Timely information for agriculture

AGVISE LABORATORIES

WINTER 2010

NORTHERN NOTES

JOHN LEE
SOIL SCIENTIST/CCA

This was a great fall for soil testing, once we got to October! I think there were 30 straight days of warm dry weather in October, which was great for harvest and for soil testing as well. While this was stressful for all of our employees, we know it was stressful for our customers as well. We appreciate your patience as we did everything we could to keep up in both our laboratories this fall. Our plan for next year is to increase our lab capacity by 25% in Northwood. This will allow us to provide the same fast turn- around you have received from AGVISE for the past 34 years.

The AGVISE Soil Fertility Seminar dates are set and the announcements have been mailed. This allows our customers the first opportunity to sign up for our January seminars (see article on seminars). We also emailed the seminar announcement, so if you did not receive an email on our seminars, call Teresa (701-587-6010) and give us your current email.

The meeting season is upon us and I hope to see everyone this winter in my travels. Thank you very much for all of the business you sent to AGVISE this year. We do our best to provide you with the best quality service and technical support in the industry. We appreciate your business and friendship very much and hope you and your family have a great holiday season.

AGVISE Soil Fertility Seminars January 4, 5, 6

AGVISE soil fertility seminars are set. The dates and locations for our 2011 Soil Fertility Seminars are listed below and a registration letter was sent to all AGVISE customers in early November. Please make sure you register early for these seminars if you plan on attending. Space is limited and there is usually a waiting list. An email was also sent to everyone on our mailing list in mid-November to let people know about these seminars. If you received this newsletter, you are on our mailing list, but you may not be on our email list. If you want to receive future emails on our seminars, newsletters and technical information, please call Teresa at our Northwood office and give her your current email (701-587-6010). To register for our Soil Fertility Seminars, call 701-587-6010 and ask for Shelly.

Seminar Locations	CEU Credits applied for
January 4, Willmar, MN	1.0 - SW, 4.5 NM
January 5, Watertown, SD	1.0 - SW, 4.5 NM
January 6, Grand Forks, ND	1.0 - SW, 4.5 NM
March 17, Carman, MB	To be determined

IN THIS ISSUE

Low Soil N—Lost Yield and Quality?

AGVISE Laboratories has been providing soil analysis information to agronomists and growers for 34 years (1976 – 2010). Because AGVISE tests hundreds of thousands of soil samples each year, we can give our customers some perspective on what is happening in our region. One trend that sticks out this year is the large percentage of samples testing less than 20 lb/a nitrate-nitrogen (0-24") following wheat and corn. Both corn and wheat require large amounts of nitrogen to produce good yield and good quality. As you can see in the figures, over 25% of the samples tested less than 20 lb/a following wheat and corn production in 2010.

University researchers have told us that if the soil nitrate level is less than 30 lb/a following corn or wheat, you have probably lost some yield due to insufficient nitrogen. In wheat you probably had lower protein as well. If the soil nitrate level is in the 10-20 lb/a range, you certainly suffered yield loss this year.

Managing nitrogen this past year was difficult. Many areas probably lost nitrogen to leaching and denitrification that occurred due to very wet conditions. What about N fertilizer rates for next year? For wheat, higher nitrogen rates will result in higher protein, once the crop has enough N to

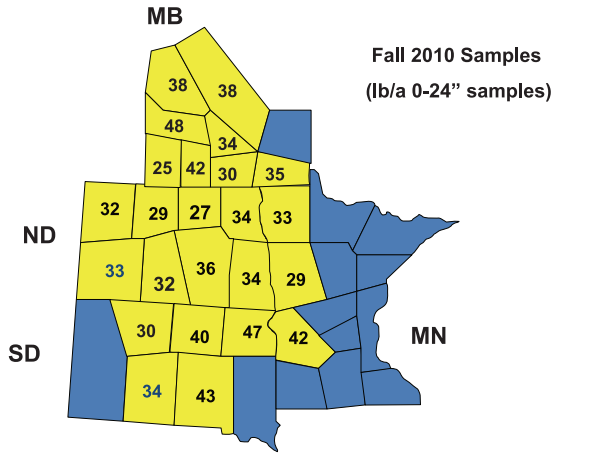
Continued on page 2

Low Soil N, cont...

