



## List of Contacts at A&L Great Lakes

### Agronomy:

Randall Warden,  
Jerry Hohla, Dan Kite,  
Gary Elliott  
& Myron Warner

### Billing & Accounting:

Sharon Topp  
& Shawn Tinnel

### Land Application:

Keith Henley

### Quality Assurance:

Greg Neyman

### GPS Mapping:

Dan Kite

### Telecommunications:

Randall Warden  
& Greg Neyman

### Soil Trak:

Randall Warden,  
Greg Neyman  
& Dan Kite

### Feed Testing:

Lois Parker  
& Randall Warden

### Water Analysis:

Keith Henley &  
Julie Speelman

### Pesticide Residues:

Keith Henley  
& Dan Kite

### Fertilizer Analysis:

Jo Ann Nichols

### Compost Analysis:

Lois Parker

### Area Agronomists:

Gary Elliott  
& Myron Warner

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# NEWS REPORT

A & L GREAT LAKES LABORATORIES, INC. SPRING 2004

## PSNT Result Trends

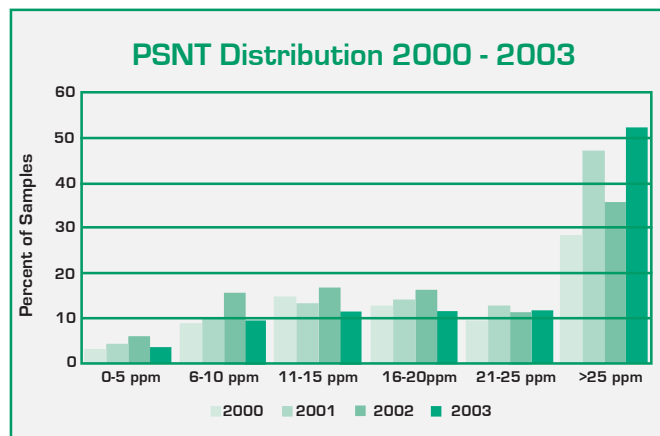
Testing for soil nitrate ( $\text{NO}_3\text{-N}$ ) shortly after planting is a reliable indicator of whether sufficient nitrogen (N) is available for a corn crop, or if additional N fertilizer will economically benefit the crop. We have seen increased use of the pre-sidedress nitrate test (PSNT) during the past few years, indicating that growers are finding a benefit to this crop monitoring tool.

Along with the increase in PSNT samples over the years, we found a significant trend in the results of these samples (see chart). Even considering differences in field history, management practices, and weather conditions, the majority of soil samples tested contain greater than 25 ppm ( $\text{NO}_3\text{-N}$ ). This is the level at which university guidelines indicate additional N fertilizer will not result in a positive economic gain when factoring in the cost of additional N with the increase in yield. This is a positive finding since greater profits can be realized by the grower and less excess N will be lost to the environment.

In 2002 the PSNT distribution was somewhat different than other years, with fewer samples testing over 25 ppm and a correspondingly greater percentage of samples in the lower testing categories. This was likely due to excessive rainfall that spring, leading to N loss through leaching or denitrification.

Client feedback also indicates that the PSNT is an invaluable tool for making critical decisions on where to apply N fertilizer for obtaining the greatest economic return. With N prices soaring, properly accounting for and utilizing all available N sources is even more important. Some states are offering cost sharing incentives to take advantage of this valuable tool. Contact your local FSA or NRCS office to see if these programs are available.

A **Fact Sheet** (#18) on sampling techniques and interpretation of PSNT results is available on our website.



## Manure Analysis & Interpretations Fact Sheet

A new **Fact Sheet** is available which contains information on manure sampling, analysis, and interpretations of laboratory results, including estimates of nutrient availability. It was compiled with current references and guidelines from several state and regional sources.

This **Fact Sheet** contains detailed information regarding crop nutrient removal, carbon to nitrogen ratios, nutrient availability, incorporation nitrogen loss factors, and sampling techniques for collecting manure samples. Worksheets are also available to aid in determining a crop's nutrient requirements, estimating manure nutrient availability, and deciding the best management practices to utilize manure nutrients.

Download a copy from our website or call and request Fact Sheet Number 31.



## AGRONOMIC REVIEW- Starter Fertilizer & Crop Injury Potential

Starter fertilizer can be an important part of a crop fertilization program, especially when managed properly. Nutrients placed in close proximity to the developing plant are readily available for uptake. Early plant development and crop uniformity is encouraged, which can lead to increased yield and/or lower harvest moisture. However, there are potential injury risks associated with starter fertilizer that must be managed.

