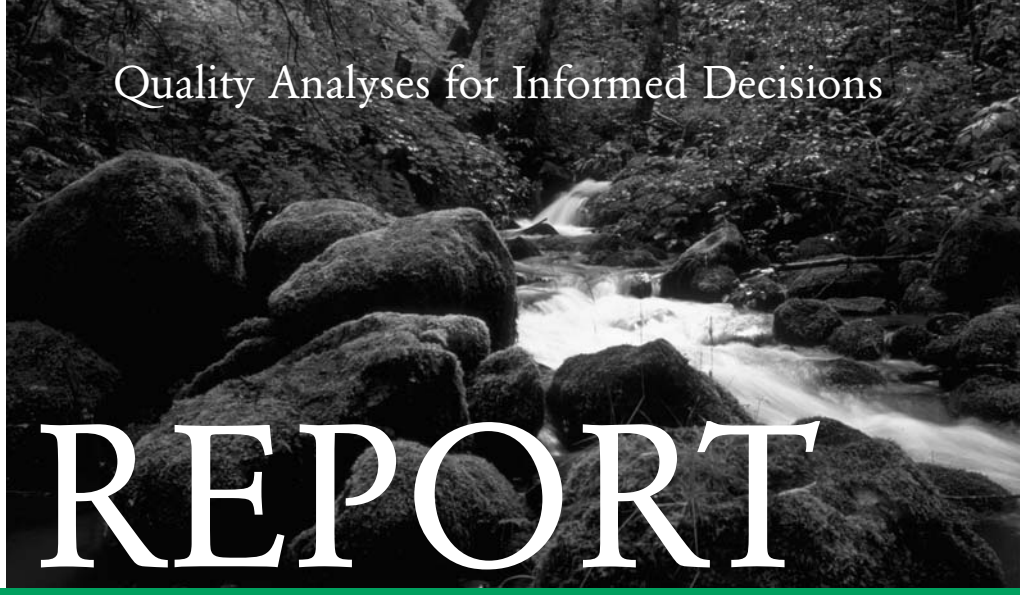


NEWS REPORT

A & L GREAT LAKES LABORATORIES, INC. FALL 2008

Strategically Planning Our Future

The A&L Great Lakes Laboratories management team has continued meeting with our business coach, Jerry Hogan, and we have developed a Strategic Plan to map our journey into the future. We have built on our Company Motto for the organization:

QUALITY ANALYSES FOR INFORMED DECISIONS

and developed a more comprehensive Mission Statement for the organization:

A&L Great Lakes Laboratories, Inc. will be acknowledged as the premier agricultural and environmental analytical laboratory in the Great Lakes region, providing quality data and personalized professional services in support of our customer partnerships, resulting in mutual profitable growth.

The management team also worked together to identify our strengths and prioritized areas for improvement. Our goal was to develop a strategic plan to guide us through the next fiscal year, and provide a foundation to continue the growth of the company:

MISSION STATEMENT FISCAL YEAR 2008/2009

- **A&L Great Lakes Laboratories is a profitable company providing industry leading quality analyses to the agricultural and environmental markets.**
- **We provide the most valued and recognized information and outreach programs in the industry.**
- **Our employees know that we recognize and reward their valuable contributions through leadership development, growth opportunities and benefit sharing.**
- **All decisions and actions are made with a view toward achieving short term goals as well as our long term vision.**

We look forward to working with you as we both strive to meet our goals.

eDocs - New Document and Data Management System

We are excited to announce a new on-line document and data management system (eDocs). The eDocs system enables users to easily access current as well as historical reports and data files. The only requirement is to have an account established with us and have internet access.

Each account will soon receive information providing step-by-step instructions on how to securely access and utilize eDocs. Once logged into eDocs, users can query data by date/year, grower, farm, field, sample type and report type. Analytical reports can be viewed, printed or downloaded/saved from the site.

Customers will also be able to set up eDocs sub-accounts to grant access to their data (perhaps on a temporary basis) to whomever they determine.

Users can opt to be notified when new documents are uploaded to eDocs via e-mail, an RSS (Really Simple Syndication) feed, or even a text message to a cell phone.

