Timely information for agriculture

AGVISE LABORATORIES

FALL 2013

NORTHERN NOTES

JOHN LEE
SOIL SCIENTIST/CCA

What a crazy year up north. First the winter wouldn't end and then the rain kept coming. 4.4 million acres didn't get planted in ND alone. Most row crops got seeded a little late, so we need all the heat and some timely rain to finish the crop. Soil testing has already started on the unseeded acres. Many growers are considering winter wheat as one option for their prevented plant (PP) fields. Getting a soil test is an important first step towards getting a winter wheat crop established this fall.

While many areas may have dry surface soil conditions right now, the subsoil in many areas is still very wet. You will need the right soil sampling equipment to avoid the aggravation of plugged soil probes this fall (see article on – tubes and tips for wet subsoil conditions). We are running our fall special on our electric/hydraulic soil sampling system again so if you need to upgrade your equipment, now is the time to do it! Online sample submission with the addition of the FSA maps from Surety makes your soil test reports look very professional. If you want to know more about putting FSA maps on your online soil reports, please give me a call.

Please have a safe harvest season!

Online Soil Sample Submission

Many AGVISE customers are already submitting samples online or are taking a serious look at doing it for this fall. They have learned it is an easy and simple program to use and adding new "Growers" and their "Fields" to the system is a breeze. Another new feature for this year is the ability to add the FSA map to the soil report for online samples.

If you have another party doing your soil sampling, online sample submission is a great tool. With everything online, your contracted sampler just needs to login online to print the barcode reference stickers for the samples you want him to take. The online submission eliminates errors, plus if there is an error it can be edited online as well.

If you haven't started using the online system, you can call John Lee in the Northwood, ND lab (701-587-6010) or Richard Jenny in the Benson, MN lab (320-843-4109). We can show you how it works and help you start doing online sample submission.

Fall Special on 24" Hydraulic Sampling System

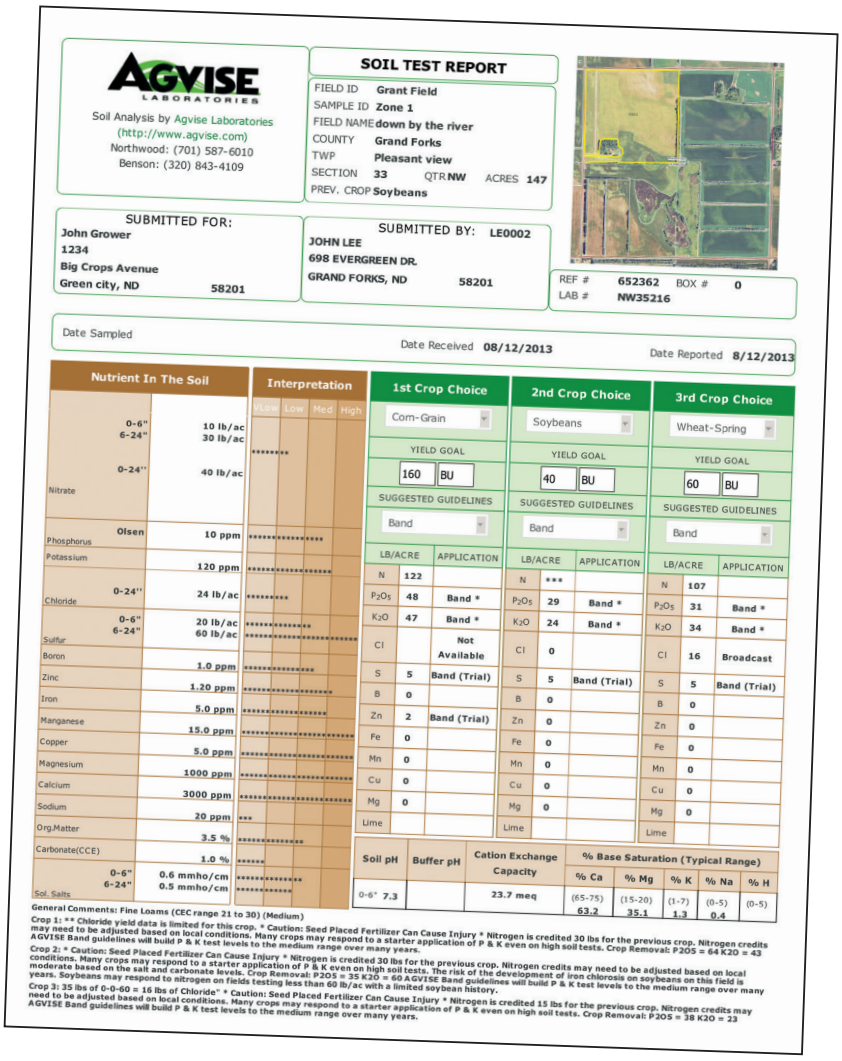
AGVISE is offering special pricing on the first 25 soil sampling systems sold this fall. This special price is on our 24" electric/hydraulic soil sampling system. AGVISE will credit $200 of free laboratory analysis to your account with the purchase of one $2,800.00 sampling system. This offer is good 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 "Sampling Equipment" then "Hydraulic Sampling Equipment"

