate death or pneumonia. Antifoaming agents would include emulsified oil (mineral oil), or an oil containing an approved detergent such as dioctyl sodium sulfosuccinate.

Large bloat needles may be adequate for relieving feedlot bloat. They are about 6 to 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 to 4 inches below the edge of the loin (*Figure 2*).

If the needle does not relieve the problem, a trocar fitted with a cannula (*Figure 3*) can be used. The end of the trocar is sharp, much like a knife. Push the trocar through the muscle and rumen wall. Then remove the trocar from the cannula and gas should begin flowing from the cannula that remains.



**Figure 2.** Insertion point for needle or trocar fitted with a cannula. Dotted triangle is the left paralumbar fossa where the “hollow” of the flank is found. (Photo Credit: Belinda Walker, courtesy Government of Alberta, Canada)



**Figure 3.** Trocar (bottom) and cannula. (Photo Credit: Belinda Walker, courtesy Government of Alberta, Canada)

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 and accumulate gas in the rumen. This should be relieved with a trocar or big needle, if possible followed by gentle removal of the obstruction 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 release excess rumen gases. Generally, these openings are about 3/4 inch in diameter. The fistula is designed to remain open for 1 to 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.

**This publication has been peer reviewed.**

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