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**Prussic Acid Poisoning**

Summer annual forages can be a great tool in the tool box for graziers. Just this week I turned out a group of cows on a patch of mixed summer annual forages to give the brome pasture some rest. This is always a practice that comes with trepidation on my part, as there are a couple issues that can cause health issues and even death with our ruminants, notably nitrates and prussic acid. The most rapid and lethal issue at this time of year is prussic acid, so that will be the focus this week.

Prussic acid toxicity is often thought to be an issue in hot/dry summers, directly after killing frost or other times of plant stress. Stress leads to certain plants becoming toxic, including plants in the sorghum family. Prussic acid is highest in the leaves of young plants with the upper leaves containing the very highest amounts. Large amounts of nitrogen fertilizer, coupled with imbalances of nitrogen and phosphorus in the soil, can increase potential for prussic acid toxicity. When planting sorghums for grazing, check the toxic potential of the particular variety. Plants like Johnsongrass and Shattercane can have very high levels while Pearl Millet is relatively low.

Hydrocyanic acid, also known as cyanide or prussic acid, is the toxin causing issues. The toxin is created when the harmless hydrocyanic glycosides in plants are stressed and break down. Once the hydrocyanic glycosides in the plants are damaged, they quickly convert to prussic acid which can kill an animal within minutes of being consumed. When cattle chew and ingest the plants high in hydrocyanic glycoside, the prussic acid is released in the rumen and absorbed into the blood stream. The toxin prevents cells from taking up oxygen. Blood becomes saturated with oxygen which cannot be absorbed by the cells. The clinical signs are excitement, muscle tremors, increased respiration rate, excess salivation, staggering, convulsions, and collapse. Death in the animals is caused due to asphyxiation.

Treatment is possible and animals can make a full recovery, if caught and treated quickly by a veterinarian. If you have animals displaying clinical signs of prussic acid toxicity, immediately remove all the animals that appear normal to a new pasture and contact your veterinarian. The veterinarian can treat the sick animals to reverse the toxicity. While treatment is an early option, prevention is always the best approach. Management practices that can reduce or prevent prussic acid toxicity include:

- Select and plant varieties that are known to be lower in prussic acid production
- Fertilize according to accurate soil testing recommendations
- Graze mature plants to avoid actively growing plants or lush regrowth
- Turnout a few head to observe for issues, before grazing the entire herd
- Never turn hungry animals out on potential prussic acid plantings
- Hay or ensile problem plant species
- In the fall of the year, wait until plants have cured following a killing frost, typically one week

Testing for prussic acid is a possibility, but given the volatile nature of the toxin, it can be a challenge to get an accurate measure. Proper, representative sampling is extremely important as well. Getting a test is never a bad thing, but it can create a false sense of security if done improperly. Plants can be tested for prussic acid, but it can be challenging. If not done properly, producers may get a false sense of security. To learn more, visit with your local Extension Office or reference the K-State publication [“Prussic Acid Poisoning” MF3040](https://www.ksre.ksu.edu/pubs/foodfcs/prussic-acid-poisoning) found at the KSRE Bookstore.