For customers who need to sample much deeper for crops like sugarbeets, we now offer a telescoping cylinder. The telescoping cylinder is powered by an 8 hp Honda hydraulic pump system. Please call for details.

INSIDE

Agvisor – New Features in 2013

With your comments and suggestions, we've been able to incorporate some new and useful features to our online AGVISOR program. The most significant addition is the FSA map that can now be included on the soil report (see example report). Each field in your online database can be linked to the FSA map using the Surety mapping service. AGVISE has worked with Agridata, Inc. and their Surety mapping system for many years. If you have a subscription to Surety maps, you can now link the FSA map to each online field in your online database.



AGVISE LABORATORIES

Soil Analysis by Agvise Laboratories (http://www.agvise.com) Northwood: (701) 587-6010 Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID Grant Field
SAMPLE ID Zone 1
FIELD NAME down by the river
COUNTY Grand Forks
TWP Pleasant view
SECTION 33 QTR NW ACRES 147
PREV. CROP Soybeans

SUBMITTED FOR: John Grower, 1234 Big Crops Avenue, Green city, ND 58201

SUBMITTED BY: LE0002 JOHN LEE, 698 EVERGREEN DR., GRAND FORKS, ND 58201

REF # 652362 BOX # 0
LAB # NW35216

Date Sampled | Date Received 08/12/2013 | Date Reported 8/12/2013

Nutrient In The Soil		Interpretation	1st Crop Choice	2nd Crop Choice	3rd Crop Choice
		VLow Low Med High	Corn-Grain	Soybeans	Wheat-Spring
Nitrate 0-6" 6-24"	10 lb/ac 30 lb/ac	********	YIELD GOAL 160 BU	YIELD GOAL 40 BU	YIELD GOAL 60 BU
Nitrate 0-24"	40 lb/ac		SUGGESTED GUIDELINES Band	SUGGESTED GUIDELINES Band	SUGGESTED GUIDELINES Band
Phosphorus Olsen	10 ppm	**********	LB/ACRE APPLICATION	LB/ACRE APPLICATION	LB/ACRE APPLICATION
Potassium	120 ppm	**********	N 122	N ***	N 107
Chloride 0-24"	24 lb/ac	*********	P2O5 48 Band *	P2O5 29 Band *	P2O5 31 Band *
Sulfur 0-6" 6-24"	20 lb/ac 60 lb/ac	********** **********	K2O 47 Band *	K2O 24 Band *	K2O 34 Band *
Boron	1.0 ppm	**********	Cl Not Available	Cl 0	Cl 16 Broadcast
Zinc	1.20 ppm	**********	S 5 Band (Trial)	S 5 Band (Trial)	S 5 Band (Trial)
Iron	5.0 ppm	**********	B 0	B 0	B 0
Manganese	15.0 ppm	**********	Zn 2 Band (Trial)	Zn 0	Zn 0
Copper	5.0 ppm	**********	Fe 0	Fe 0	Fe 0
Magnesium	1000 ppm	**********	Mn 0	Mn 0	Mn 0
Calcium	3000 ppm	**********	Cu 0	Cu 0	Cu 0
Sodium	20 ppm	***	Mg 0	Mg 0	Mg 0
Org.Matter	3.5 %	**********	Lime	Lime	Lime
Carbonate(CCE)	1.0 %	******			
Sol. Salts 0-6" 6-24"	0.6 mmho/cm 0.9 mmho/cm	********** **********			

Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)				
			% Ca	% Mg	% K	% Na	% H
0-6" 7.3		23.7 meq	(65-75) 63.2	(15-20) 35.1	(1-7) 1.3	(0-5) 0.4	(0-5)

General Comments: Fine Loams (CEC range 21 to 30) (Medium)

Crop 1: ** Chloride yield data is limited for this crop. * Caution: Seed Placed Fertilizer Can Cause Injury * Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P2O5 = 64 K2O = 43 AGVISE Band guidelines will build P & K test levels to the medium range over many years.

Crop 2: * Caution: Seed Placed Fertilizer Can Cause Injury * Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. Many crops may respond to a starter application of P & K even on high soil tests. The risk of the development of iron chlorosis on soybeans on this field is moderate based on the salt and carbonate levels. Crop Removal: P2O5 = 35 K2O = 60 AGVISE Band guidelines will build P & K test levels to the medium range over many years. Soybeans may respond to nitrogen on fields testing less than 60 lb/ac with a limited soybean history.

Crop 3: 35 lbs of 0-0-60 = 16 lbs of Chloride" * Caution: Seed Placed Fertilizer Can Cause Injury * Nitrogen is credited 15 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. Many crops may respond to a starter application of P & K even on high soil tests. Crop Removal: P2O5 = 38 K2O = 23 AGVISE Band guidelines will build P & K test levels to the medium range over many years.

Soil Sample Order Form: Another new feature is the "Soil Sample Order Form." This is a report you can print after a sample has been submitted online. This report also has the FSA map on it along with all of the information about the field. Once you have linked each field with the FSA map, the "Soil Sample order form" will have the map on the report as well.

Instructions for Basic Functions: We now have instructions for the basic functions of AGVISOR. On the upper right hand of every screen is the "?" symbol. When you click on the "?", you will see instructions for most of the basic functions of the AGVISOR program.

Default Analysis option can be displayed: If you want to view your default analysis option, click on the "i" to the right and the tests you have in your default option will be shown.

AGVISE current fee schedule: Once you login to AGVISOR you can view the current fee schedule by clicking on "Billing" on the top task bar, and then click on "Pricing." The fee schedule is shown in a pdf format.

Online sample submission from a device in the field? We are also in the process of adding a smart phone app to do the Online submission for soil samples in the field. We hope to be testing this app this fall.

AGVISE Soil Fertility Seminar - January Dates Set

We have had several requests from customers to let them know as soon as we have solid dates for our Soil Fertility seminars next January. The dates and locations for our January 2014 Soil Fertility Seminars are listed below: We are in the process of confirming speakers and topics for these meetings. A registration letter will be sent to AGVISE customers in early November so they can sign up first. A week or so later we will also send an email to everyone on our mailing list about registration for these seminars. If you received this newsletter you are on our mailing list, but we may not have your current email. If you want to be sure to receive an email announcing our seminars, please call Teresa at our Northwood office (701-587-6010)

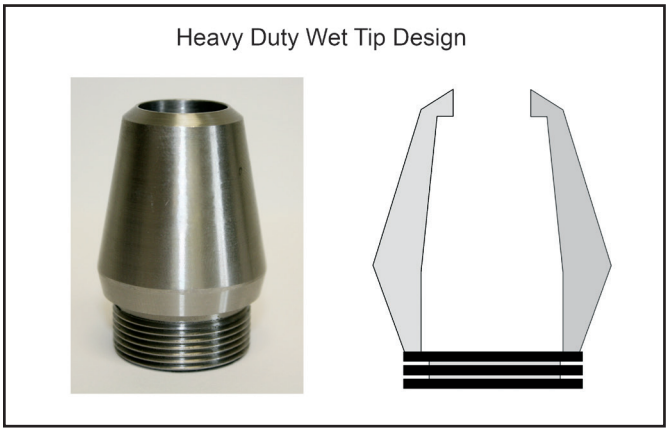
Tuesday, January 7, 2014 – Prairies Edge Casino, Granite Falls. MN