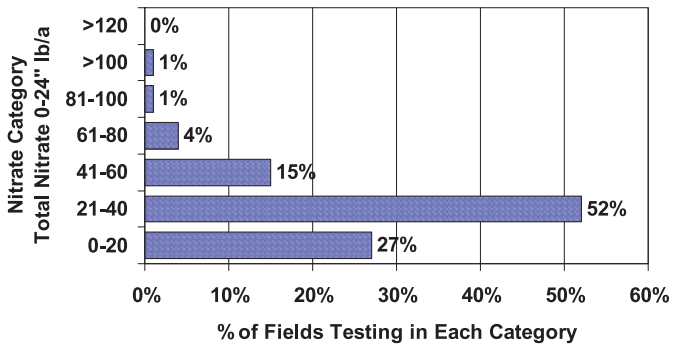
supply the yield component. Higher wheat yields (70, 80, 90 bu/a) have become normal the past 3 years, so if you want higher protein, you need to apply more N. If you intend to push the N rates in search of higher protein, you may need to consider a split application, which means equipment, labor and luck with the weather. You also need to consider varieties which have the genetics for higher protein and the straw strength to pull off high yields and high protein.

For corn, higher N fertilizer rates will be required to achieve higher yields. Losses to leaching and denitrification may be reduced with split applications, but this also depends on having the equipment, man power and good weather to get N applied early in the growing season. One way or another, higher yields will require more nitrogen fertilizer. It is up to us to figure out the most efficient way to provide the nitrogen to the crop.

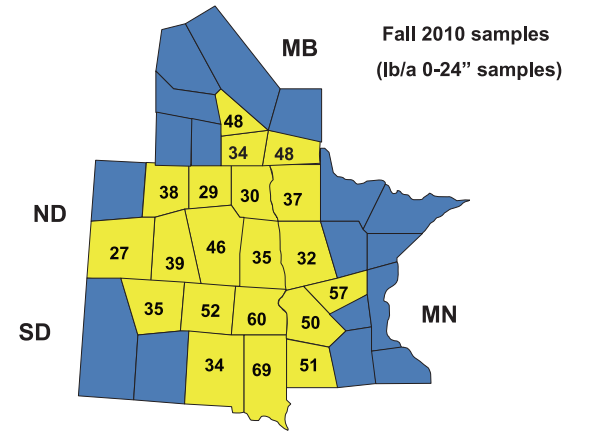
Average Soil Nitrate Following Wheat in 2010



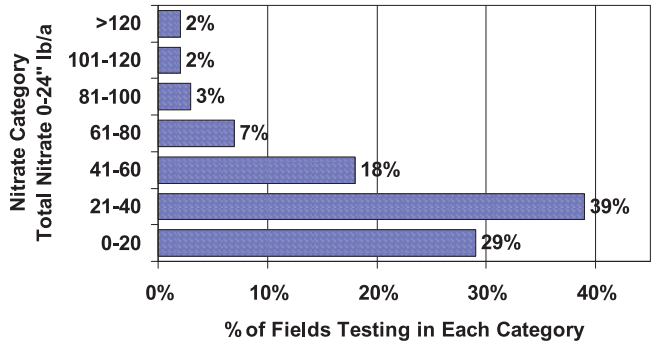
Soil Nitrate Variability Between Fields Following "WHEAT" in 2010



Average Soil Nitrate Following Corn in 2010



Soil Nitrate Variability Between Fields Following "Corn" in 2010



Precision Ag Becomes Main Stream?

