

January 15, 2015

AGRIVIEW

**By: Rick Hirsch
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2015 is certainly off to a wet and cold start. As a result of the extended periods of strain on cattle a lot of hay is being utilized and producers are grazing winter pastures when and if possible. As a result of producers feeding different forages and starting to utilize winter grazing this season I have been receiving a lot of questions regarding forage related cattle disorders. Three of the more common disorders are nitrate poisoning, prussic acid and grass tetany. Various Texas A&M AgriLife Extension Service publications and *Southern Forages* by Ball et. al provide a wealth of information.

Nitrate poisoning in livestock is primarily caused by the consumption of pasture or hay containing high levels of nitrate-nitrogen. During periods of low soil moisture or low humidity, nitrates can accumulate in plants heavily fertilized with nitrogen. Hay cut during or just after a drought period is suspect, especially if nitrogen was applied just prior to hay harvest. Shading by other plant species, cloudy weather, and frost may also increase nitrate levels in plants. The application of nitrogen fertilizers during cool, wet, cloudy weather may also result in nitrate poisoning. Nitrates in hay are stable and can cause deaths months after harvest. Nitrate levels usually decline somewhat when forage is ensiled.

Some forage plants are more likely to accumulate nitrates than others. Plants known to have considerable potential for accumulation of toxic levels are: sudangrass, sorghum-

sudan hybrids, pearl millet, corn, wheat and oats. Certain weeds may also accumulate toxic levels of nitrates and thus pose a threat, especially in hay. Examples are pigweed, smartweed, ragweed, lambsquarter, goldenrod, nightshades, bindweed, Canada thistle and stinging nettle. In addition, the application of some herbicides (for example, 2,4-D) can increase nitrate levels in plants.

Naturally occurring glycosides may form prussic acid, also called hydrocyanic acid or HCN, which can build up to toxic levels in leaves of a number of plants and including johnson grass, sorghum, sudangrass, sorghum-sudan hybrids and wild cherry. Pearl millet does not produce prussic acid. Prussic acid is most likely to build up to dangerous levels immediately after a frost. Also, tender young growth occurring immediately after a long drought can be potentially toxic. Young, tender, fast-growing plants are more likely to be toxic than older, more mature plants. Herbicides, including 2,4-D may also temporarily increase prussic acid levels.

Prussic acid causes death by interfering with the oxygen-transferring ability of the red blood cells, causing animals to suffocate. Symptoms include excessive salivation, rapid breathing and muscle spasms and may occur within 10 to 15 minutes after the animal consumes prussic acid-containing forage. Animals may stagger, collapse and eventually die.

Prussic acid and nitrate poisoning are not the same. Toxic levels of nitrates result from heavy nitrogen fertilization followed by severe drought stress. Unlike nitrates, prussic acid deteriorates with time. If forage having high levels of prussic acid is ensiled, it will usually be safe to feed within three weeks after silo fill. Hay that has dried enough to be safely baled (18 to 20 percent moisture) will not contain toxic levels of prussic acid.

Standing plants killed by frost are normally safe after about one week. However, in some instances only plants in certain portions of a field are initially killed, and subsequent frosts create danger spots in other areas.

Grass tetany is associated with low levels of magnesium in the blood of cattle and sheep grazing ryegrass, small grains, and cool season perennial grasses in late winter and early spring. It is mostly confined to cows and ewes in early lactation and often affects the highest-producing animals in a herd or flock. It results from animals grazing plants grown on soils low in available magnesium, causing them to be deficient in this element, especially when lactation requires a substantial quantity of magnesium.

Wet soils, low in oxygen, may prevent plants from taking up sufficient magnesium regardless of the soil magnesium level. Grass tetany is more likely to occur on soils low in phosphorus but high in potassium and nitrogen because this combination tends to inhibit magnesium uptake. This can be a problem with cool season grass forage fertilized with high rates of broiler litter. Generally, forage containing 0.2 percent magnesium or more is unlikely to cause tetany.

An animal going into tetany initially is nervous, exhibits muscle twitching, staggers when walking and later goes down on its side, with muscle spasms and convulsions. If not treated, death will occur.

Consult your veterinarian about possible treatment and animal care.

IMPORTANT DATES:

February 5th - East Texas Turfgrass Conference - Overton - 7:30 a.m. -
\$30.00/person (payable at door) - 5 C. E. U.'s

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