



Pasture Problems

Lush pastures in the summer can lead to bloat in cattle.

by *Heather Smith Thomas*

Bloat can readily occur in ruminant animals because of the way rumen microbes break down feeds, creating gas in the process. Associate professor and Extension veterinarian at Colorado State University David Van Metre says putting hungry cattle on lush legume pastures such as alfalfa or clover, especially in the pre-bloom stage, is most dangerous. These pastures become less dangerous once the plants are more mature with a lower protein level.

“Cattle on legume pastures or new spring growth of winter wheat should be carefully watched,” Van Metre says. “We typically look for a distended rumen, which is easier to see from behind the animal than from the side. You want to catch them before they develop complications and have trouble breathing.”

The increasing rumen size puts pressure on the lungs, which then cannot expand enough to take in air.

Van Metre says cattle in trouble will stand with head and neck extended, open-mouthed and drooling. “When they have serious problems with low oxygen in the blood, they start to stagger and go down,” he explains. Immediate emergency measures should be taken to let gas out of the rumen and to prevent suffocation.

Bloat generally occurs when there’s a change to higher protein feeds, such as from grass to alfalfa, according to James England,





professor of animal and veterinary science at the University of Idaho Caine Center. Grasses don't normally cause bloat, but some species of grass can create bloating under certain conditions.

"Usually cattle bloat when eating something that's highly digestible with high protein content, and they overload the rumen," he says. "Bacterial flora start to change and produce more gases, and bacterial byproducts produce a slime that traps the gas in small bubbles or froth," he says. The cattle can't expel the gas by belching as quickly as it is produced.

"Depending on the type of feed, it may be frothy bloat. These can't be belched as readily, nor let out very easily by stomach tube or trocar. Rapid bloat onset interferes with breathing. The distended rumen puts pressure on the lungs and on the nerves that affect breathing," England says.

In most instances, bloat occurs when cows move into lush alfalfa pastures or overeat on newly erupted seed-heads on certain grass pastures. Cattle should not be turned into these types of pastures when they are hungry nor moved into new strips when grazing rotationally.

"A lot of people pasture an alfalfa field in strips, and even though the cattle may have been on it awhile and you assume they are used to it, when you move them onto a new strip some

may bloat. You always want to move them when they are full or introduce them to it slowly. It's also wise to keep bloat blocks available, and make sure the cattle are eating them," England says.

Treatment

Bloat should be considered an emergency and needs to be caught early. "The usual treatment is to pass a stomach tube or hose to pass off the gas," England says. "If that doesn't work you'll need a trocar to poke a hole in the rumen to let the gas out."

England explains that once the gas is vented off and the rumen deflates, it shifts position like a deflating balloon and may slide off the end of the trocar. "This is where you run the risk of the cow getting peritonitis. Usually if it's just a small hole and the gas is pretty well vented, there isn't much leaking of fluid into the abdominal cavity," he says.