Soil fertility research is all about the data. As a Soil Scientist, I like to see hard numbers when it comes to any new fertility practice farmers are adopting. I like to see replicated data over several years from University research, proving each new practice makes growers money. In addition, I like to see industry data from replicated strip trials to see these same practices prove their way onto each grower's farm. This is how precision ag practices have gained a foothold on many farms in the Midwest the past 15 years.

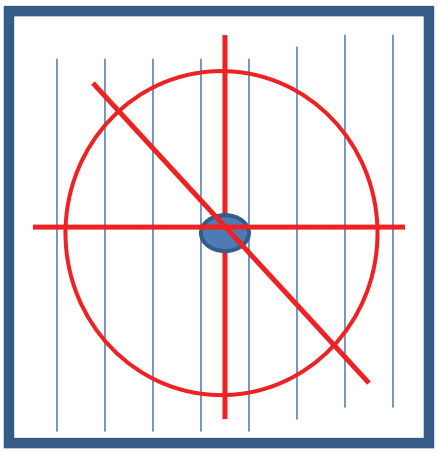
When you ask growers if their new precision practices are making them money, you get answers like "I feel my yields are higher and more consistent, which makes me more money." Other growers refer to experts they rely on "My crop consultant helps me adopt practices that will make me money right now." These growers are confident in the precision ag practices they are adopting. These practices are so common now, they are becoming main stream. Growers know there are many risks in farming and adopting proven practices is one way to reduce risk and improve their bottom line.

Grid Point Sampling Options

Does it make a difference how a 2.5-acre topsoil grid sample is collected? Currently, nearly all grid samplers will drive to the center point of a grid and collect soil cores in a 30-40 foot radius around the center point of the grid. 8 to 10 soil cores per sample are necessary to have enough soil for the laboratory analysis. Research has also shown more cores within a grid area, will give you more consistent and reliable soil test data.

This fall after soybean harvest, we did a grid sample demonstration project in 3 fields near Benson, MN. This project compared collecting soil cores around a grid point in four different ways. Each set of samples was oriented in relation to the soybean rows. One set of soil cores was parallel to the rows, one set was perpendicular to the rows, one set was diagonal to the rows, and one set of cores was collected as a circle around the grid point (see diagram). The project field had 14 grid points and were sampled with the Wintex 1000 automatic ATV sampling unit.

In this project we collected a topsoil sample and tested the samples for phosphorus (Olsen test), potassium, zinc, organic matter, pH and soluble salts. As the data in the table shows, there was no difference in soil test levels related to the orientation of the soil cores with the soybean rows. This is important, because many topsoil grid samples are collected in May and June in growing soybean fields. Soil samplers want to limit the damage to soybean plants when they are soil sampling. This project provides information on different ways to collect soil cores in relation to the soybean rows, get high quality soil test data and reduce damage to a growing soybean crop. It is important to know if there are any fertilizer bands present, so you can avoid them when sampling.



= Grid Center Point

Soil test averages for 14 grid sample collected in late Sept., 2010.

		Parallel	Perpendicular	Diagonal	Circle
P-Olsen	ppm	11	11	11	11
Potassium	ppm	171	177	178	169
Zinc	ppm	1.32	1.36	1.38	1.31
pH		7.5	7.5	7.5	7.5
Organic Matter	%	4.2	4.3	4.3	4.3
Soluble Salts	mmhos/cm	0.38	0.39	0.38	0.39

Sample Date Comparison

Customers often ask if soil test levels for P, K, Zn, pH and %OM change much during the growing season. We decided to set up a sampling demonstration project which would provide more information on this subject. We selected 2 fields for this project. One field was near Benson, MN and one near Brooten, MN with 21 sample points (Field 1 = 14 sample points and Field 2 = 7 sample points) The first set of samples were collected in late May, when the soybeans were emerged, and a second set of soil samples were collected from the same points after soybean harvest (top soil only). The samples were tested for phosphorus (Olsen and Bray-1), potassium, zinc, organic matter and pH. As the data below shows, there were minor differences between spring and fall test data when averaging all the samples together for each field. Next year we will expand this project and include more sampling points to gain more information.