Look for your eDocs user information and instructions. If you have questions on how to access and use the eDocs web portal, please contact Greg Neyman or Randall Warden.

www.algreatlakes.com 3505 Conestoga Dr., Fort Wayne, IN 46808-4414 • 260-483-4759 • Fax 260-483-5274

Soil Sampling Supplies

Harvest is looking to be later than normal and the soil sampling season may be short. Order supplies now so that you will be ready as soon as crops are harvested. A & L soil sample bags, shipping boxes and mailing labels are in stock and ready to be shipped. Place an order by phone (260-483-4759), fax (260-483-5274) or on our website (www.algreatlakes.com).

As mentioned in our fall 2007 newsletter, we are developing a list of quality-based soil sampling providers to help fill the increasing demand for custom soil sampling.

Continued adoption of precision agriculture equipment and technology along with elevated fertilizer prices are forcing producers to realize that they need to be as efficient as possible in placing nutrients only in areas of limited nutrient avalibility. This is increasing demand for soil testing.

Some of our clients don't have enough time and/or manpower available for all of the fields that need to be sampled. Many are turning to soil sampling providers to help cover this work for them.

We are coordinating with several clients to match them with soil sampling providers in terms of proximity and level of service needed.

If you are looking for a firm to pull soil samples for you, contact us and we can direct one of our partnering soil sampling firms in your direction.

If you provide soil sampling services and feel that you would like to expand your workload, contact us and discuss what assistance we can provide.

Monitoring Fertilizers in the Supply Chain

Fertilizer raw materials, products and blends are receiving increased scrutiny as they pass through the supply chain, particularly due to major price increases over the past few years. Fertilizer nutrient analyses have always been monitored, but now even more closely. In addition, the "new" economic reality has increased the emphasis on process efficiency during production of blended materials. Better process control reduces waste and lost income while still delivering an on-spec product to the purchaser.

Our fertilizer analyses are performed using standard, industry-recognized methods. We offer a wide range of analysis services to help monitor fertilizer materials:

Nutrients

- **Elemental composition**
- **Availability**
- **Solubility**
- **Physical characteristics**
- **"Heavy" metals – Washington State and others**
- **Byproduct analysis / suitability**

Pesticides

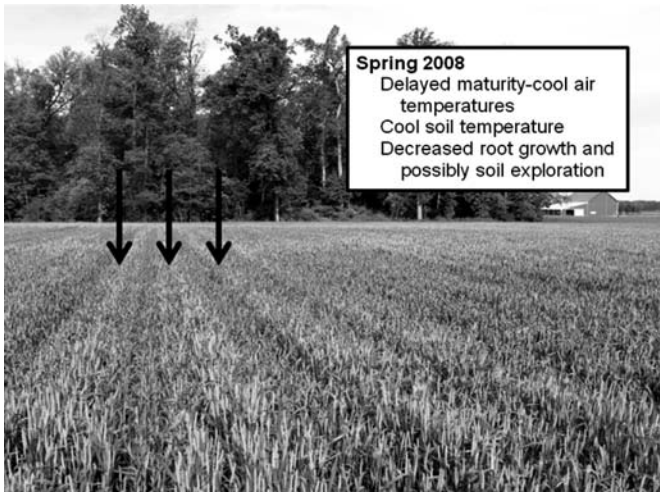
- **Manufacturing quality control**
- **Method development**
- **Storage stability studies**

Our experienced, knowledgeable fertilizer chemists are ready to help clients with their questions and challenges. Let us provide the service and information needed to help your business be profitable.

Winter Wheat Fertility Management

Higher commodity prices substantially increased wheat acres sown last fall, and while the price per bushel has decreased throughout the last few months, interest in wheat still remains strong. As with any crop, getting the most return from each input requires good management, but with today's nutrient input prices, improved efficiency needs to be a goal for each production acre.

In the past, nitrogen (N) has been the main management focus of wheat fertility programs, and will continue due to N's dynamic nature in the soil and because it is still the most expensive nutrient input. N is often the most limiting nutrient. Under-application, misapplication (incomplete coverage of areas), and improper timing can be limiting factors of wheat nitrogen management. While N supply in the fall, and more importantly in the spring, influences tiller numbers and ultimately harvested heads per area, management of fall N supply is more important than sometimes thought. Fall growth of wheat is limited in most years, so the requirement of N by the emerging plant is also quite small (fall uptake by wheat may only amount to 10-15 lbs. N/acre). The Tri-State Fertilizer Guide for Indiana, Michigan, and Ohio (Purdue Extension Publication AY-9-32) recommends a fall N application of 15-30 lbs. N/acre for mineral soils of 1-5% organic matter.