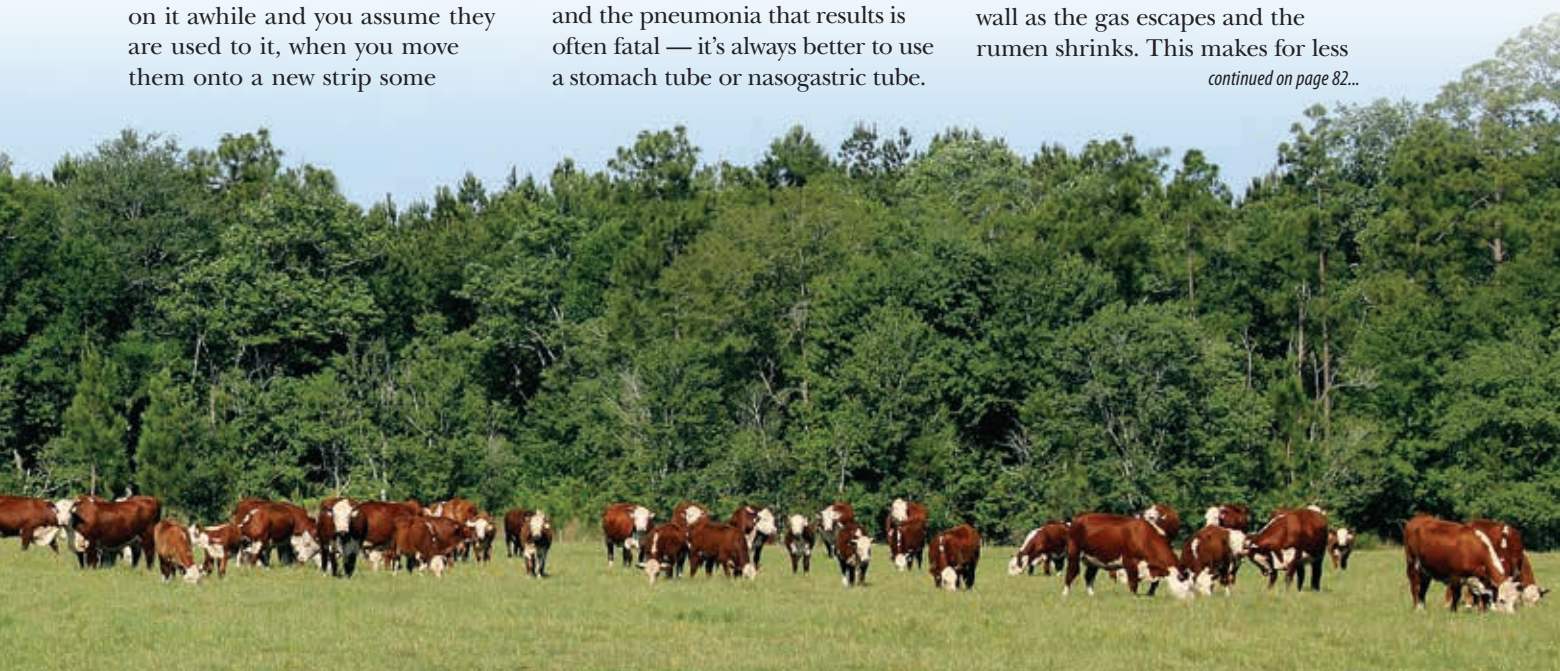
Van Metre says the preferred therapy is to administer mineral oil or poloxalene via stomach tube into the rumen, but if the cattle are out on pasture, they may be too far from a holding facility. Administering the poloxalene or mineral oil by mouth is dangerous because the animal may inhale these medications into the lungs and the pneumonia that results is often fatal — it's always better to use a stomach tube or nasogastric tube.

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"Sometimes it's a judgment call as to whether or not to put a trocar into the animal's rumen," Van Metre says. "Personally, I've seen a lot less problems with peritonitis if a person can use one of the new screw-in self-retaining trocars. Some people call it a corkscrew trocar. The inner part of the sharp spear is the same, but the outside of it is threaded like a wood screw. These are plastic, rather than steel. When you screw it all the way into the rumen it tends to hold the rumen next to the abdominal wall as the gas escapes and the rumen shrinks. This makes for less

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leakage of rumen contents into the abdominal cavity.”

England explains that the screw-in trocar works well in calves to help keep the trocar in place, but it doesn't work quite as well in adult cattle.

“With the thicker depth of body wall in cattle it doesn't catch and hold the rumen as well as you'd think it would. It always amazes me, every time I open up a cow's side, how thick the muscle is, under the skin,” England says. “You need at least a four-inch trocar and cannula. Most of the cannulas that come on trocars now, you can suture the side of it down so it won't pop back out. Depending on how far the rumen drops away from it as the gas comes out, it may still slide off the end of the trocar,” he says.

Frothy bloat is difficult to release because the mass of bubbles tends to plug the stomach tube or trocar.

“In these instances you need to administer Therabloat[®] or some other bloat treatment product by tube,” England explains. “Therabloat contains the same

ingredient as in bloat blocks, and helps break up the tiny bubbles so the gas can be released. It works a little better than mineral oil, which tends to end up on top of the rumen contents and can interfere with digestion.”

In some instances England has attached a stomach pump to the end of the tube to pump out some of the frothy material. “The froth tends to keep plugging up the pump, but you can usually get some of the froth out and then put Therabloat back in through the tube, to break up the rest,” he says.

Severe bloat — when the rumen is distended higher than the cow's backbone — is always an emergency and should be relieved quickly. Cows on lush legume pastures should be closely monitored. The rumen can continue to produce gas several hours after they quit eating.

Preventing bloat

There are several ways to minimize bloat on pastures, and these include timing of grazing, paying attention

to plant maturity, observing soil moisture and considering the weather. Choose a dry day and wait until dew is off before putting animals in a new pasture. If they are first fed hay before being put into the pasture, there is less chance of them overeating lush legumes and, therefore, bloating.

It is safest to leave them on the pasture rather than to graze it intermittently. Disruption of grazing can lead to a higher incidence of bloat, such as when cattle are taken out of a pasture overnight or interrupted by storms or biting flies. Anything that disrupts their normal grazing patterns will result in more intense feeding periods afterward, which may increase the incidence of bloat, according to England.