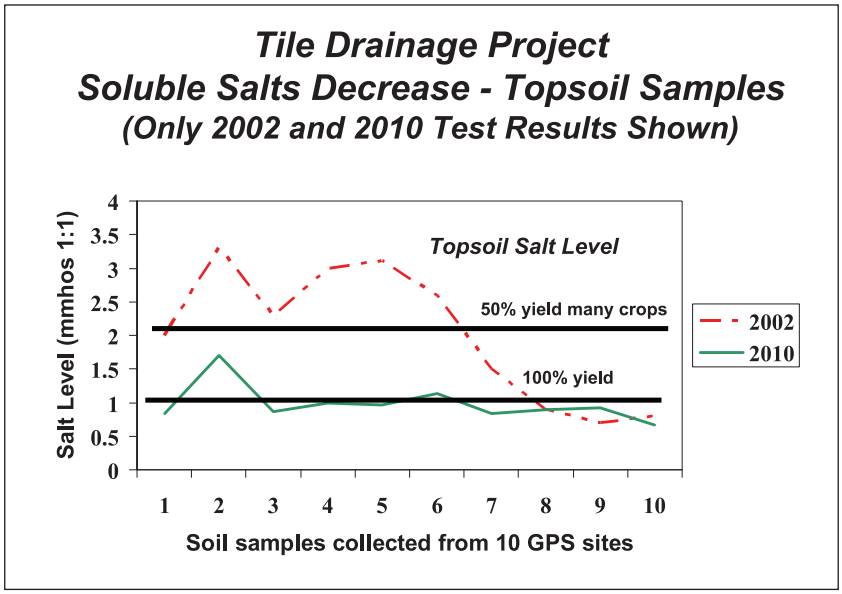
Soil test averages per field in 2010.

Field			Early Summer	Post Harvest
1	P-Olsen (5 pts)	ppm	10	13.6
2	P-Olsen (7 pts)	ppm	13	13
1	P-Bray 1 (9 pts)	ppm	29	29
1	Potassium	ppm	79	73
2	Potassium	ppm	116	130
1	Zinc	ppm	1.8	2.1
2	Zinc	ppm	1.3	1.3
1	pH		6.8	6.6
2	pH		6.9	7
1	Organic Matter	%	7.3	5.6
2	Organic Matter	%	2.3	2.4

Tile Drainage—9 Years Removes a Lot of Salt

The past 15 years have been historically wet in many areas of the northern plains. The result of this high rainfall period has been water tables moving closer to the soil surface. Having a water table too close to the soil surface will result in water being wicked to the surface. As the water is evaporated away, the salts accumulate on the soil surface. Many farmers will call these "White Alkali" areas in fields. The only known way to improve these salty soils is to lower the water table so salts cannot be wicked to the soil surface. Some ways to reduce salt accumulation at the soil surface include improving surface drainage, maximizing plant growth on the area and installing tile drainage.

In 2002, AGVISE established a demonstration project on a newly tile drained field. Our staff of Soil Scientists and Agronomists thought it would be interesting to see how long it would take for the salt level in a tile drained field to be reduced enough to improve crop yields. Ten points were located by GPS in the tiled field demonstration site. The soluble salt level has been tested each fall after harvest for the past 9 years. The salt levels shown in the table are for 2002, when the tile drainage was installed and for the fall of 2010. As you can see, the soluble salt level has greatly decreased in the sites that tested higher than 1.0 mmhos/cm (1:1 method). The result has been greatly increased crop yields. In particular, the soybean production on this field has improved. By lowering the soluble salt level in this field, the problem with iron chlorosis in soybeans is less of an issue. While tile drainage is not the answer in every situation, it is clear from this demonstration project, that tile drainage is a proven way to lower the soluble salt level in the soil and increase crop production over time.



