



Animal Health Considerations

GRAZING MANAGEMENT AS TOOL TO MINIMIZE IMPACT OF INTERNAL PARASITES

Internal parasites reduce animal growth rates and can lead to livestock death. In the past, internal parasitism was primarily managed by administration of anthelmintics (aka dewormers), but this has led to development of parasite resistance to many commercially available dewormers.

Livestock producers should therefore consider implementing rotational stocking or minimizing the need for livestock to graze too close to the ground so that the impacts of internal parasitism to their flock or herd are minimized. Neither of these strategies will eliminate parasites, but they can greatly minimize parasite burdens in livestock production systems if implemented correctly.

Livestock pass internal parasite eggs in their manure. After hatching, the eggs must mature through several larval stages until they reach an infective stage. At this point a grazing animal can become infected when consuming the larvae along with forage. The length of time required from when a parasite egg hatches until it reaches an infective larval stage varies depending on environmental conditions and the specific type of parasite. In some situations this maturation process can take as few as 6 days.

Livestock producers can use strategic rotational grazing to break the parasite transmission cycle, or at least minimize the potential for transmission. The key is to subdivide pastures using temporary fencing so that livestock have enough forage in each area to graze for 4 to 6 days. Animals are then rotated into a new area of the subdivided pasture within 6 days to stay ahead of the parasite

life cycle. Doing this means that parasite larvae reach the infective stage after the livestock have moved out of that section of the pasture. This can help break the parasite transmission cycle as long as animals are not returned to that area of the pasture too quickly.

Parasite larvae can survive for a long time in some pastures, even as long as 4 to 6 months, when weather conditions are cool and moist. However, when the weather is hot and dry, those parasite larvae usually die much more quickly, breaking the parasite transmission cycle sooner and allowing a quicker and safer return of animals to that area to graze.

Another option to minimize parasite transmission is to leave at least 4 inches of forage when moving animals to a new grazing area. Most parasite larvae are found in the bottom of forage growth, so the goal is to move livestock out of a pasture before they graze down to levels where parasite larvae will more likely be consumed.

GRASS TETANY

Grass tetany, also known as hypomagnesemia, is a nutritional problem for grazing beef and dairy animals. It is often observed when cattle are grazing lush, actively growing cool-season pastures that have been well fertilized with nitrogen and potassium. It is most often seen with lactating beef cows, particularly during peak lactation, and with older cows in the herd. However, dry cows and stocker cattle may be affected under the right conditions.

An animal with grass tetany may initially show signs of nervousness, excessive salivation, muscle tremors, and rapid breathing. In advanced cases,

the animal will collapse, go into convulsions, and die. It is associated with low levels of magnesium in the animal's blood serum and can be caused by the following:

- Grazing cereal crops, such as wheat, rye, and oats, that are low in magnesium content, especially in the spring and fall
- Low magnesium in soil or high levels of other elements, such as potassium, that cause low magnesium content/uptake in plants
- Cold temperatures or cloudy weather conditions, which decrease the magnesium level in forage
- Low dry matter content along with high concentrations of nitrogen in forage, which decrease the magnesium level in blood serum of cows eating the forage. High potassium along with high nitrogen are more dangerous than either one alone.
- Low forage and/or blood calcium levels resulting in tetany

In terms of prevention and management, providing a properly balanced mineral supplement containing magnesium is the fastest and most certain method of preventing grass tetany. Consider moving to a high-magnesium mineral 1 to 2 months before active grazing on lush forages begins so that adequate intake levels can be established. For more information, see "Management Practices to Reduce Grass Tetany," on the Alabama Extension website at www.aces.edu.

NITRATE POISONING

Nitrate poisoning in cattle is caused by the consumption of feed or water containing high levels of nitrate nitrogen. Under most circumstances, forage crops do not contain levels of nitrates elevated enough to be toxic. When this does occur, however, it can be a serious problem, often resulting in the death of many animals.

Nitrates accumulate during periods of plant stress, such as low soil moisture, high temperatures, or low humidity. The accumulation of nitrates is often favored by heavy nitrogen fertilization rates, particularly if the fertilization coincides with the onset of a drought period. Following are important points to remember about nitrate poisoning:

- Nitrates in stored forages do not degrade very much over time or by harvesting as hay.
- Drought in late summer and fall makes it advisable for producers to analyze late-season hay for nitrates.
- Bermudagrass and summer annual grasses are more likely than other forages to contain toxic levels of nitrates.
- Nitrate levels can be determined through feed and forage testing.
- Feeding nonprotein nitrogen with hay containing elevated nitrate concentration increases the likelihood of nitrate poisoning.
- Use of large round bales with elevated levels of nitrates increases the danger of nitrate toxicity because cattle have unlimited access to the hay and overconsumption may result.
- Danger with potentially toxic hay can be reduced by feeding other nitrate-free feeds along with the potentially toxic material.
- It is possible to treat for nitrate poisoning if treatment is administered quickly. If toxicity is suspected, contact a veterinarian immediately.

