



# NEWS

# REPORT

A & L GREAT LAKES LABORATORIES, INC. FALL 2007

## Calibrated Recommendation

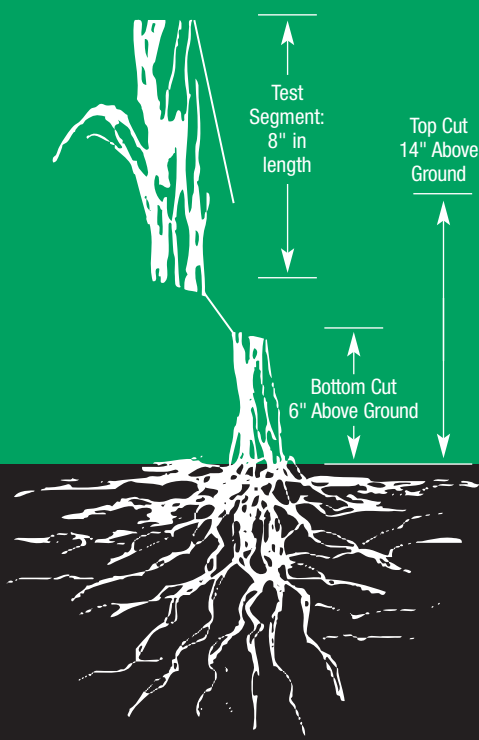
# Evaluating Nitrogen Management

With Nitrogen (N) prices approaching \$0.40/unit N (anhydrous) in many areas of the region, an increased focus has been placed on improved N efficiency. During this season, many different analytical tools (various plant tissue tests, preplant nitrate test, pre-sidedress nitrate test, and others) have been used to better address questions on nitrogen sufficiency rate in field based N trials. An additional tool to assess N sufficiency is the end of season stalk nitrate test.

As with any calibrated recommendation, timing and correct tissue sampling is critical. Samples should be collected 1-3 weeks following black layer of 80% of the kernels. An eight inch segment of the corn stalk should be taken six inches above the soil surface (see picture to left). Approximately 15 stalk samples should be collected per area (10 acres or less, or with differing management strategies) and used as a composite sample. Place each composite sample in a paper bag and submit to the laboratory for nitrate testing.

The end of season stalk nitrate test measures the amount of nitrate remaining in the corn stalk following kernel development. When soil N levels are or become limiting, N previously stored in the lower stalk will be remobilized to meet the N requirements of late season growth and seed development, thus reducing the stalk N concentration. With adequate to excessive soil N supply, stalk N levels will continue to accumulate in the lower stalk due to sufficient supply throughout plant development. By quantifying the concentration of N in the lower stalk of the corn plant, the stalk nitrate test determines whether soil N pools were sufficient, excessive, or lacking given producer input and environmental factors that impact plant N availability during the past growing season.

While this test cannot be used to address N issues during the current growing season, the stalk N test will allow for rate assessment for future N recommendations. When used in conjunction with N fertilization trials, the end of season cornstalk test can provide application guidelines and/or direction for increased N application efficiency across soil variability. Additional information regarding sampling time and methodology of the end of season stalk N test is located on our website ([http://www.algreatlakes.com/pdf/factsheets/ALGLFS19\\_End\\_of\\_Season\\_Cornstalk\\_Test.PDF](http://www.algreatlakes.com/pdf/factsheets/ALGLFS19_End_of_Season_Cornstalk_Test.PDF)).



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## Soil Sampling Tip

Ever have difficulty pushing the soil probe into the ground, or removing soil from the probe? Try spraying your soil probe with WD-40, a common lubricant. Research at the University of Wyoming found that WD-40 did not affect soil test results, so using it may help keep your back and fingers protected.

# Custom Soil Sampling

It is becoming more common for our clients to be involved with custom soil sampling, either providing or utilizing soil sampling services outside of their company. We do not directly provide soil sampling services, but we can help with the process.

If you are a supplier of custom soil sampling services, please contact us and let us know what geographic area you cover. We will compile the information and provide an area-specific list of samplers when clients contact us regarding a need for soil sampling.

Custom soil sampling can present some unique challenges in terms of maintaining soil test data integrity. The main value of soil testing is to evaluate fertility programs by following soil test trends over time. How a soil sample is taken (depth, number of cores, core position, etc.) is critical in assuring that the current test results are comparable with test history.