Plant maturity is one of the most important factors in pasture bloat, so timing of grazing is crucial. Alfalfa pastures are safest when plants are fully mature. Bloat potential is highest when plants are in the pre-bud stage and decreases as the plant grows and matures to



full flower. Studies have shown that alfalfa eight to 10 inches high tends to produce twice the amount of bloat as alfalfa 20 to 30 inches high.

Soil moisture also makes a difference; plants with adequate moisture for optimum growth are more likely to cause bloating. The stems are soft rather than fibrous, and the leaves are easily crushed between the fingers. Bloat potential of alfalfa is reduced if soil moisture is not sufficient for good growth.

Weather conditions play a role, as well; bloat seems to occur more frequently following a cool day. Moderate temperatures permit optimum plant growth. Cool nighttime temperatures, in combination with moderate daytime temperatures, may increase the risk of bloat in the fall. Cool temperatures delay plant maturity and extend the growth phase. At the other temperature extreme, days that are hot enough to cause moisture stress and drying of plants reduce the risk of bloat.

Bloat incidence increases with cool weather, heavy dew and frost. Ranchers have thought alfalfa to be safe after a killing frost, but there is still some risk as long as leaves are green. The first frosts actually increase risk for bloat, preserving the immature stage of growth. Frost also disrupts the plant cells, releasing bloat-causing agents and increasing the rate of cell breakdown. It usually takes many hard freezes to render the plants safe.

“Pasture bloat is multi-factorial,” Van Metre says. “There are many small influences, which in and of themselves may not be very significant, but cumulatively they probably increase the risk of one group of cattle versus another.”

Some individual animals seem more prone to bloating. “Researchers have analyzed saliva from cattle and have found subtle differences in the salivary proteins that might limit foam/froth formation in the rumen,” he says. “This may help to explain why some animals bloat more

readily than others. If you have a chronic bloater, note whether that animal bloats just on alfalfa or on anything other than dry hay. Any time rumen gas production increases, this animal may not be able to handle it. There may be muscle and nerve issues that affect rumen function.”

If records are checked, cattlemen may find that an animal was sick earlier.

“Sometimes chronic pneumonia will cause enlargement of lymph nodes in the area surrounding the esophagus,” Van Metre explains.

“These nodes may put pressure against the esophagus, making it narrower, hindering the ability to burp. The animal may have an enlarged rumen all the time. Some bloaters get better after a course of antibiotics. This treatment doesn’t do anything for the bloat, per se, but if the animal has enlarged lymph nodes, the antibiotics may help.”

Many chronic bloaters cannot be cured, however. If the animal is otherwise healthy and free of residues from any previous medications, the best option may be salvage for slaughter. **HW**

Make sure cattle have plenty of salt

Some farms have more problems with pasture bloat than others. In New Zealand, it was noted for a long time that pastures near the sea produce very little bloat. Herbage tests taken from farms near the sea that never experienced bloat and inland farms where bloat was a constant problem showed that the sodium levels in the “no bloat” pastures were three times higher than levels in the bloaty pastures. Salt tends to inhibit bloat.

Anything that decreases saliva production or consumption can make an animal more likely to bloat. Saliva contains sodium and bicarbonate of soda, both of which help prevent bloat. Salt is used by many New Zealand stockmen to reduce bloat. Some of them put salt in the drinking water as soon as bloat begins and claim that it stops the bloating. Many of them have fertilized their pastures with salt for decades. The sodium in salt is crucial in helping prevent bloat.

Yet, for a number of years, cattlemen have been advised to remove salt from the diet and to replace it with bloat blocks. Thomas Swerckzek, a veterinary pathologist in Kentucky, has been studying the relationship between salt and the prevention of bloat and grass tetany, and during the past 15 years, he has discovered that sodium is very important in helping prevent the chain of events that can lead to problems when cattle consume lush, fast-growing pastures or frost-damaged plants.

“What I noticed in several severe outbreaks of bloat was that cows were eating the bloat blocks and still dying. Yet university and Extension people are still saying that producers need to put bloat blocks out on legume pastures, to prevent bloat in cattle. However, if cattle have adequate salt, they generally won’t die of bloat. There is a close relationship between bloat in cattle, grass tetany and lack of salt. Cattle are bloating because they need calcium and magnesium for proper muscle contraction,” says Swerckzek.

These minerals become unavailable to the body during the chemical changes that occur with the sudden feed change, if sodium is not available. If cattle are short on these important minerals, the smooth muscles of the gut, including the rumen, lose tone and can’t move things through as readily — and the animals bloat. **HW**

