Timely information for agriculture

AGVISE LABORATORIES

FALL 2012

SOUTHERN TRENDS

RICHARD JENNY
AGRONOMIST/CCA

Everyone got an early start this spring. Field conditions and weather allowed for this early season. Hopefully Mother Nature will provide additional precip for the crops to finish strong.

Prior to seeding, spring soil samples (0-24" or 0-48") in some areas were considerably higher in nitrate-N than expected. University and Industry Scientists speculated that the soil nitrate levels increased from fall levels due to the warm extended fall, warm winter and early spring. Spring rainfall was near normal, so there were little or no nitrogen losses from leaching or denitrification. Combined, these factors caused an above average rate of mineralization through the late fall and early spring.

I'm very excited about our lab expansion in Benson. Construction is going great and is on schedule to be fully operational by the fall sampling season. Our plan is to reduce the turn-around time on samples by 25-30%, which means we'll be able to keep up with the big increases in fall sampling that's occurred over the past few years.

Early summer (June) topsoil grid soil sampling has skyrocketed in southern Minnesota. There has been a steady increase in June sampling over the past 7-8 years, but this year more and more samplers are really getting the job done! This means that as soon as fields are harvested, these fields are ready for fertilizer applications. Early summer sampling provides excellent sampling conditions and excellent soil test results without all the hassles of lining up fields before the chisel plows/disks roll and the fall rush to get soil data back to the growers. This is a big win-win for all involved; growers, samplers, retailers and the lab.

24-inch Hydraulic Sampling System Now Includes HD Probe

AGVISE is offering special pricing on the first 25 soil sampling systems sold this fall. This special price is on our 24" electric/hydraulic soil sampling system. AGVISE will credit $200 of free laboratory analysis to your account with the purchase of one $2800.00 sampling system. This offer is good for the first 25 sampling units only sold this fall. This year our sampling system includes 2 stainless steel probe bodies and tips as in the past and also our HD (heavy duty) probe and tip. The HD probe is best for wet subsoils and frozen soils. You can view all of the components of this sampling system on our web site. Just go to www.agvise.com and click on "Products and Equipment" then "Hydraulic Sampling Equipment"

Last fall we sold all of the specially priced systems before September 15. If you need a new sampling system or just want to improve the equipment you are currently using, don't wait too long.

Benson Lab Expansion

In 2009 our AGVISE Benson laboratory expansion more than doubled our lab space and sample capacity. In 2012 we are again working on an expansion of an additional 5,000 sq ft to increase our capacity. This expansion will allow us to increase our daily capacity which is especially important during the fall rush season of October and November. We have added additional equipment for soil drying and grinding and are in the process of adding some more automation. In addition to the lab expansion, we have also added another chemist to our staff. Our expansion will be completed before the fall rush begins. If you are interested in visiting the lab, we are more than willing to give you a tour at your convenience.

INSIDE

Corn Stalk Nitrate Testing

Over the last few years, cornstalk nitrate testing has increased. This "end-of-season" test was developed to help evaluate a growers' nitrogen fertility management strategy. For example, if the test results are low, than the field may be under-fertilized. If the test is high then the field may have been over-fertilized and if the results were optimum, then the stalk nitrate test shows the optimum amount of nitrogen was applied. The interpretation of low, optimum and excessive can be affected by the growing season weather conditions. If drought conditions exist, then stalk nitrates can easily be high because nitrate will accumulate in the lower stalk of water stressed corn plants. If excessive rainfall occurs and soil nitrogen is lost (leaching or denitrification), then the corn stalk test may test low due to N losses during the season.

Some concerns have arisen about the effectiveness of the test when the sample is collected too late in the growing season, right at or after harvest. Nitrate can be leached out of the stalk after black layer by excessive rainfall. According to the recommendations from Iowa State University (PM 1584), the correct time for corn stalk sampling is between one and three weeks after black layer has formed on about 80 percent of the kernels on most ears. This fall, AGVISE will do a demonstration project to look into the time of sampling compared to black layer. We will also look at what happens to the nitrate level in corn stalk samples that are kept in storage for several days before being sent to the lab for testing. Below is some additional information on interpretation of stalk nitrate levels along with when and how to collect corn stalk samples.

