

With the colder season approaching the need to supplement this time of year, I wanted to remind producers about the need to test your feeds. Not only is it well to look at some of the nutrient values such as energy and protein, consider the nitrate levels in the feeds you may have put up. In mid August I sampled various feeds in Norton County that are commonly used to see what the nitrates would be running. These samples were either of the crop standing in the field or otherwise in the bunker or the windrow. Before I point out some things about this, perhaps a quick review of nitrates is needed first.

In sorghum or sudans and other related crops, nitrates can accumulate as a result of protein synthesis. Nitrates, consumed by the ruminant are converted quickly to nitrites and then these are converted to ammonia which helps to form proteins. Plants store nitrates in the lower stalk and lower leaves. Normally the nitrates are converted to plant proteins. However, when plant growth is interrupted as in a drought or freeze, the nitrates aren't metabolized properly and build up in the plant.

Nitrates decrease with age of the plants, and ensiling can reduce nitrates to half their original levels. Feeding high quality forage and grain can help reduce a nitrate overload in the animals consuming feeds high in nitrates.

Young fresh regrowth of forages under 18 inches tall, just after a freeze or drought should be suspect with high nitrates. Also heavily fertilized crops can have a potential. Haying these crops by itself cannot reduce nitrates. Once the crop is harvested the nitrate levels will remain stable in the forage and not decrease much, the exception is that silage fermentation can reduce nitrate levels. Laboratories may express nitrates in different ways so you must be aware of how it is reported. It may be reported strictly as nitrate or nitrate-nitrogen. Each value may be different from the other so you must be aware of how it is reported.

What level of nitrate is toxic? That depends upon the type and the size of animal, health and type of feed used. Usually levels of nitrate in the range of 3,000 - 6,000 ppm are moderately safe but you should feed with caution at a rate of 50% of the ration. Levels that range from 6,000-9,000 ppm can be potentially toxic to cattle but can be fed when diluted with other forages and grains - manage with

Views with Van

Keith VanSike,
Norton County
Extension Director

caution! If over 9,000 ppm the feed can be extremely dangerous to animals and often times will cause death.

One thing sticks out is that even though a crop may look in good condition, there may be quite a lot of variation in the field. Crops that grow well and then are hit by hot and dry weather can accumulate nitrates very easily. The average of all these samples was close to 6,000 ppm. Even with similar moisture contents, the nitrate varied quite a bit. You can never tell by just looking at the field. This year the nitrates seem quite unpredictable so I recommend a nitrate test to be sure.

If in question, have your feeds tested. You may still be able to utilize feeds by diluting the forages with grains or good quality hays. If you find your feed test to be somewhat high you can feed it with caution and proper management. The higher the nitrate level, the more dilution you will need and more caution in feeding.

If possible, mix high nitrate forage with grain (4-5 lbs.) or with grass or alfalfa hay (50:50) or up to 1/3 affected hay with 2/3 grass hay. After 2-4 weeks of feeding this hay or grain you probably can ease off some on the hay and grain as the animals should adjust to this high nitrate level. Work cattle onto high nitrate forage gradually by feeding smaller amounts.

Feed a balanced ration. The protein supplement should be of plant origin (i.e. soybean meal, alfalfa) as this will provide needed energy to utilize excess nitrates. Feed adequate Vitamin A and if drinking water has known high nitrate levels, this will compound the problem. When roughages are made into silage, fermentation normally reduces nitrate levels by 40 to 60 percent. Forages with extremely high nitrate levels at harvest may still be dangerous after ensiling and should be analyzed before feeding. If forages are harvested as hay, nitrate concentrations remain virtually unchanged over time. In the Extension Office we have an excellent brochure, ask for "Nitrate & Prussic Acid Toxicity in Forage".

Norton County Forage Survey - Aug. 2003
Corn — Central, 4-5' tall, 73%

mc, 1,816 Nitrate-N ppm, 7,800 Nitrate ppm

Corn Silage — West, Fresh cut at bunker, 76% mc, 1,316 Nitrate-N ppm, 5,600 Nitrate ppm

Forage Sorgham — West, 5-6' early boot stage, 78% mc, 459 Nitrate-N ppm, 1,973 Nitrate ppm

Sorghum Hybrid — West, 4-4 1/2' / Windrow, 62 % mc, 731 Nitrate-N ppm, 3,100 Nitrate ppm

Sorghum Hybrid — N. East, 3-4' tall, 74 % mc, 729 Nitrate-N ppm, 3,100 Nitrate ppm

Sudan Grass — S. East, 3-4' tall / very weedy, 72 % mc, 1,714 Nitrate-N ppm, 7,300 Nitrate ppm

Grain Sorghum — NW, Droughty / small heads, 62 % mc, 119 Nitrate-N ppm, 511 Nitrate ppm

Corn — NW, Very few, ears / upper 2/3 of plant, 64 % mc, 31, Nitrate-N ppm, 133 Nitrate ppm

Corn — NW, same field / lower 1/3 of plant, 70% mc, 651 Nitrate-N ppm, 2,800 Nitrate ppm

Sorghum Hybrid — SC, 2 1/2 - 3' droughty, 73 % mc, 1,480 Nitrate-N ppm, 6,300 Nitrate ppm

Sorghum Hybrid — SC, in windrow / droughty, 48% mc, 1,856 Nitrate-N ppm, 7,980 Nitrate ppm

Sorghum Hybrid — SC, 4-5' tall / looks good, 82% mc, 3,136 Nitrate-N ppm, 13,400 Nitrate ppm

Sorghum Hybrid — SC, in windrow / looks good, 75% mc, 3,580 Nitrate-N ppm, 15,394 Nitrate ppm

** Unless noted, these samples were cut standing in field. Analysis is 100% dm.

Nitrate in forage (dry matter basis)
ppm Nitrate — Effect on Animals
0-3,000 — Virtually safe
3,000-6,000 — Moderately safe in most situations; limit use for stressed animals to 50% of the total ration.

6,000-9,000 — Potentially toxic to cattle depending on the situation; should not be the only source to feed.

9,000-above — Dangerous to cattle and often will cause death.

Taken from MF1018 Nitrate and Prussic Acid Toxicity in Forage, KSU Publication



Raenee Patterson joined her fellow Daisy Scouts at the goody table after receiving their pins and making the Girl Scout Promise for the first time Monday night. Other members of the troop are Carmen Ball, Morgan Griffey, Shelby Mulford, Nickala O' Hare, Valery Rostek and Kristin Stewart. Lois Rostek and Donna Mulford are the troops leaders.

— Telegram photo by Veronica Monier

4-H club installs newest members

By TIMOTHY BECKER,
club reporter

The November meeting of the Busy Jayhawkers was held in the 4-H Building on Nov. 16.

The installation of new members was held. Katie Bohl, Kolton Harting, Wyatt Harting, Marisa Maddy, Isaac Schaefer and Shelby Schaefer are the new Jayhawkers for this year.

Anthony Wente gave a talk on his reading project. His goal was

to read a book for each pound he weighs.

Melinda Becker explained the difference between dry and wet measuring for Foods and Nutrition.

Shelby Schaefer shared jokes for an opening.

Anthony Wente and Alec Gilbenbach lead members in playing hoop games for recreation.

For an activity, the club made baby blankets for the hospital.

Club member Annette Becker was to go to the Youth Leadership Conference Nov. 21-23.

The Busy Jayhawkers will be celebrating the holiday season with the club's Christmas Party and Potluck on Sunday, Dec. 7, at the 4-H Building.

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