It is essential that there be clear communication on details of the sampling process so that both the soil sampler and their customer fully understand how samples will be taken.



# Soil Testing's Role in Profitability

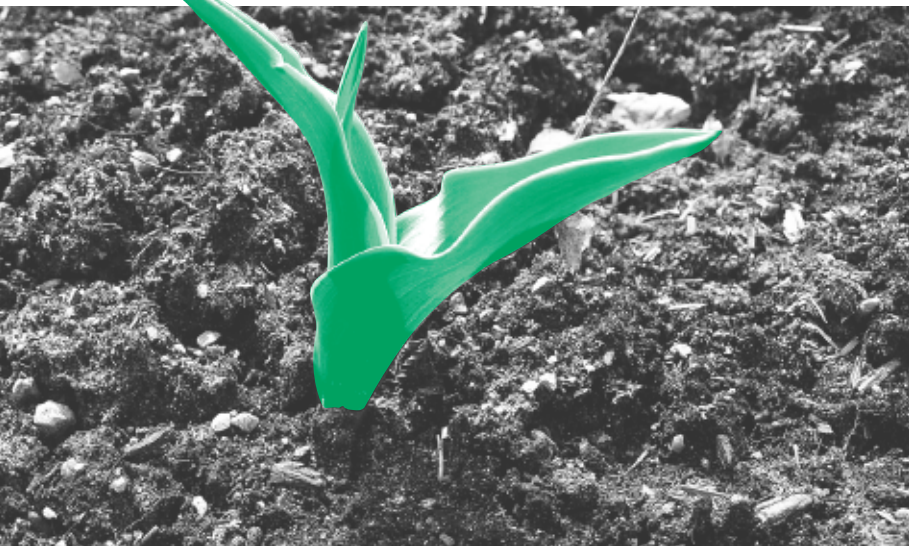
Higher prices of crop production inputs increase the need to evaluate management practices and decide which strategies continue to support profitability. Sometimes an urge to reduce certain inputs, and their related cost, initially seems to be the best thing to do, but in the end this decision could have a negative long-term impact on the bottom line. Two areas that producers tend to cut back on are fertilization rates and soil testing - the tool needed to determine recommendations and subsequent rates. Prices of some farm commodities have increased this past year allowing some to believe that they can afford to reduce these two inputs.

Why do we test for nutrients? The goal is to estimate the capacity of the soil to provide nutrients necessary to meet crop requirements. Without soil testing, soil nutrient concentrations cannot be monitored leading to possible yield limitations. Routine soil testing not only allows for current assessment of soil nutrient levels, but when coupled with previous tests (taken at similar times and soil conditions of the growing season) soil testing provides an accounting of

how the producer's management strategy has influenced soil test results. Over time, have soil test levels increased or decreased? What yields have been achieved, and what is the related nutrient removal? What nutrients and rates have been applied? With today's technology (yield monitors, global positioning, VRT, ...), a better assessment of a producer specific nutrient budget is possible, and a more informed management decision can be made with these tools. Whether or not you incorporate soil testing into your decision making process depends on the amount of risk you are willing to accept.

Three types of risks that producers face in their fertilization program:

1. The risk that a fertilizer program will not be profitable.
2. The risk that soil test levels in a field are yield limiting - some of these limitations will be visible but many will not.
3. The risk that soil test levels are not high enough to cushion errors.



## Soil Sampling History Report

Get organized for the fall with a Soil Sampling History Report. It lists the Growers, Farms and Fields sampled in a calendar year for your account, which can be very helpful in planning a soil sampling strategy. Contact us for your customized report.

Low soil test levels increase the probability that a fertilizer application will increase yield and often profits the year of application, but if amendments are not made to soils with nutrient limitations, decreased yield often is the result. Soil tests levels in the medium range call for annual fertilizer applications to replenish nutrients that the crop removes. Building soil test concentrations to a high level provides a cushion while also can supplement yield in years with favorable growing conditions. High soil test levels also allow producers to skip annual broadcast fertilizer applications for nutrient requirements, and apply fertilizer on a biannual (or possibly longer) basis to replenish removal rates. The risk associated with this approach is that additional fertilizer may not increase profits each and every year, especially in years with environmentally limiting yields, but as with many of the macronutrients (excluding nitrogen), these nutrients are held on soil exchange sites and can be utilized in subsequent growing seasons. Realizing the risks associated with soil test levels helps a producer decide what risk they are most comfortable with.