figure#1

Over-application of N in the fall can have a detrimental impact on wheat yield. Excessive N rates in the fall (>30 lbs. N/acre) promote extensive vegetative growth at the expense of healthier root development and may delay preparation of winter dormancy, ultimately leading to winter-kill. Rapidly developing shoots grown under large soil N supply do not lignify as completely in the fall, and are more susceptible to disease infection which may result in plant death. Reduced root growth in the fall also negatively impacts wheat grain production. Increased heaving with freeze/thaw cycles that occur during late winter and early spring may be more characteristic with improper or retarded root development. Decreased root mass also leads to reduced soil exploration which may limit nutrient uptake through the remainder of vegetative growth and kernel production. Although soil N supply in the fall is important for early wheat development, supplying too much N or all the N required at or prior to sowing may not be the most efficient utilization of your N input dollar.

Although N is most often the limiting nutrient in wheat production, potassium (K) fertility also can influence production dramatically. Potassium is many times forgotten in management plans of grass plants (corn, wheat, etc.) as compared to legumes (alfalfa, soybeans, etc.), but proper K nutrition can positively influence wheat performance through increased grain production, improved plant health (disease suppression), and greater structural rigidity (stalk strength, less lodging). Improved winter hardiness is commonly associated with K nutrition due to hastening of development throughout the fall. An increased development rate will aid preparation for winter dormancy by increasing stored reserves in the lower stems of winter wheat. Increased stored reserves will not only help with winter survival, but also improve the spring regrowth rate. Increasing the wheat development rate may not be important in some production systems, but having adequate K fertility will aid winter survival especially in delayed planting situations.

The Tri-State Fertility Guide states the K critical level is dependent on cation exchange capacity or CEC (K critical level (in parts per million, ppm) = 75 + (2.5 x CEC)). The critical level only defines the soil K concentration where plant growth would not be limited by K, but removal rates should also be addressed (refer to the Tri-State Fertilizer Guide for actual K recommendations). In situations where soil K levels do not meet the critical level and/or will not be amended to the critical level before wheat is sown, placement of K with the seed at planting may increase K fertilizer efficiency. Potassium movement is limited in the soil, so placement of K fertilizer in close proximity to the newly developing plant will improve K uptake as compared to a broadcast application. Potassium nutrition will, in most wheat production systems, be addressed before sowing. A recently taken soil test will indicate soil K concentrations, and guide K fertility recommendations, but management of K application will be producer specific.

Finally, phosphorus (P) fertilization also has a strong positive correlation with increased wheat yields. Phosphorus is commonly associated with increased root mass, improved winter hardiness, and increased tillering, but P nutrition requires proactive management to maximize efficiency. Because spring fertilizer applications most often only address N requirements for wheat, P fertilization needs to be addressed prior to or at planting. Much like K, P mobility in the soil is very limited, so placement of P fertilizer with the seed is often recommended. Phosphorus applications need to be distributed evenly across the field while supplying the required amount to consistently reach aggressive yield goals.

In Figure 1 (taken June 25, 2008), strips of more developed wheat can be observed (also marked by the arrows added to the picture). The strips are 30 inches apart, indicating an interaction with the corn planted from two growing seasons previous. Upon further investigation (soil tests taken on the row and between the row, as well as tissue tests taken in respective areas), P soil concentrations on the row averaged 36 ppm, and between the row, P soil test

Winter Wheat Fertility Management (Con't)

levels averaged 24 ppm. At sowing, the wheat received approximately 40 units of P2O5 placed in the seed furrow, but approximately 70 units of P2O5 were placed with the corn planter in the 2006 growing season (2 inches by 2 inches in placement). Although the 24 ppm P does not seem limiting (the Tri-State Fertilizer Guide indicates the P critical level for wheat as 25 ppm), this spring's growing conditions intensified the response of wheat to P fertilization/placement. Cool air and soil temperatures as well as increased soil moisture this past spring limited growth and soil exploration of the developing root mass. Decreased root growth combined with the limited mobility of P in the soil, promoted the P "sufficient" and P "limited" strips in this wheat. While this effect will not occur each and every year, in seasons where environmental stress influences not only nutrient availability but also plant exploration, even distribution of fertilizer at the required level is extremely critical.

What was the final impact on yield? Upon examination, no differences were observed between the number of heads harvested per square foot or the average length (spikelet number) of individual heads found on the row as compared to wheat growing between the rows. The difference in yield was from seed weight. The wheat on the row had increased kernel size and weight per kernel resulting from a larger flag leaf that emerged earlier (approximately 5 days). Given that the flag leaf is responsible for approximately 50-60% of final grain yield for wheat, in a season where the grain filling period was shortened, hastened development (extended grain filling period with earlier emerging flag leaf) due to improved P availability to the plant lead to increased yield in the wheat grown on the two-year old corn rows.

