

News Column  
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## NITRATE AND PRUSSIC ACID POISONING

A coworker once accused me of wearing rose-colored glasses because I like to see the good in what others see as bad. I like to think that I am an optimist, expecting good things instead of bad things. Yet, here I am, ready to point out the dangers created by a recent rain.

Optimistic Greg is happy to have received an inch of rain a little over a week ago. He isn't so delusional as to believe it will rescue his soybean crop that needed rain in August, but it is still a step in the right direction. Surely our soybeans will be better next year....I'm optimistic anyway.

Then there is pessimistic Greg – who prefers to be called a realist instead of a pessimist – who is concerned about both nitrate poisoning and prussic acid poisoning because of the rain. How can that be? Could rain really lead to problems?

The concern about high nitrates following a rain might be the most confusing to some. Most think of high nitrates during a drought, and expect the problem to go away once it rains. However, that's not quite how it works.

Nitrates can accumulate in plants during a moderate drought, when the plant continues to take up normal amounts of nitrate, but doesn't grow at the normal rate, resulting in higher nitrate concentrations in a smaller plant. If the drought is more severe, high nitrate levels might not occur until after the drought has ended.

During a severe drought, there may not be enough soil moisture for plants to even absorb

nutrients through the roots. However, once it rains, look out! After a drought-ending rain plants can rapidly absorb higher levels of nitrates than normal, causing high nitrate concentrations in plants for about two weeks. Harvesting forages during that two week window after a drought-ending rain is a really bad idea.

Following two weeks (or more) of normal weather, nitrate concentrations may return to normal. Don't count on it though. It is best to test the forage to be sure it is safe.

Prussic acid poisoning is the other concern following a rain.

Prussic acid, also known as hydrogen cyanide, is most often found in new growth of sorghum type plants – grain sorghum, sudangrass, and sorghum-sudan crosses. While sorghums and sundans may have looked dead during the drought, they will regrow from the base of the plant now that it has rained.

Newly emerging shoots are the most dangerous, those plants just emerging in the spring, or suckers emerging from drought stressed or recently harvested plants in the fall. One bite is enough to kill a cow, so you don't want to take any chances.

Symptoms of prussic acid poisoning include increased pulse rate and respiration, excessive salivation, foaming at the mouth, difficulty breathing, staggering, convulsions, and collapse. Death follows these symptoms shortly, and is usually the first symptom noticed.

Prussic acid acts rapidly, often killing animals within minutes.

While prussic acid isn't a problem in corn, Johnsongrass and shattercane can both be a problem. Therefore, producers need know what other plants are out there before turning cows out on corn stalks.

A hard freeze in the fall does two things – it kills sorghum plants, and also ruptures plant cells and releases cyanide into the leaf tissue. After a killing freeze, wait at least five days or

until frozen leaf tissue has completely dried out before grazing to allow the released cyanide to dissipate. Sorghum plants will be more dangerous immediately after a freeze, then should be safe to graze a week later.

When in doubt,....don't turn the cows out.

If you have questions, you can reach me at the Riley County Extension Office at 785/537-6350. Or, you can send e-mail to [gmcclure@ksu.edu](mailto:gmcclure@ksu.edu).

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