One final item to consider when making decisions this growing season is the influence of abnormally dry soil conditions. Low soil moisture normally limits yields ultimately reducing nutrient removal. On the other hand, if dry conditions continue through harvest, less potassium will be leached from crop residue, which could potentially be available to support plant growth next year. These factors also need to be considered when making fertilizer recommendations.

## Soil Fertility Workshop Schedule

Below are the dates and locations for our 2007-2008 Soil Fertility Workshops.

Dec 11	Fort Wayne, IN
Dec 13	Plymouth, IN
Jan 29	Champaign, IL
Jan 31	Terre Haute, IN
Feb 12	Birch Run, MI
Feb 14	Grand Rapids, MI
Feb 26	Findlay, OH
Feb 28	Troy, OH
Mar 4	Ann Arbor, MI
Mar 6	Fort Wayne, IN

We will mail informational brochures including registration details prior to the workshop dates. Please check our website for additional information.



## SOILTRAK<sup>®</sup> Evolving

Since its release over 15 years ago, SOILTRAK<sup>®</sup> has proven to be a valuable tool for our customers. Our SOILTRAK<sup>®</sup> software streamlines the soil sampling and soil test data management process. It has saved A&L customers time and money in managing their data.

We are currently working on the next release of SOILTRAK<sup>®</sup>. Some of the new features scheduled to be included in the next release are:

1. Automated processing of incoming data regardless of whether it is e-mail or from an FTP server.
2. Additional fields and capabilities added for WI samples.
3. Additional crops for fertility recommendations.
4. Improved usability features.

Version 5.0 of SOILTRAK<sup>®</sup> is in the development phase. If you would like to have input about features for the upcoming release, now is your chance. Contact either Greg Neyman or Randall Warden with your suggestions or ideas.

## Metals - Increasing Sample Throughput

We continue to add new technology and instrumentation to streamline lab processes while maintaining and improving quality and turnaround time. Recently, we added two new instruments that will allow higher throughput of samples submitted for metals analysis.

A sample submitted for metals determination requires a process of acid digestion to break down organic materials to get the metals into a solution, which is then introduced into an instrument (ICP, ICP-MS or AA) for final determination. We use a microwave digestion system, where heat and pressure are controlled over a specified period of time to digest a sample/acid mixture. Microwave digestion systems are equipped with rotors that contain vessels in which samples are digested. Our first microwave digestion system has a capacity of 16 vessels, and we recently added a second system with a rotor that has 48 vessels, a significant increase in capacity.

As a result of increased sample preparation capacity, additional instrumentation for analysis was needed. A second ICP-MS has been added to provide more analysis capacity. Now, with two ICP-MS, one ICP and one AA dedicated to our environmental department, we have the capability and capacity to consistently provide quick turnaround on samples requiring metal analysis.

## Meet Amy and Kess Berg

A & L Great Lakes Labs is pleased to announce the addition of Amy and Kess Berg to our growing team of professionals.

Amy is a graduate of Purdue University with both her B.S. (Agronomy / Environmental Soil Science) and M.S. (Agronomy / Soil Chemistry and Nutrient Management). Amy joins the A&L team after working with the Indiana Department of Environmental Management (IDEM) as an Environmental Project Manager, and she is our new Senior Quality Chemist, helping us improve quality in our laboratory processes. Amy's family is still in the Huntington (IN) area, and we are happy that she has returned to her Northeastern Indiana roots.



Kess Berg grew up on a farm near Wapakoneta, OH, and completed his Crop and Soil Science undergraduate studies at The Ohio State University. Kess moved on to Purdue to complete his M.S. and Ph.D. in Agronomy / Crop Physiology, completing research in soil potassium and phosphorus availability and uptake by alfalfa. Kess joins our team as an area agronomist, and will be responsible for contacting our clients in Indiana and Illinois. Kess and Tim Bailey will be presenting the A&L Agronomy Workshops this winter, and we look forward to sharing their agronomic perspectives.

Amy and Kess met and married while at Purdue, and spent some time at the University of Arkansas / Fayetteville before returning to Indiana. They share their home with a very active Australian shepherd, Scout, like to participate in outside sporting and landscaping activities, and enjoy spending time with family and friends. We are very excited to add two very capable Agronomists to our staff, and to be able to share their professional expertise with our clients. Welcome, Amy and Kess.



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