Wednesday, January 8, 2014 – Watertown Events Center, Watertown, SD

Thursday, January 9, 2014 – Alerus Center, Grand Forks, ND

HD Probe Works in All Conditions

We designed the HD probe and tip for wet and frozen conditions a few years ago. What we have learned from customers is that the HD probe and tip is the best probe and tip for all soil conditions. The HD body is made from chromoly steel and is a larger diameter than our regular stainless steel probes. Having a larger diameter allows us to make the tip in a way you can't do on smaller diameter probe bodies. The HD tip is sharp on the end, but has a lip of relief just inside (see figure). This relief allows wet soils to expand after they pass through the tip and not touch the probe wall and plug the probe.



We now include the HD tube and tip, along with our regular stainless steel probes and tips in our electric/hydraulic sampling systems. This ensures that our customers have every tool needed for collecting good quality soil cores. If you have any questions on the HD probe and tip please give us a call.

Sticky Wet Subsoils – Handy Way to Add WD-40

The northern region has millions of acres that did not get planted this year, with North Dakota alone having 4.4 million acres. Soil testing these acres will be a challenge this fall as most of these fields will still have wet sticky subsoils. WD-40 has been the probe lubricant of choice for 25 years and has been shown by research not to contaminate soil samples.

Spraying WD-40 onto the soil probe is a messy process when using a cab mounted hydraulic sampling system.

Through the years there have been several ingenious contraptions used to make it easy to lubricate the soil probe, but keep the mess to a minimum. I recently saw a simple device which is handy for holding the soil probe between stops in the field, while lubricating the probe and keeping the mess to a minimum (see picture). I saw this devise at a customer in Rolla ND a few weeks ago and will probably owe these guys a case of beer for sharing their idea.

This device is a simple 2" PVC pipe with a cap on the bottom and fitting on the top with a plug that screws in when not in use. The pipe is fastened so that the open end is facing the sampler and a probe can be placed into the pipe, which is filled about half full with WD-40. Having the pipe in this position allows you to reach the probe easily each time you take a probe and each time the probe is put back into the pipe, it is soaked in WD-40 and ready to be used again. With the open end of the pipe close to the hole in the floor, any drops of WD-40 coming off the end of the probe will go down the hole, so there is very little mess. This may not be exactly what you need in your sampling rig, but it may give you an idea on how to build one that is just right for you. How does the saying go "Necessity is the Mother of Invention?"

ND One Call Now Online

Locating utilities for soil sampling in ND has become a little easier. You can now set up an online account like a contractor to get utilities located before soil sampling. You can also use legal descriptions in the online request (i.e. Section 31, Pleasant Township, NE quarter). If you want help setting up a ND One Call account, please call Chris Chelgren at 1-877-848-7475. Chris is involved with the ITIC online program for ND for One Call.

Prevented Plant Acres? – Planning for 2014?

Having unseeded (Prevent Plant) acres is not a new experience in the northern plains. With 4.4 million acres of unseeded acres (PP) in ND alone, it is affecting almost 20% of the cropped acres in the state this year. Surrounding states also have some issues with unseeded acres, but much fewer acres. If you work in an area with a lot of unseeded acres, you are probably making plans right now to give those unseeded fields a better chance in 2014. Growers have been busy controlling weeds with herbicide and tillage and seeding cover crops. It is extremely important to get some type of plants growing on these fields to use as much water a possible before freeze up.

In western areas, there will be a lot of winter wheat seeded. Hopefully there will be enough good seed. This is a good plan because next spring there will already be a crop growing on these fields in case we have another wet spring. One key to winter wheat is making sure all green matter is gone for 10 days before the winter wheat emerges to avoid disease (break the green bridge). It is also critical to place a starter fertilizer which is high in phosphorus with the seed at planting! This will help the winter wheat establish a strong seedling and have a better chance to survive the winter.

In eastern areas, unseeded fields have had weeds controlled by herbicide or tillage or both. Making winter wheat work in eastern areas like the Red River Valley can be more difficult. Most fields will be black from tillage and have little plant residue on the surface compared to no-till areas out west. In eastern areas, the cover crop seeded in late July or August will provide some protection for winter wheat, but most of the seeding equipment disturbs the soil quite a bit during seeding. This tillage that occurs during seeding may destroy most of the residue from the cover crop and leave the winter wheat more susceptible to winter kill.