Wintex 1000—Performance Exceeds Expectations

AGVISE Laboratories has been selling soil sampling equipment to support our customers for 34 years. Late this spring AGVISE started selling the "Wintex" automated topsoil soil sampling unit that mounts on an ATV(4-wheelers or utility vehicle). We decided to start selling the Wintex because it would help our customers get good quality soil samples faster and easier. We call the Wintex the "Ultimate" sampler because of its speed, labor saving qualities and consistent sampling depth. While sitting on the ATV, a topsoil core sample can be collected automatically and expelled into a collection box in 3 seconds with a push of a button. No more jumping off the ATV every time to collect a soil core!!! The Wintex 1000 (www.wintex1000.com) has been in production for 10 years and is manufactured in Denmark.

AGVISE sold many Wintex units this spring and summer and our customers have put them through some of the toughest sampling conditions (wet, dry and everything in between). We have more confidence than ever, that the Wintex will do a great job for our customers. Richard Jenny will have the Wintex 1000 sampling unit in our display at the Minnesota Crop Production Retailers 2010 Short Course, December 7-9. Please stop by the AGVISE booth, say hello and take a look at the Wintex 1000.

Some benefits of the Wintex 1000 include:

A) Much less sampler fatigue
B) Increased speed/productivity
C) Consistent sampling depth
D) Ease of use for all operators
E) Minimal maintenance
F) Probe does not need to be lubricated
G) Probe does not get plugged, even in wet/mucky clay
H) Excellent quality cores in all soil types, from sand to heavy clays and everything in-between
I) Sample depths can be changed easily from a minimum 4" to a maximum 12"
J) Very durable construction (built for commercial use)
K) Simple installation, fits on nearly all ATV/utility vehicles and can be removed in 10-15 minutes

John Lee Appointed to NAPT Oversight Committee

John Lee was appointed to the North American Proficiency Testing Program Committee at the 2010 Soil Science Society of America Annual meeting. The North American Proficiency Testing (NAPT) Program assists soil, plant and water testing laboratories in their performance through inter-laboratory sample exchanges and a statistical evaluation of the analytical data.

The program guidelines have been developed for the agricultural laboratory industry by groups involved with standardizing soil and plant analysis methods in the U.S. and Canada. NAPT is operated as an activity of the Soil Science Society of America and overseen by an oversight committee of representatives from Regional Soil and Plant Analysis Workshops; Scientific organizations; State/Provincial Departments of Agriculture; and private and public soil analysis laboratories.

AGVISE Laboratories have been part of the NAPT program since its inception. AGVISE Benson, MN and Northwood, ND laboratories participate in the soil, plant, and water programs provided by the NAPT Program. AGVISE Laboratories is a strong supporter of the NAPT and the ongoing objectives of the NAPT program:

JOHN LEE
SOIL SCIENTIST/CCA

NAPT Program Objectives:

- Provide an external quality assurance program for agricultural laboratories
- Develop a framework for long-term improvement of quality assurance for the agricultural laboratory industry
- Identify variability of specific methods

AGVISE Giant Pumpkin Winners 2010

AGVISE giant pumpkin contest had great results again this year. The warm weather and long growing season in most areas helped break 15 state records and even the world record. The winners for the 2010 AGVISE contest are listed below. Thanks to each of them for the work they put in and the great pictures they sent for our newsletter.

Adam Johnson
Centra Sota Coop Santiago, MN
1221 lbs 1st prize $100.00

Kyle Koschmeder
CHS Shelby, MT
782 lbs 2nd prize $75.00
(Montana State Record!)

