

## Johnsongrass Problems

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### **Nitrates**

Drought stressed johnsongrass isn't a problem right now with as much rainfall as we've had, but we're never far from a drought when nitrate poisoning could become a problem for farmers in the coming weeks. Nitrates tend to build up in stressed plants, especially under conditions where there has been a history of excessive nitrogen fertilization, particularly chicken litter. While nitrates can accumulate in weeds and cool season grasses, such as fescue, johnsongrass is perhaps the most common grass species where we see problems with nitrate accumulation. Problems arise when rapid growth is followed by a shutdown in plant growth, such as during times of drought. For example, if a field gets heavy nitrogen fertilization and is then followed by weeks of drought...that next shot of run that kicks it off again will be when nitrates are rapidly accumulated. Nitrates also tend to be at greater concentrations in the lower portions of the plant, and unlike prussic acid poisoning, it can carry over into hay. Symptoms of nitrate poisoning include difficult and painful breathing, rapid breathing, muscle tremors, weakness, low tolerance to exercise, diarrhea, frequent urination, dark to chocolate colored blood and collapse. Milk production may also be reduced. Poisoning can cause death within half an hour to four hours after symptoms appear. At lower levels, it can also cause abortions, poor appetites, and slow growth. So, what can you do? Pay particular attention to fields that have johnsongrass. If it looks like plant growth was rapid and then just came to a standstill, be aware that nitrate accumulation could be a problem. There are no visible symptoms on the plant of nitrate accumulation. For years, farmers have suspected that the white powder that tends to build up on johnsongrass is a

symptom. This is the fungal disease, powdery mildew, which is harmless and not related to nitrate accumulation. That's not to say that the plant can't have powdery mildew and nitrate accumulation at the same time. Here are a few tips to avoid nitrate poisoning:

1. Follow recommendations for nitrogen fertilization, and be careful not to exceed 4 tons of poultry litter yearly per acre on cool season grasses. The risk will be minimized by spreading litter uniformly and limiting application to 2 tons per acre per application.
2. When a crop is grown under conditions that cause nitrate accumulation, delay harvest of the crop until conditions improve to permit nitrate content to drop to a safe level.
3. If high levels of nitrate have accumulated in plants, raise the cutter bar and leave more stem, the portion of the plant with the highest concentration of nitrate, in the field.
4. Have suspected forage tested before feeding to cattle.
5. Dilute toxic forage by mixing it with nontoxic forages and/or energy feeds such as molasses or corn. Use forage nitrate analysis to determine dilution rates. Energy feeds, such as shelled corn, when fed daily at a minimum of 2 pounds per head, will offset production losses as long as the average forage nitrate concentration does not exceed 1,500 ppm.
6. Feed a nutritionally balanced ration. Iodized salt and vitamin A or green feed supplementation lessens the toxicity of nitrates.
7. Adapt cattle slowly to elevated levels of nitrate. Don't give hungry animals a full feed. Never exceed maximum recommended levels of nitrate intake.
8. Feed suspect forage in small amounts several times a day rather than all at one feeding.

9. Be aware that forage re-growth and volunteer plants are highly suspect following nitrate fertilization and drought.
10. Observe animals closely for signs of toxicity, and call a veterinarian immediately if symptoms are observed.

If you suspect a problem, it'd be worth not losing a cow to have it checked. Nitrate forage testing is a \$5 service offered by our office. If you have questions or need it checked, feel free to give me a call at 870-425-2335.

### **Prussic Acid**

Nitrates aren't the only problem that can arise with drought stressed forages. As it gets drier and drier, oftentimes, johnsongrass is one of the few grasses remaining in the field with some forage capacity available. Fescue has long since dried up. Bermuda may still be kicking somewhat, but with prolonged drought and high heat, it too will slow down considerably. Therefore, many producers' fields are left with not much besides johnsongrass and few drought tolerant weeds, and that can be a recipe for problems. The previous article mentioned nitrates, but there is another potential problem. Prussic acid, also known as hydrocyanic acid, can build up in stressed johnsongrass, much like nitrates. It can be occur in all sorghum type grasses, as well as wilted wild cherry leaves. However, unlike nitrates, prussic acid will usually concentrate in the upper portions of the plant, whereas nitrates tend to accumulate in the lower portions. Also, unlike nitrates, prussic acid doesn't carry over much into hayed forages. The process of curing forages through haying decreases prussic acid levels. There are no reliable test for prussic acid in forages because the levels can change so rapidly after taking a sample.

The symptoms of prussic acid poisoning may be labored breathing, weakness, increased

heart rate, and twitching. The symptoms of nitrate poisoning may be very similar, and the cause of the symptoms may be confused between the two. Here's a list of a few things you can do to try to avoid problems with prussic acid.

- 1.) Do not allow animals to graze fields with succulent, young, short growth. Graze only after plants reach a height of 18 to 24 inches.
- 2.) Do not graze drought damaged plants in any form, regardless of height, within four days following a good rain. It is during this period of rapid growth that accumulation of prussic acid in the young tissue and of nitrates in the stems is most likely to occur.
- 3.) Do not graze wilted plants or plants with young regrowth.
- 4.) Do not rely on drought damaged material as the only source of feed. Keep either dry forage or green chop from other crops available at all times. Uneven growth as a result of drought can best be utilized as silage or hay.
- 5.) Do not use frost damaged sorghum as pasture or green chop during the first seven days after the first killing frost.
- 6.) Delay pasturing for at least seven days or until the frosted material is completely dried out and brown colored. Do not rely on frosted material as the only source of feed. Do not graze at night when frost is likely.
- 7.) Do not turn hungry cattle onto a pasture of sorghum, sorghum sudan hybrid or johnsongrass. Fill them up on hay or other forage first, and begin grazing in the late afternoon.
- 8.) An option for using potentially toxic forage is to harvest it as hay or silage. Prussic acid levels decline in stored forages. Well cured hay is safe to feed.