

Potentials for Plant and Other Toxicities in Cattle
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Fortunately, there has been plenty of rain this year. However, heading into late summer and fall are times of the year to watch out for plant toxicity in cattle. In some cases, plants can become more toxic during drought and heat stress. In addition, there is the increased potential for cattle to ingest toxic plants due to lack of other feedstuffs. There may also be more access to toxic plants. With droughts come increased weed infestation of pastures, hay and crop fields. Penned cattle may also be in corrals or drawn to low lying areas that are still green, both of which are where toxic plants are likely to grow. Differentiating “good” vs. “bad” plants is a learned behavior, so toxicity is more likely in young animals and animals moved to a new location. A grazing management and supplemental feeding plan is essential to minimize problems. Veterinarians and producers should be familiar with which plants can cause problems in their area, and try to avoid them. The following discussion covers some of the plants and situations to watch for during drought situations. There may be plants that grow some regions that are not covered.

Stressed plants more readily accumulate nitrates and prussic acid (cyanide). Drought stress can cause both pasture forages and weeds to accumulate toxic amounts of nitrates. Recently fertilized pastures are also at higher risk. Plants that have accumulated nitrates remain toxic after baling or ensiling. Test forages for nitrates to prevent poisoning. Prussic acid accumulates most often in sorghums, sudans and Johnsongrasses, but these plants can accumulate nitrates also. There is no test for prussic acid, but it dissipates when plants are baled or ensiled, so harvested forages are safe. Cattle poisoned by nitrates or prussic acid are usually found dead, so prevention of these toxicities is critical. Cattle with nitrate toxicity have methemoglobinemia (brown blood) and cattle with prussic acid toxicity have cyanohemoglobinemia (bright, cherry red blood). Nitrate and prussic acid both interfere with oxygen carrying capacity in the blood, so pregnant cattle surviving these poisonings often abort.

Two of the most toxic plants found in croplands and pastures are coffeeweed and sickle pod. Cattle will generally not graze the green plant unless other forages are scarce. However, they will readily eat the seedpods that are dry after a frost. The plant remains toxic when harvested in hay/balage/silage. Coffeeweed and sicklepod are toxic to muscles and cause weakness, diarrhea, dark urine, and inability to rise. There is no specific treatment or antidote, and once animals are down, they rarely recover.

Pigweed or carelessweed is very common in areas where cattle congregate. Cattle will readily eat the young plants, but avoid the older plants unless forced to eat them. A common pigweed poisoning is when cattle are penned where pigweed is the predominant plant and no alternative hay or feed is provided. Red root pigweed is more toxic than spiny root pigweed, but is less common. Pigweed can accumulate nitrates, so sudden

death is the most common outcome. It also contains oxalates, so renal failure can also occur.

Black nightshade is common in croplands, and like pigweed, is often in high traffic areas. The green fruit is most toxic, so cattle should not have access to nightshade during this stage, and nightshade remains toxic in harvested forages. Nightshade is toxic to the nervous and gastrointestinal systems, and causes weakness, depression, diarrhea, and muscle trembling among other signs. Bullnettle and horsenettle are in the same plant family as nightshade. They are also toxic, although less so, and are usually avoided by livestock unless other forages are not available.

Blue-green algae blooms in ponds can also occur in hot weather. They are most common in ponds with high organic matter, such as ponds where cattle are allowed to wade, or where fertilizer runoff occurs. The blue-green algae accumulates along pond edges, especially in windy conditions, and exposes cattle when they drink. Both the live and dead algae are toxic. The toxins can affect the neurologic system causing convulsions and death, sometimes right next to the source. They can also affect the liver, causing a delayed syndrome of weight loss, and photosensitization (skin peeling in sparsely haired or white haired areas).

Perilla mint causes acute bovine pulmonary edema and emphysema (ABPE), usually in late summer. It grows in most of the central and eastern United States and is common in partial shade in sparsely wooded areas, and around barns and corrals. There is no treatment, so prevention is critical.

Cattle with access to wooded areas may eat bracken fern. Cattle must eat roughly their body weight over time before toxicity occurs, but may do this in situations where other forage is not available. Bracken fern toxicosis causes aplastic anemia. Fever, anemia, hematuria, and secondary infections are some of the most common signs.

As summer moves into fall, the potential for acorn toxicosis increases. Cattle have to eat large amounts usually to become sick, but those that are in poor body condition and hungry are more likely to do so. Clinical signs include constipation or dark, foul-smelling diarrhea, dark nasal discharge, depression, weakness and weight loss.

The lack of summer forages and the need for supplemental feeding during a drought can increase the likelihood of feeding “accidents” and toxicities. Producers may be tempted to feed cattle prunings of ornamental plants, many of which are highly toxic. Grain overload is also a potential problem if access to concentrate feeds are not controlled. Salt toxicity can occur if hungry cattle are allowed free access to high salt containing “hotmixes”. Even though these are meant to limit intake, initial intake can be high enough to cause toxicity in starved or salt deprived cattle. Feeding byproduct feeds, candy, bread, screenings, etc. may also be more common, all of which have the potential to cause problems. Producers may also be tempted to feed moldy hay or feed, which can lead to toxicity problems.

With careful planning, plant toxicities can be avoided. If you have questions on toxic plants and how to identify/avoid them, please contact your local veterinarian or Extension agent. If you have further questions please feel free to contact me at, lstrick5@utk.edu, or 865-974-3538.