George Bilinsky
Farmers Edge, Winnipeg, MB
480 lbs 3rd prize $50.00

Thanks to everyone who participated but did not get a giant this year. I know how much work it is to try and grow a giant pumpkin, but there are many things that can and do go wrong at times. Sometimes you just have to be lucky and this must have been my lucky year. With help from a few friends at work while I was on the road this summer, I was able to raise an 865 lb giant pumpkin (my personal best). Since this was my first real giant pumpkin, I wasn't sure what to do with it, so we carved it into a Halloween Jack – o Lantern. The kids got quite a kick out of this monster pumpkin at the local community center on Halloween. Lots of pictures of smiling kids sitting on top of this giant pumpkin make all the work worthwhile.

Now for next year, I think it would be great if an AGVISE customer broke the new world record which is now 1810 lbs. This record was set by Chris Stevens, from New Richmond WI. We might have to increase the prize money a little bit if a world record is set!

Adam Johnson, First Prize

Kyle Koschmeder, Second Prize

John Lee

George Bilinsky, Third Prize

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

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BOB DEUTSCH
PRESIDENT
SOIL SCIENTIST/CCA

In our July 2009 newsletter I mentioned a quote by legendary investor, Jim Rogers. The quote was "Farmers will be driving Lamborghinis and stock brokers will be driving tractors for farmers." This was one of his predictions. With good yields in many areas and a bullish grain market, Mr. Rogers may have it right! However, I am still waiting to see a farmer driving a Lamborghini (I don't think John Deere and CaseIH carry Lamborghinis in the right color). A Lamborghini would cost about $250,000 and a new combine will cost more than that (but be useful) so I am guessing farmers will buy new combines before a new sports car.

My serious topic for this newsletter is a short discussion on Near Infrared Analysis (NIR). This spring AGVISE purchased a NIR instrument. We are currently using this instrument to test hay samples for quality and grain samples for moisture, protein, oil, starch, etc. Many of the samples we test with the NIR instrument are research samples from University and industry projects. In the past, we had to test these types of samples with wet chemistry methods in the lab. Wet chemistry methods are more expensive due to the increased labor needed to test each sample. We will be expanding the types of NIR testing in the future, so keep AGVISE in mind if you have testing that we can help you with.

NIR analysis is rather boring compared to what Jim Rogers has to say. One of Roger's latest quotes (Nov 1, 2010) is the following *"If the world economy gets better, the price of commodities will go up because there are shortages developing. If the world economy doesn't get better, I still want to own commodities because they (the Federal Reserve) are going to print money."* If Roger's latest prediction is true, we should all be optimistic about the farm economy going into 2011 as well.

SOUTHERN TRENDS

RICHARD JENNY
AGRONOMIST/CCA

Who opened the floodgates? What a fall soil testing season! After a pretty good growing season, an early/fast harvest and tremendous weather, everyone and their brother were soil sampling for 4 weeks straight. We normally have a 1-2 day turn-around time for soil samples during the fall rush season, but it looks like we're going to have to increase our daily capacity even more next year. In 2009, we increased daily lab capacity 20-25%, but we'll have to increase that again for 2011.

This fall we also tested our new "Online Soil Sample Submission" system and it generally went well with a few minor glitches. We received many comments and suggestions from the cooperators and were able to implement many of their ideas and suggestions. We will be gradually incorporating this system for all our clients in the future. The online sample submission has some nice benefits for the users, including needing only one form for all types of soil samples and you control your grower and field database and their correct spellings.

In our last newsletter we mentioned that AGVISE now sells an automated ATV soil sampling unit for our topsoil sampling customers. This sampling unit is made in Denmark and is called the Wintex 1000. We sold many Wintex units this summer and all the users like how quick and easy it is for them to collect high quality soil samples. These customers have now used the Wintex unit on thousands of acres and are giving it glowing reviews. If you want to talk with one of the new Wintex owners, we will be happy to put you in touch with them so you can ask them the hard questions directly.

Finally, I hope to see you at our Soil Fertility Seminars coming up in January. We have many interesting topics and speakers on the program again this year.

Happy Holiday!