

## Preventing Pasture Bloat in Sheep

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Bloat can be a sudden and lethal occurrence for sheep. Often, unless the livestock is being monitored closely, the first symptom one notices is dead or distressed animals.

Pasture bloat (or green legume bloat) is caused by increased pressure by the ruminal contents. Pasture bloat is usually a build-up of trapped gas caused by the failure of the animal to undergo normal eructation. Gas production in the rumen normally consists of primarily CO<sub>2</sub> and CH<sub>4</sub> produced through feedstuff fermentation. Under normal conditions, ruminants have a predictable sequence of eructation cycles, whereby, gas that is produced is released to the environment. When an animal is experiencing pasture bloat, ruminal conditions are such that a stable froth is produced in the rumen. This froth then "layers" on top of the ruminal contents (mostly liquid) and prevents the gas bubbles from rising to the top and dispersing their contents. This could be analogous to taking a drinking straw and blowing air into a glass of liquids and seeing the air bubbles rise to the top and bursting. Under pasture bloat conditions, the bubbles cannot burst, thus, a build-up of gas and pressure. Furthermore, the froth produced in a bloat situation can block the cardia and prevent normal eructation and release of gas through the esophagus.

Pasture bloat is often brought on by a rapid intake of immature, highly nutritious green legumes (alfalfa or clovers). These plants, when in a vegetative state, contribute high levels of ruminally degradable protein, high levels of carbohydrates and are digested quite rapidly. This causes a drop in the pH of the rumen, an increase in gas production and a binding of protein molecules into a surface film over the ruminal contents. These events contribute to the production of froth, and subsequently, trapped gas.

There are some legumes that are considered to be less of a bloat problem than others. Birdsfoot trefoil is less likely to cause bloat than alfalfa and many types of clovers, not because it does not have a high protein content, but because the rate of digestion is considerably slower. Also, grasses do not usually cause bloat, because the protein content is lower than legumes.

### Prevention and Treatment

As with most sheep health problems, prevention is the key in controlling bloat. There are a number of management techniques one can use to reduce the likelihood of pasture bloat in sheep.

When turning sheep onto lush, vegetative pasture with a high legume content, try to time the placement when the dew is gone from the grass and try to fill them up on long-stem hay with a high grass content. This will result in them consuming less of the green forage at first because of physical fill and the time of day.

Try to avoid a feast and famine routine of grazing management. Once sheep become adapted to a diet and are not experiencing bloat problems, try to stick to a predictable grazing management system to encourage even, regular consumption of forage and not a grazing pattern of engorgement.

Early in the grazing season or whenever sheep are turned to a new pasture with significant legume content, check them closely a couple hours after turnout as this is when bloat symptoms occur.

If bloat is an ongoing problem in a flock, reducing the amount of legume in the pasture is an option. However, this is often at the expense of pasture productivity, stocking capacity and animal performance. Another option would be to incorporate a legume known to be a non-bloating specie.

Poloxalene is a nonionic surfactant that helps prevent foam production in the rumen. It is the main constituent in the bloat preventive mineral blocks made for cattle. Poloxalene feeding to sheep at a rate

of two to three grams/head/day can be effective in preventing bloat. If cattle bloat block blocks are used, take care they do not contain high enough levels of copper to cause copper toxicity in sheep.

Treat bloated sheep with care. The build-up of pressure in the rumen can actually cause a partial collapse of the lungs. Furthermore, blood from the body is forced out of the body cavity to the extremities and can cause a form of acidosis. Thus, stressing these animals complicates the situation.

If animals can be caught, use a stomach tube to help release free ruminal gas. Also, mild agitation of ruminal contents can aid in the release of the trapped gas bubbles. Mineral or vegetable oils can be used as antifoaming agents and help release gas. Treatment with commercially available anti-bloating agents can also be done at this time.

Some people will actually use a rumenotomy (puncturing the rumen - located high on the left side of the lumbar region in severe bloat cases) in severe, life-threatening situations. This procedure is not for the weak stomachs, as the pressure will result in the expulsion of a significant amount of the rumen contents. Also, the area will need to be cleaned and sutured after the rumenotomy is performed.

There does seem to be somewhat of a genetic propensity to bloat susceptibility. Some breeds or lines within breeds do appear to be more susceptible to bloat. Thus, it may be practical to cull individuals that have a history of bloat problems.

Legumes are a wonderful grazing and hay forage. When harvested at a correct maturity level they supply high levels of protein, energy, minerals and vitamins to ruminants. However, the bloat potential of these forages is a downside to them. Planned management can reduce the potential bloat problem and enable producers to realize increased animal and pasture productivity with legumes.