

Week of October 3rd – 7th 2016

POST ROCK EXTENSION ANSWERS

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In production agriculture, there is always some sort of challenge to face such as, plant pests, animal diseases, volatile market prices or mother nature. Most producers are aware of the dangers that nitrate levels can impose in forages and the importance of testing. Another concern, that is not as well known, is the possibility of high levels of prussic acid in sorghum forages.

What is prussic acid?

Prussic acid is one of the most toxic and rapidly acting of any common poison. Prussic acid is also known as hydrocyanic acid or hydrogen cyanide (HCN). Cyogenic compounds can develop in stressed plants. In the rumen the compounds are converted to cyanide, which is absorbed directly into the bloodstream and binds to enzymes in the cell. This cyanide complex prevents blood hemoglobin from transferring oxygen to individual body cells, and the animal dies from asphyxiation.

What plants are capable of producing prussic acid?

Sorghums, sudan grass, sorghum-sudan grass crosses, and closely related species are most commonly associated with prussic acid poisoning. Most sorghum and sudan grasses contain a prussic acid precursor (dhurrin) in their epidermal cells. Dhurrin in itself is not toxic, but the plant contains an enzyme that under certain conditions (periods of stress), converts dhurrin to prussic acid.

Grain sorghum generally has higher concentrations of dhurrin than forage sorghums or sudan grass. Under normal growing conditions, the dhurrin concentration is usually low enough that animals can detoxify it before it causes toxicity. Problems occur in young plants, new regrowth, and following rapid regrowth after a period of stunted growth, such as rapid growth of drought-stressed plants following a rain, or regrowth following a frost or freeze. These conditions cause concern for high concentrations of dhurrin resulting in livestock poisoning. With the early harvest of grain sorghum this year, grazing residue while the plant is still green poses a high risk as well.

What can I do to prevent prussic acid poisoning?

- Do not graze these prussic acid accumulating places unless they are tested first.
- If plants have been damaged by herbicides or frost, defer grazing until they either are well recovered from injury or after a killing freeze. After a killing frost, wait at least 7-10 days or

until the frozen leaf tissue has completely dried out before grazing to allow the released HCN gas to dissipate.

-Do not graze plants in the sorghum family until they are 2 to 3 feet tall and be cautious of grazing regrowth.

-When turning livestock into new pastures containing prussic acid accumulating plants, don't turn in on cloudy days, or early in the morning.

-Feed grain or hay before releasing the animals to pasture.

On the bright side, prussic acid dissipates from plants properly cured for hay or after a killing frost. However, in hay baled early at high moisture or plants chopped for immediate feeding, the prussic acid may not have had a chance to dissipate. Under these conditions or grazing, the best assurance is to test your feed stuffs for prussic acid. The presence of high prussic acid levels is, for the most part, out of our hands, but it is something we can manage to prevent the loss of livestock. The cost of a prussic acid test is far cheaper than the replacement cost of a dead animal.

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