For more information, go to "Nitrate Poisoning of Cattle in Alabama" on the Extension website at www.aces.edu.

PRUSSIC ACID POISONING

Prussic acid poisoning, also known as cyanide poisoning, is a potentially life-threatening toxicity associated with forages such as Johnsongrass, sorghum, sudangrass, and sorghum-sudangrass hybrids. These can contain toxic concentrations of hydrocyanic acid (HCN) after a frost event or during periods of drought. Cyanide, or HCN, is commonly referred to as prussic acid, and these forages contain it in a bound form at all times. However, a stress event, such as frost or drought, causes damage to plant cell structures and releases enzymes that allow cyanide to discharge in a free form. Below are some factors influencing cyanide accumulation in forages:

- **Plant maturity.** Young plants contain more HCN per unit weight than older, more mature plants with significant growth.
- **Plant parts.** More HCN is in plant leaves than in stems.
- **Fertility.** Use of high nitrogen rates (greater than 70 pounds nitrogen per acre) increases plant potential for prussic acid accumulation.



- **Drought.** Drought-stressed plants may have high levels of free HCN.
- **Frost.** Depending on the severity of the frost event, cold weather may kill only a portion of HCN-accumulating forages. Unbound HCN does not decline until wilting begins. Young, tender regrowth from unkilld plants may be high in prussic acid.

Prussic acid levels increase because of stress on the plant, but unlike nitrate accumulation in forages, prussic acid levels deteriorate over time. Following are strategies to minimize the risk of prussic acid poisoning:

- Avoid grazing areas where known cyanide-containing forages are present during periods of potential stress and immediately following a frost or period of drought. High levels of prussic acid generally degrade within the plant within 5 days following a frost.
- Do not turn hungry livestock into pastures containing cyanide-accumulating forages following an environmental stress event such as drought or frost. Provide hay and supplement to cattle to provide gut fill before giving animals access to these pastures. Use rotational stocking management to prevent selective grazing of lush, young cyanide-accumulating plants.
- Bale or ensile forages to decrease prussic acid presence and keep forage generally safe for feeding. Proper field curing or ensiling results in considerable loss of HCN. As a precaution, do not feed newly ensiled forage for at least 3 weeks after ensiling.
- Have forages tested for prussic acid levels before feeding to livestock. For more information, check the Auburn University Soil testing lab web page. For more information, go to "Prussic Acid Poisoning of Livestock" on the Alabama Extension website at www.aces.edu.

BLOAT

Bloat is a potentially life-threatening condition for ruminant livestock associated with excessive accumulation of gas in the rumen. After ruminant animals consume feed or forages, the digestive fermentation creates gases in the rumen, most of which are eliminated by eructation (belching). Any interruption of this normal gas elimination results in bloat.

Bloat can occur in animals grazing lush legumes or cereal crops where the gases of fermentation are entrapped in a stable foam. It is generally more effective to prevent than to treat bloat. Following are some considerations:

- **Consider** pastures with a high proportion of legumes at a high risk for bloat. Risk is elevated if pastures are wet.
- **Limit grazing** on high-risk pastures until livestock are more acclimated, and provide access to non-legume, high-quality hay at the same time.
- **Administer** anti-foaming agents daily via feed, water, and/or mineral supplementation if bloat is a severe problem.
- **Remove** animals prone to recurrent bloat from pastures. Some animals experience recurrent bloat despite prevention and treatment.

ADDITIONAL ANIMAL HEALTH CONSIDERATIONS

- Always remove all string and wrapping material from hay and baleage before feeding to livestock to prevent accidental ingestion.
- Apply pesticides correctly. Several pesticides (insecticides and herbicides) used in forage production can cause residue problems and/or toxicity in livestock when not used correctly.
- Do not allow livestock access to stored pesticides.
- Use only pesticides labeled for use on pastures to be grazed or harvested for hay.
- Follow all label instructions regarding pesticide use; strictly adhere to any grazing and harvest withdrawal periods following application; and record pesticide use for future reference.