For growers who don't consider winter wheat an option, there are still practices that will increase the odds of good yields next year. Controlling weeds is important and seeding a cover crop as early as possible will remove several inches of water from the soil and increase the chances of these fields being planted on time next spring. Improving the surface drainage to remove as much surface water as possible will also increase the chances of planting on time next spring.

Soil testing unseeded acres is important to determine the nutrient level in the soil profile. Fields which have been tilled several times this summer may have a large amount of nitrogen in the soil profile while fields with heavy weed growth and little or no tillage may have a low level of nitrogen in the soil profile.

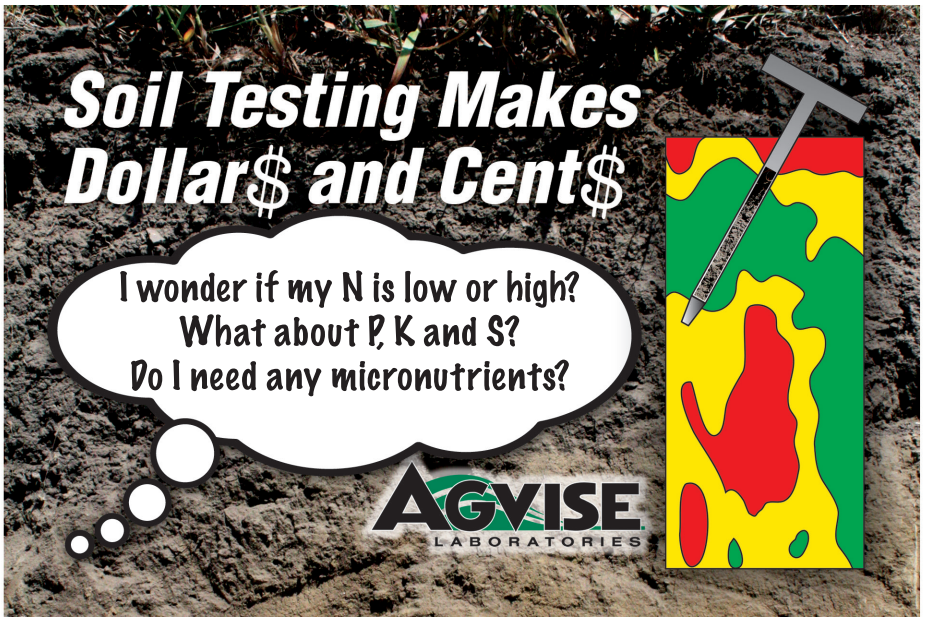
Postcards to Promote Soil Testing!

This is the 10th year that AGVISE has provided customers with free "Post Card Mailers" to send to their growers to promote soil testing. 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 2014!"

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. Please 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 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 nutrient 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.

Agronomy Trivia!

AGVISE staff worked on a Soybean N demonstration project this summer. This project involved applying various rates of nitrogen fertilizer to soybeans. Based on your general knowledge of soybean growth, which of the roots shown in the pictures represents the check where no N fertilizer was applied and which shows the 100 lb/a N as urea?

President's Corner *Continued from page 6*

With an increasing number of pH values testing less than 6.0 from many areas, I decided to take a look at what the pH trend has been over the long term. I looked at soil pH levels going back to 1988 using soil test data from our Benson, MN and Northwood, ND laboratories. In the figure you can see the trend in pH levels for the past 25 years. The trend line for both states shows the pH values have been decreasing. The trend line for Minnesota over a 25-year period is a drop in pH by 0.5 pH units. In North Dakota, the drop over this same time period is about 0.3 pH units.

As the topsoil pH levels are decreasing in many areas, we are seeing lime recommendations where lime has never been needed in the past. In northern areas and areas to the west, when the topsoils becomes acid, the subsoil usually still has a higher pH, which reduces or eliminates the need for lime. Since we have not historically tested the pH on subsoil samples in our laboratories, we did not have that information to use to make better lime recommendations.