Corn Stalk Nitrate Test Interpretation:

Low: (Less than 250 ppm) Likely that nitrogen was deficient and limited yield

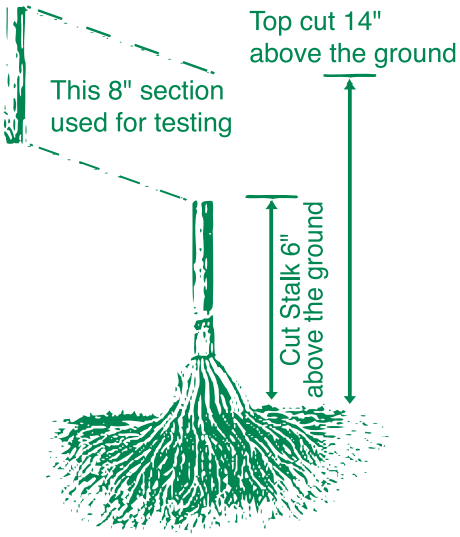
Marginal: (250 – 700 ppm) Possible that nitrogen deficiency limited yield

Optimal: (700 – 2000 ppm) Yield was not limited by nitrogen

Excess: (> 2000 ppm) Nitrogen supply was excessive

When To Sample The Corn Stalks:

Corn stalks can be collected from as early as 1 to 3 weeks after black layer stage through immediately after harvest. If sampling after harvest, it is very critical not to wait too long. Collect the sample as soon as possible after harvest, because nitrates can be leached out of the cornstalk by rainfall.



How to Collect Corn Stalk Samples:

Ten stalks are required per sample. Each corn stalk should be about 8 inches in length. From the ground level, measure 6 inches up from the ground and cut the stalk, then cut the bottom 8 inches off the stalk and send this portion to be tested for nitrates. Place the stalks into our paper sampling envelopes (do not use plastic or Ziploc bags or the samples will be ruined by mold) and send them to the lab.

AGVISOR Lite (Bye Bye AGVISOR Gold)

Because of your comments, suggestions and ideas, we continue to improve our online data systems. New improvements include being able to edit misspellings in grower and field info, make customized exports, choose color or grey scale printing, create defaults for sample depth, previous crop and crop choices, make customized nitrogen fertilizer guidelines, email reports to customers, download invoice data and associate multiple account numbers together in one login.

In regards to the Online Soil Sample Submission portion, over 60% of samples sent to our Benson laboratory were submitted online last fall and over 75% so far in 2012. Online submission is quicker, easier and more accurate for you than using the paper forms. With the Online system, you eliminate all the paper forms and use just the "online sticker form" to print bar-coded reference number stickers for grid, zone and composite soil samples. The "online sticker form" is also used for SCN soil samples.

We now have a computer program to help import your grower names and field information! This will save you a ton of time and get you started with online sample submission right away! To get assistance for importing your Grower names and Field information call Richard Jenny (Benson, MN lab: 320-843-4109) or John Lee (Northwood, ND lab: 701-587-6010).

You are going to love "Online Sample Submission!"

Corn Marches North

High corn prices are rapidly changing the landscape in the northern region. Where amber waves of grain used to cover the landscape, tall rows of corn are now a very common sight. Early maturing varieties with high yield potential, along with a high price make corn very attractive to northern farmers. The increase in corn acreage has been quite amazing (see figure). Having more corn in the rotation in the northern regions is changing the way farmers think.

Corn Acreage Increase Northern Region

State/Province	Corn Acreage 2012	Corn Acreage 2011	Percent increase
Manitoba	300,000	178,000	67%
North Dakota	3,400,000	2,000,000	52%
South Dakota	6,000,000	5,250,000	15%
Minnesota	8,700,000	8,100,000	7%
Iowa	14,100,000	14,000,000	0.7%

Corn is a high nutrient use crop, so the rates of nutrients that must be applied is much higher than they are used to in small grain production. This is especially true for P & K. Farmers have additional decisions to make on plant populations, maturity, insecticides, herbicides etc. Harvesting corn late in the fall and the need for grain drying, have most farmers building their own drying and storage facilities. Some of these facilities rival the local elevators! Crop residue can also be an issue when trying to include corn in a rotation.

