

**A LITTLE BIT COUNTRY
WARREN FROELICH
NDSU EXTENSION AGENT
WILLIAMS COUNTY**

Early Fall Soil Testing Suggested

It has been a practice to delay the collection of soil samples for nitrogen tests until mid to late September. The reason for waiting is the fear additional nitrogen will be made available through mineralization and not show in the test results. Dr. Dave Franzen, NDSU Soil Specialist, tells us soil nitrate levels change very little and sampling can take place immediately after harvest with no sampling date adjustment necessary.

Franzen sites several advantages for sampling right after small grain harvest. Probably the biggest advantage is growers are more likely to use the test results to direct a fall nitrogen application if the soil test results are in their hands soon enough to consider before fall fieldwork begins.

Franzen also indicates soil testing prior to fall tillage will result in more consistent 0-6 inch sample core which provides the best sample for testing phosphorus, potassium, percent of organic matter, and zinc. Additionally, regrowth of volunteer grain will not hide available nitrogen. Early sampling will show the nitrate that will be available for next year's crop.

Finally, sampling right after harvest will guarantee that fields will get tested and not missed due to weather problems which could happen late in the fall.

Hay Forage Crops Can Be Poisonous

In response to the much smaller hay crop this year, cattle growers were freed to plant such crops as oats, sudangrass, and millet for an emergency hay crop. Often times these crops do not perform as expected and can present some problems when used as a feed for cattle.

One concern is nitrate poisoning which in itself is not toxic. When consumed by ruminants the nitrates normally found in forages are converted by the digestion process to nitrite. The nitrite is absorbed into the red blood cells and combines with hemoglobin to form

methemoglobin which cannot transport oxygen as efficiently as hemoglobin. When this happens, the animal's heart rate and respiration increase, the blood and tissues of the animal take on a blue to chocolate brown tinge, muscle tremors can develop, staggering occurs and the animal eventually suffocates.

The majority of nitrate poisoning cases in North Dakota occur in drought-stressed oats, corn and barley. However, a number of other plants also can accumulate nitrate, including sudangrass, sorghum – sudan hybrids and pearl millet.

Feeds can be analyzed for nitrate content. The cost is very reasonable compared to the loss of sheep and animals. When feeds are high in nitrate content management practices can be used to reduce the total nitrate levels consumed.

Another threat to livestock is prussic acid which inhibits oxygen utilization and suffocation of the animal. This can occur in sorghums and sorghum hybrids including sudangrass. Young, rapidly growing plants generally have high levels of prussic acid until they reach 18 inches in height. Frequently prussic acid poisoning occurs after the crop is harvested in the fall followed by a rain which stimulates regrowth.

Prussic acid is a cyanide. Often the cyanide gas escapes when the plant is killed through the harvest process or a high frost. However, if the forage had extremely high concentration before cutting or if the hay was not properly cured, dangerous levels of prussic acid can remain. Again, a low-cost test for prussic acid is recommended.