Virtually all fertilizer materials are salts. When they dissolve in the soil they increase the salt concentration of the soil solution. An increase in salt concentration increases the osmotic potential of the soil solution. The higher the osmotic potential of a solution, the more difficult it is for seeds or plants to extract soil water they need for normal growth.

Renewed interest in placing fertilizer in or close to the seed row makes it important to remember that an increase in salt concentration in the fertilizer band can cause seed and seedling injury. Placing fertilizer at least two inches away from the seed can usually prevent injury. Excess fertilizer application in a starter band can still produce injury, especially under dry conditions.

The accompanying table shows starter fertilizer application method and rate guidelines from Purdue University. It should be recognized that these are for “typical” growing conditions.

### Fertilizer Placement & Rate Guidelines - Corn 2x2 Placement – banded 2” beside and 2” below the seed

- Sandy soils - maximum of 30 lbs N+K<sub>2</sub>O
- Heavier soils - maximum of 60 lbs N+K<sub>2</sub>O

### Seed-row – applied in furrow, directly on seed

- Sandy soils - maximum of 5 lbs N+K<sub>2</sub>O
- Heavier soils - maximum of 8 lbs N+K<sub>2</sub>O

Although university guidelines in the region don't directly mention sulfur (S), it is a salt and should be included (N+K<sub>2</sub>O+S) so that the amount applied does not exceed the limit shown in the table.

Care should be taken when applying fertilizers (urea, MAP, DAP) that produce free NH<sub>3</sub> in direct seed contact. Soybeans are especially sensitive, and seed row placement of fertilizer should only be done with extreme caution.

Starter fertilizer offers significant benefits if the placement and rate are properly managed. Contact us if you need more information on starter fertilizer use.

## Meet Mike Knight

Mike Knight began his career with A & L Great Lakes Laboratories in 1978 and recently celebrated his 25<sup>th</sup> Anniversary with the company.

A Fort Wayne native, Mike graduated from Indiana University with

a BA in Science. He started his A & L career in the feed laboratory, analyzing various materials for Total Kjeldahl Nitrogen. Mike enjoys learning new procedures in the laboratory, and has mastered most of the Agricultural Divisions' methods and instrumentation.

Mike and his wife, Susan, have two grown children, Mike Jr. and Jennifer, and two granddaughters, Miranda (9) and Veronica (3) that they enjoy spending time with.

When Mike gets some free time he enjoys reading and fly-fishing. He is also very interested in history and genealogy. Mike has traced his family tree back to 1620.



## Laboratory Data Privacy

Laboratory data and reports are becoming more important in the record keeping process of many of our clients. As nutrient management plans are written and submitted to agencies for approval, the privacy of test results becomes an issue. As an independent laboratory, it is important for us to assure our clients that their data remains their property, and that safeguards are in place to prevent copies of their reports from being released to individuals not entitled to it.

We are occasionally requested by a client to send copies of reports or data files to someone else. We are very happy to do this, but are aware of the importance of this data. Our primary responsibility regarding the confidentiality of our reports is to our client that is invoiced for the services provided. That report may represent samples that were taken for our client's patron, but the data is still the property of our client, not their customer.

We require that a data release form be signed by an authorized representative of our client before we will release data or reports to another party. These forms must be sent on an as-requested basis and cannot be used as a standing order. If data is to be routinely copied to another party, information regarding this can be set up in our client database. If changes in client personnel or addresses occur, we need to be notified so that data is not sent to an incorrect address. Please contact the lab regarding your account if you need to verify or change who is authorized to receive copies of your reports.

# Biosolids Offer Many Benefits

Maintaining crop production and sustaining the environment are constant challenges to modern agriculture. One way to improve soil quality and combat further deterioration is to replenish the soil nutrients that are needed for plant growth, and add organic matter to improve soil structure and moisture retention.

Biosolid recycling is a way to return both nutrients and organic matter to agricultural soils. Biosolids contain essential plant nutrients such as nitrogen, phosphorus and sulfur, as well as micronutrients such as zinc and copper. However, many options are available when considering the use of biosolids, blends or compost to fertilize crops and assist in soil replenishment.

Solids from primary and secondary wastewater treatment are the main constituents of most class B biosolid materials. Class B biosolid products are most commonly used in agricultural applications for crop fertility. Class A biosolids have more stringent guidelines since they are often used in landscaping and gardening. Treatment processes such as composting, heat treatment or thermophilic digestion help satisfy these standards.