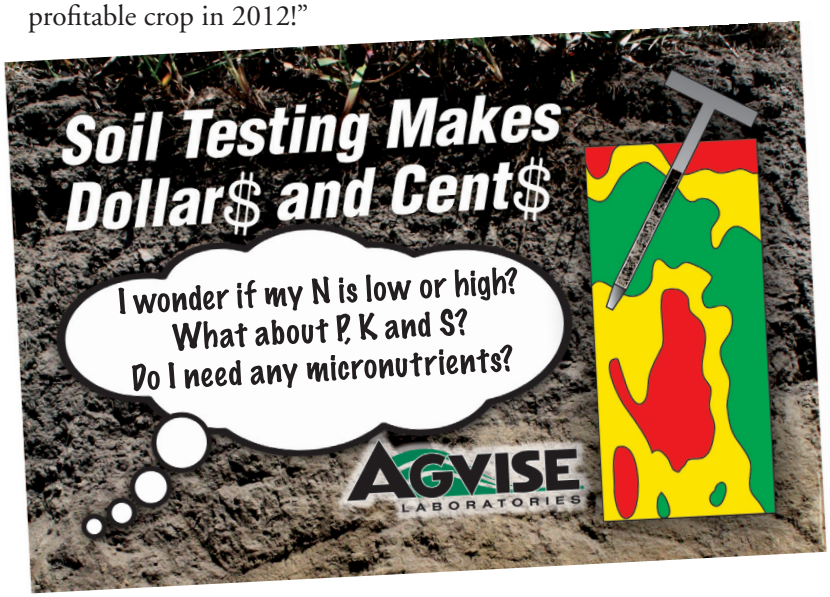
While corn production is new to many northern areas, it is a good fit for crop rotations and is a welcome crop for areas with many years of excessive rainfall. Corn can tolerate a fair amount of salinity and uses water well into the fall, which helps lower the water table. Once the water table is lower, salinity can be washed from the topsoil which will benefit all other crops in the rotation. With the dry season we are experiencing right now, it will be interesting to see how much corn yields are reduced compared to cool season grasses like wheat.

Postcards to Promote Soil Testing!

This is the 9th year that AGVISE has provided customers with free "Post Card Mailers" to send to their growers to promote soil testing. In 2011, AGVISE sent over 10,000 post cards to our customers. These post cards are used to direct grower's attention to soil testing, right after harvest begins. By using these post cards, customers tell us they are able to start testing earlier and they end up soil testing more fields for their growers.

AGVISE will customize the message on your post cards so you can tell the growers exactly what you want! Here is an example of what one customer had us print on his post cards last year:

"Give our Agronomy Staff a call today to sign up for soil testing (320-123-4567). Soil testing is the first step towards a profitable crop in 2012!"



Once you receive your post cards with the customized message, all you have to do is write the growers name and address on the post card, add a stamp and put them in the mail. These post cards also fit into most statement envelopes so you can include it with the statements if you want.

If you want us to personalize some post cards to send to your growers, please call Gail in our Northwood office. Let Gail know what you want printed on the post card and how many post cards you would want us to send. You can also request our colorful poster which promotes soil testing. If you have any questions on the post cards or the posters, please call John Lee or Richard Jenny.

Soil Sampling in Dry Soil Conditions

With much of the Corn Belt and the Great Plains suffering through a drought this summer, we are getting questions about soil testing dry soil this fall. We hope that Mother Nature cooperates and by harvest time the soil is moist again, but if it is still dry at sampling time, here are some things to consider.

Getting Quality Soil Samples (Get good equipment): Hydraulic sampling equipment is used in areas that do the 24" nitrate test. Dry soil conditions won't cause too many problems in those areas. With the hydraulic sampling unit installed in the truck cab, there is always enough force to push the probe into the ground. For customers in areas where only topsoil samples are taken, dry soil can be very hard to deal with. Having sharp tips on your sampling equipment will allow the probe to penetrate the soil easier and require less force. For very dry soil conditions, having a slightly larger tip with less of an angle will also help penetrate the surface easier.

Time of sampling: Most questions we get about time of sampling refer to soil nitrate testing to 24" following grain harvest. University research has shown that soil nitrate testing right after harvest of small grains gives reliable soil Nitrogen values (see sampling behind the combine article). The crop residue from small grain breaks down very slowly due to the high carbon to nitrogen ratio, so the soil nitrate level is affected very little. For crops with more nitrogen rich residue, like edible beans, canola, potatoes, it is better to sample later in the fall when the soil test would pick up any nitrogen contributed from the breakdown of crop residue.