Warden Serves as Chairperson

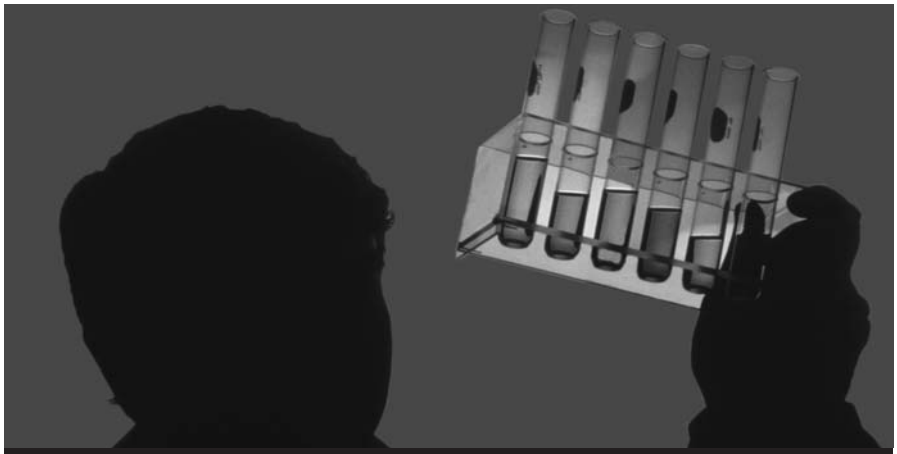
Randall Warden, Director of Client Services, is currently serving as the 2008 Chairperson of Division S-8 of the Soil Science Society of America (SSSA). This division focuses on Nutrient Management and Soil and Plant Analysis issues, which are central to our agricultural testing business areas.

Through the year he has been active organizing Division S-8 symposia and other presentations which will be presented October 6-9 at the SSSA annual meetings in Houston, Texas, along with facilitating communications within the Division.

This year's meeting includes the American Society of Agronomy and the Crop Science Society of America, which traditionally conduct their annual meetings in coordination with SSSA because of many common interests. In addition the Geological Society of America and Gulf Coast Association of Geological Societies are also joining with the Tri-Societies this year, which will result in a conference with over 10,000 attendees.

These meetings provide an excellent opportunity to learn about academic research activity over a wide range of areas related to our business, and to exchange information with fellow attendees. We feel it is important to be involved with the academic community to be aware of their research so that we can pass along pertinent information.

This review of wheat N, P, and K fertility underscores the importance of proper fertilizer application rate and timing, showing the potential influence on crop development and yield. Selecting an appropriate nitrogen rate and application timing is critical. P and K fertilizer applications should be based on current soil tests, and especially don't forget K. A good macro-nutrient fertility program will provide the solid foundation needed to maximize returns on the 2009 wheat crop.



Fall Applied Ammonia Basics

What should you consider when fall applying anhydrous ammonia (NH3)? Or better put, why would you want to fall apply NH3?

The primary question before making a fall NH3 application is: "Am I doing this for economic or agronomic reasons?

1. **If your answer is for economic reasons, what are they?**
   a. **Is it because it alleviates the time and labor crunch during the spring planting season?**
   b. **Do you think the price and supply will be in your favor this fall?**

2. **If your answer is for agronomic reasons, what are they and what should you be thinking about?**
   a. **Are you concerned that soil conditions might be compromised if you wait till next spring - preplant or sidedress?**
   b. **Are you patient enough to wait until the soil temperature is correct?**
   c. **Do you plan to use a nitrification inhibitor?**

Soil temperatures should be below 50° F before applying NH3 in the fall. Research has shown that conversion of ammonium (NH4-N) to nitrate (NO3-N) (nitrification) is minimized below 50° F, significantly reducing N losses.

Use of a nitrification inhibitor with fall NH3 application is strongly suggested even when the soil temperature drops below 50° F. Nitrification inhibitors keep nitrogen (N) in the NH4-N form for a longer period of time. The longer N remains in the NH4-N form the better chances are of retaining it for crop use.

N in the NO3-N form is lost primarily in two ways. In sandier soils leaching can be a major problem, especially with heavy late spring rain. Water passing through tile drains, regardless of soil texture, is also an area where loss can occur.