With this in mind, AGVISE has been gearing up for the past six months to test the pH of all topsoil and all subsoil samples at both laboratories. On soils that have a low pH in both the topsoil and subsoil, a lime application may be warranted. If the topsoil has a low pH and the subsoil has a high pH, the lime recommendation may be reduced or eliminated. Testing both depths of soil for pH is unique in the soil testing industry. AGVISE takes pride in providing the best information we can to our customers. This is just another example of how we have strived for 37 years to provide the best service and support to our customers.

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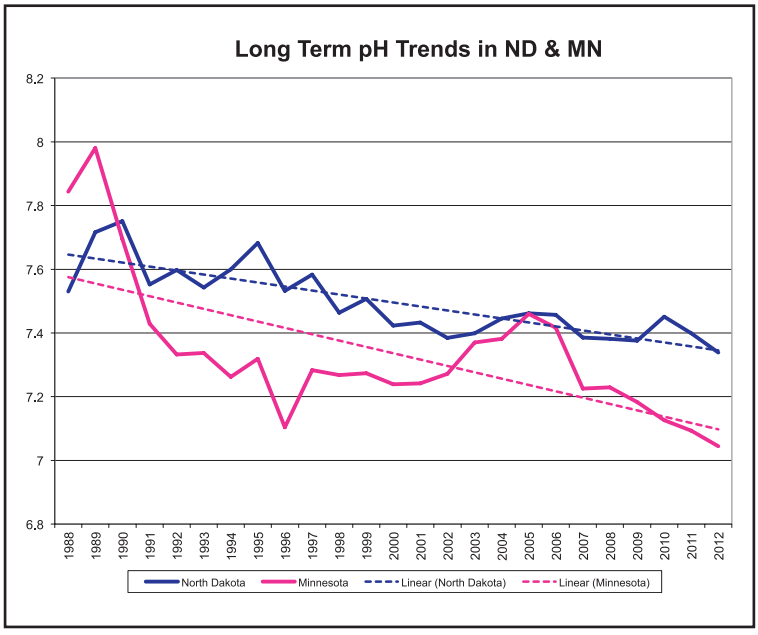
PRESIDENT'S CORNER

Lime Needs Expanding to New Areas?

BOB DEUTSCH
PRESIDENT
SOIL SCIENTIST/CCA

Every once in a while a soil sample comes through the laboratory that forces you to re-evaluate your thoughts on a subject. We received one of those samples a few weeks ago in our Northwood Lab. The soil sample came from a field in southwestern ND where the wheat was looking very poor. The soil was very acid with a pH of 4.5. With this very low pH, the soil also had very low levels of calcium and magnesium. In fact, the calcium and magnesium levels were lower than we have ever seen from a North Dakota soil. If this soil had come from areas to the south and east I would not have been so surprised, but from North Dakota?



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SOUTHERN TRENDS

RICHARD JENNY
AGRONOMIST/CCA

The 2013 crop growing season is certainly different than last year! Many questions on the yellow-striped corn early in the season were burning up the phone lines and emails this year. So, we did a year-to-year comparison of 2012 vs 2013 corn tissue data at our Benson lab. We compared the first 1,000 corn samples in 2012 to the first 1,000 samples in 2013, for 2 growth stages. Yellow corn is commonly caused by sulfur or nitrogen deficiency. If the new growth is yellow with some striping, sulfur deficiency is often the cause while yellowing of the mid rib of the lower leaves is often caused by a nitrogen deficiency. The data below shows that the 2013 corn tissue samples had a high percentage of samples testing low in both sulfur and nitrogen compared to 2012.

Percent of Tissue Samples Testing Low

Crop Stage	Sulfur 2012	Sulfur 2013	Nitrogen 2012	Nitrogen 2013
Corn less than 12"	26%	39%	8%	16%
Corn 12" to tassel	1 %	2%	3%	12%

With the high rainfall and cool temperatures early this season, the trend is not surprising. Cool soil temperatures this spring resulted in slower root growth and less mineralization of sulfur and nitrogen compared to a warm year like 2012. This year, as soon as the soils warmed up and root growth extended lower in the soil profile, the corn tapped into the sulfur and nitrogen which had been moved down by the excessive rainfall early in the season. The exception was the sandy well drained soils where the sulfur and nitrogen may have been leached beyond the reach of the roots. In this situation, additional sulfur and nitrogen applications were required.