Composting of biosolids is the most common process for producing a Class A product. Composting is simply a controlled process for breaking down organic material. When composting, biosolids are mixed with bulking agents such as sawdust, sand, wood chips, or yard debris. The microorganisms in the organic material raise the temperature of the compost to more than 140 degrees Fahrenheit. The heat in turn destroys pathogenic organisms. The end product has even lower metals levels than Class B biosolids, has virtually no remaining pathogens and is stable and safe for a variety of uses.

Other Class A products are produced by mixing biosolids with industrial by-products such as cement kiln dust, limekiln, fly ash, gypsum, or wood ash. These processes typically pasteurize biosolids by using alkaline mixtures to increase the pH, raise the temperature, increase solids and absorb odor. By using industrial mineral by-products, a new versatile product is manufactured by combining these by-products with municipal wastewater biosolids. Some products even offer the added benefit of high liming value (as measured by calcium carbonate equivalency, CCE) by adding high calcium fly ash or other carbonate containing materials.

Regardless of the choice, all biosolid products offer essential plant nutrients for plant growth. The benefits from using biosolids and biosolid products can help farmers, homeowners, and landscapers increase productivity from their crops and improve the overall physical properties of the soil. For more information on biosolids analysis and use, contact A & L Great Lakes today.



## New Instrumentation for Metals Analysis

Our Environmental Laboratory recently completed the installation of a new ICP-MS (Inductively Coupled Plasma Mass Spectrometer). The ICP-MS will offer many benefits when performing trace metal analyses.

Detection limits with ICP-MS determination are at least equal to, and often lower than, those attained using Graphite Furnace Atomic Absorption (GFAA). It also has detection limits capabilities that are superior to those obtained with ICP-OES (Inductively Coupled Plasma Optical Emission Spectrometry).

Data quality is improved, especially with unpredictable or widely varying environmental sample concentration levels. ICP-MS provides more advanced techniques to correct for matrix and inter-element interferences, resulting in more reliable data.

Lab sample throughput and productivity have



also been increased with the capabilities of ICP-MS. Sample preparation for metals analysis has been simplified for water, soil and biosolids samples. Total sample analysis time has been reduced because of the ability of ICP-MS to determine a wide array of elements simultaneously, rather than having to use multiple methods and instruments.

What do these improvements mean to our clients needing metals analysis? Quality data, low detection limits and timely sample results. Give us a call to see how we can improve your analytical data.

# SoilTrak® 4.0

## Soil Test Data Management moves into the next realm!

We are proud to introduce the newest generation of SoilTrak, Version 4.0. **SoilTrak 4.0** is computer software that streamlines the soil sampling and soil test data management process. It is a great efficiency tool for A & L customers.

*“To find out how to improve productivity, quality and performance — ask the people who do the work.” Harvard Business Review*

**SoilTrak 4.0** is a direct result of A & L Great Lakes listening and responding to our customers. Our goal with this latest release is to keep all of the functionality of Version 3 and improve it based on user feedback and requests. We feel the result is a more mature, robust and flexible product that doesn't deviate from the success of its predecessor.

Major new features of **SoilTrak 4.0** include:

- New data units capability – ppm and lb/acre units
- Network Capable - optional
- Expanded menu windows
- Processed lab data automatically moved to “processed” folder
- New reports and summaries
- Print reports and export data directly from the recommendation screen
- Expanded database structures

Additional features:

- Easy database entry of grower, farm, field and sample information
- Print soil sample bag labels and bar-coded submittal forms
- Direct import of soil test from A & L data files sent by e-mail
- Calculation of fertilizer recommendations (50+ crops)
- Export data to most other programs (GIS, spreadsheets, etc.)
- Optional plug-ins for Tri-State or University of Illinois fertilizer recommendations

**SoilTrak 4.0** is compatible with Windows 95/98/NT/2000/XP. A laser or ink-jet printer is required to print submittal forms, labels, and reports.

### Pricing:

- Standard Version – New User - \$40.00
- Upgrade Standard Version– Existing User - \$20.00
- Network Version – multiple users - \$200.00+
- Limited Version – print submittal forms and soil bag labels – Free

**SoilTrak 4.0** can be ordered by contacting the laboratory at (260) 483-4759.

[www.algreatlakes.com](http://www.algreatlakes.com)



**A & L GREAT LAKES  
LABORATORIES, INC.**

3505 Conestoga Drive  
Fort Wayne, Indiana 46808-4414

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