In heavier soils when the soil temperatures exceed 50° F, NO3-N can be lost when soil is saturated or flooded for an extended period of time. In studies conducted at the University of Illinois, as much as 4–5 percent of N in the NO3-N form can be lost per day if these conditions persist.

A nitrification inhibitor should be used with fall applications of NH3. It should also be strongly considered with spring applications if soils are poorly drained (tiled).

Preserving N in an available form to meet peak crop need is a challenge, especially when Mother Nature doesn't cooperate. Today's economics require that we understand N fertilizer transformations and use the best possible management practices to maximize N use efficiency.

Meet Marty Snodgrass

As you may have already learned, Julie Bruggner "retired" from her Agricultural Laboratory manager role, and she accepted a new position as ICP Specialist. Since January we searched for a new manager to lead the agricultural division, and we are pleased to announce the addition of Martin "Marty" Snodgrass to our team.

Marty grew up on a farm near Muncie, Indiana, was an active FFA participant, and earned several NCGA yield trophies in high school (which he has proudly displayed in his office). Marty earned his BS in Chemistry from Ball State University, and then followed a career path into Quality Control at several manufacturers in the automotive sector. His focus on quality and team building made Marty a great fit as our Agricultural Division leader, and his ability to think "outside of the box" will assure many future contributions to our company's growth.

Marty has a daughter, Sarah, two sons, Nathan and Kyle, and a black lab mix, Buddy. He enjoys working on fast cars, browsing for and refinishing antiques, and "playing in the dirt" in his landscaping beds. His retirement dream is to return to his farm roots.

Marty is preparing for his first fall "busy season" with the lab, and he has a well qualified team of seasoned technicians and chemists to help him conquer the laboratory demands. Please join us in welcoming Marty to the A&L Family.

Quality Analyses for Informed Decisions

Soil Fertility Workshops 2008-2009

Our popular Soil Fertility Workshops will again be offered during the winter months, with some significant changes. We are updating our Basic workshop format, adding more practical information that attendees can use in their job. Plus, we will also offer a new Advanced workshop to be able to cover various topics in more depth.

Details of both programs are being finalized, but we have established dates and locations:

Basic Soil Fertility Workshops

- **Fort Wayne, IN – December 9**
- **Lansing, MI - December 11**
- **Janesville, WI – January 27**
- **Lafayette, IN – January 29**
- **Columbus, IN – February 10**
- **Lima, OH – February 12**
- **Shipshewana, IN – February 18**

Advanced Soil Fertility Workshops

- **Lansing, MI – March 3**
- **Fort Wayne, IN – March 5**

Invoices and Statements by E-mail

We have the capability of sending invoices and statements by e-mail. This reduces paper and handling, both for us and you. It also allows copies to be easily sent to multiple e-mail addresses if needed. Please contact us for more information.

Sample Submission Essentials

Samples submitted to us represent a significant time and labor investment on your part. Below are important considerations when sending samples to us. Following these will help assure your samples arrive in good condition and that we can efficiently process them.

1. Use appropriate sample containers. Soil samples in paper envelopes and liquid samples in ziplock bags may open and be lost in shipment. We can provide you with the correct bags, bottles and boxes.

2. Send a sample that is representative of the material you are testing. Very small and extremely large volumes of samples may affect the analysis results.

3. Clearly mark all sample containers with the sample identification. Make sure all sample containers are closed and securely fastened. If a sample can spill… it will.

4. Include a sample submittal form that lists all of the sample information, reference information, tests requested, special information and your account number. Submittal forms can be found at www.algreatlakes.com, or you can contact the laboratory.

5. Pack your box carefully. Using the sample submittal form as your packing order can help you identify when a sample is missing before you ship the box. Be sure to include the sample submittal form before sealing the box.

6. Use a shipping box that's the right size. Small samples packed in large boxes can bounce around and be damaged in shipment. Pack open spaces with crumpled newspaper.

7. Use a shipping box that's rated for the weight that you're shipping. We receive boxes which have broken apart from the weight of the samples.

8. Avoid shipping overweight sample boxes. Protect your back – and ours.

9. Make sure your return address is on the shipping box – even if it's inside one of the box flaps. This can help determine who to contact in case of a problem.

10. If you are shipping samples in multiple boxes, mark the boxes 1 of 3, 2 of 3, 3 of 3… this helps our technicians sort out your boxes, and will help us determine if a box is missing in shipment.

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