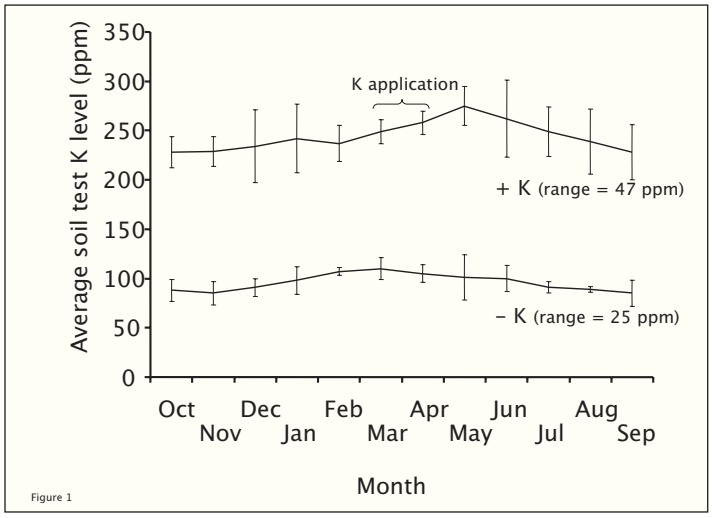


Figure 1. Seasonal variability in average K soil test levels in fertilized (+K) and unfertilized (-K) treatments. Fertilizer was applied in March or April. Monthly soil test levels are averaged over 38 month period starting in May 1980 and ending in July 1983. Error bars are +_ 1 standard deviation. Lockman, R.B. and M.G. Molloy. 1984 Seasonal variations in soil test results. Commun. Soil Sci. Plant Anal 15:541-757

What about moisture effects on Soil Test levels? Research has shown that phosphorus soil test levels are affected very little by changes in the soil moisture content. On the other hand research has shown that potassium soil test level do vary based on the moisture content of the soil at sampling time. Very dry soil conditions will result in lower K soil test values than historical averages (25 to 50 ppm). Very dry soils tend to trap K between the interlayers of certain clay minerals resulting in a lower than normal K soil test level. The type of clay can also effect on how much K is held in the interlayers of the clay. Under very dry fall conditions, most of the potassium taken up by a corn crop is still in the crop residue. Fall rains will normally wash potassium out of the corn residue and into the soil. The K from the corn residue can affect the soil test in the fall. This may be part of the reason potassium soil test levels are higher in the spring, along with a higher moisture soil content. Fig. 1 shows one example of research showing the seasonal trends in K soil test levels.

AGVISE Soil Fertility Seminars

January 8, 9, 10, 2013

We have had several requests from customers to let them know the dates of our Soil Fertility seminars next January. The dates and locations for our 2013 Soil Fertility Seminars are listed below: We are in the process of confirming speakers and topics for these meetings. If you have suggestions for topics or speakers you would like to hear, please email me at johntlee@polarcomm.com

Tuesday, January 8, 2013 – Prairies Edge Casino, Granite Falls, MN

Wednesday, January 9, 2013 – Watertown Events Center, Watertown, SD

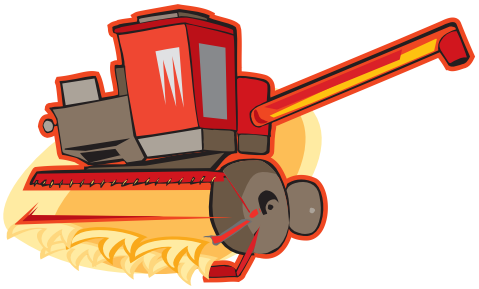
Thursday, January 10, 2013 – Alerus Center, Grand Forks, ND

Soil Testing Behind the Combine

DR. DAVE FRANZEN
NDSU Extension
Soil Specialist

It is more the rule than the exception that soil sampling begins in mid-September instead of immediately following small grain harvest. However many growers miss an excellent window for soil testing by waiting too long. The reason for waiting is the fear that additional nitrogen will be made available through mineralization (decomposition of crop residue and organic matter). A review of research has shown that following small grain harvest, soil nitrate level changes very little and no sampling date adjustment should be made. Soil sampling right after small grain harvest is recommended and has numerous advantages:

1. Growers are more likely to actually use the test results to direct fall N application if the soil test results are in their hands soon enough to consider before fall fieldwork begins.



2. Soil testing prior to fall tillage will result in a more consistent 0-6" sample core, which provides the best sample for testing phosphorus, potassium, %OM, zinc and other nutrients tested on the topsoil.
3. Regrowth of volunteer grain will not hide available nitrogen. Early sampling will show the nitrate that will be available for next years crop.
4. Sampling right after harvest guarantees that fields will get tested and not missed due to weather problems that could happen later in the fall.

Green Thumb Humor!

What do you call it when worms take over the world? Global Worming.

If only I could grow green stuff in my garden like I can in my refrigerator.

What do you get when you cross a canary and a lawn mower? Shredded tweet.

It has been so dry this week, the trees are whistling for the dogs.

"The philosopher who said that work well done never needs doing over never weeded a garden."

"Your first job is to prepare the soil. The best tool for this is your neighbor's motorized garden tiller. If your neighbor does not own a garden tiller, suggest that he buy one."

President's Corner *Continued from page 6*

say, no guts-no glory. I didn't make any money on what I knew was happening to the wheat crop.

My thoughts of the 2012 will go down as somewhat different for me than the 1961 and 1988 droughts. Our local area is somewhat dry at this time, but we are in better shape than states like Ohio and other hard hit areas. Our local wheat fields are turning right now, and look pretty good, but the yield may have been hurt by the early heat. Time will tell how the corn, beans and sugarbeets turn out.

My brother still farms the land in western ND where I grew up. His area has actually been too wet this year. The same barley field my dad disked down in 1961, drowned out this spring (again it was seeded to barley). The field was replanted to barley a second time and another 3 inch rain in early June resulted in a large part of the same field being under water again. This just shows how variable the rainfall can be, even under generally dry conditions in the region. I think what will stick with me regarding this year and the drought much of the country is experiencing is the national media attention this one is getting. A drought in the U.S. really gets the attention of the rest of the world!

AGVISE LABORATORIES
604 Highway 15 West
P.O. Box 510
Northwood, North Dakota 58267
701-587-6010 / FAX: 701-587-6013
Home Page: www.agvise.com

Please add indicia here!

PRESIDENT'S CORNER

BOB DEUTSCH
PRESIDENT
SOIL SCIENTIST/CCA

In North Dakota, where I have lived my whole life, three drought years stand out in my mind over the past 50 years or so. They are 1961, 1988, and 2012. Prior to my time, the last years in the 1930's were extremely dry as well. It appears a severe drought hits about every 25 years or so.

1961 was the first drought I lived through. I was old enough at that time to help on the farm and realize the hardships it caused on my family. I recall my dad disking down barley in June because the yield potential was zero. We had cattle and hay was hard to come by. My dad took a job hauling gravel during the construction of missile bases in the Minot area to make ends meet. I recall harvesting about 35 acres of rye and another 35 acres of oats in a remote quarter we farmed. Dad dumped the hopper load of rye in the front of the truck box and we placed a tarp over the rye and proceeded to dump the oats in back of the truck. Based on my calculations, the crop on those two fields ran about 2 bushels per acre. There was no crop insurance at the time and every bushel was needed.

In 1988 I was working at AGVISE and also scouting fields for local farmers during the summer months. I recall the wheat fields I was scouting had very poor growth and yield potential due to dry conditions, even prior to weed spaying. As I scouted those fields, I was thinking if I was smart, I would buy wheat futures based on the poor wheat crop I was seeing and what other crop consultants were reporting. Later on the markets took off like a rocket, but as they

Continued on page 5

NORTHERN NOTES

JOHN LEE
SOIL SCIENTIST/CCA

The 2012 crop year got off to a great start with early seeding and decent moisture conditions in most of the northern area. In early June some areas began suffering from dry conditions and by mid-July, drought was mentioned daily in the weather forecast.

As I am writing this article, the forecast calls for highs in the low 90's and little chance of rain for 7-10 days. I hope my favorite weatherman is wrong this time!

Small grain harvest has started, pushed by hot and dry conditions. Wheat yields have been reduced in many areas, while crop quality and protein has been reported to be pretty good.

Soil testing is already starting in areas following grain harvest. Sampling following small grain harvest and before any tillage provides the best quality sample for nutrient analysis. Soil nitrate levels do not change significantly after grain harvest. The low N content and high carbon content of wheat straw do not allow it to breakdown quickly and it will have little or no affect on the soil nitrate test through the fall. Soil testing crops with a higher N content in the residue (canola, edible beans, potatoes, etc.) should wait until later in the fall, so any contributions of N from the residue can be picked up in the soil nitrate test.

Online soil sample submission is becoming the norm for many customers. We can get you started this fall by importing your grower names and field information in only a few minutes. This will save you a lot of time! Call me or Richard Jenny and we will help you with importing your grower names and field information.

Please note the "Fall Special" we have on our 24" hydraulic sampling system. This year we have included the HD (heavy duty) probe and tip in our system. With two stainless steel tubes and tips and the HD probe and tip, most soil conditions should be covered. If you need any sampling equipment or supplies, please give us a call.

We hope you have a safe harvest season!