



List of Contacts at A&L Great Lakes

Agronomy:

**Randall Warden,
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

Pesticide Residues:

**Keith Henley
& Dan Kite**

Fertilizer Analysis:

Jo Ann Nichols

Compost Analysis:

Lois Parker

Area Agronomists:

**Gary Elliott
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NEWS REPORT

A & L GREAT LAKES LABORATORIES, INC. SPRING 2005

Sample Preparation - Foundation of Quality

Each soil sample that we receive represents a significant investment of time and effort by our customers. Decisions have been made about the number of samples in a field, each sample's location, and the number of cores. Our client feels that the sample is a good measure of the soil fertility status of the area it represents.

Recognizing this, we have developed sample handling and preparation procedures which assure our customers' samples are handled properly. **The entire soil sample** is processed: it is dried, ground and homogenized, so that when we take a portion of the prepared sample for analysis, it is truly representative of the original sample we received. We have made significant investments in equipment and systems to accomplish this.

A University of Illinois research study was recently initiated to evaluate what we consider to be unacceptable sample handling and preparation practices.

Quoting from a project report by Hoefft, et.al. (2005): some labs "*only grind an amount of soil equivalent to that which will fit into a typical drying box. The remainder of the soil is discarded.*"

To arbitrarily discard a portion of a soil sample in the interest of production efficiency or lack of adequate systems is, at minimum, a poor procedure which reduces the reliability of the sample. Our feeling is that this damages the "foundation" of soil testing quality.

Our customers expect quality soil test information. Increasing reliance on soil test information to make economic and environmental decisions makes A & L Great Lakes Labs commitment to quality even more important. Like all businesses, we are interested in controlling production costs, but our approach is to look for ways that will at the same time maintain or improve quality.

Crop Production Contracts – Know the Details

Contract production of crops with specific traits is greatly increasing. It is important that producers are fully aware of the contract specifications, some of which are beyond "normal" considerations.

This was recently emphasized by samples we received from a producer who grew food-grade soybeans for export in 2004. The contract specified a maximum cadmium content of the soybean seed. Multiple lots of soybeans received by the Pacific Rim contractor were tested for cadmium, with one lot being rejected because the cadmium levels were too high.

We mention this one situation not to alarm, but to encourage full scrutiny of contract requirements and evaluation of unknown areas. This will help minimize problems in an increasingly important marketplace.

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Soil Sampling Strategies

Soil sampling helps us assess the soil fertility status of a field or area within a field. Researchers have evaluated many factors:

- **Sampling equipment – sample quantity, depth control**
- **Frequency – crop rotation, low yields, high yields**
- **Depth – tillage systems, stratification**
- **Location – in-row, middle, random**
- **Number of cores – size of area represented, variation**
- **Time of year – seasonal variation**
- **Soil type – landscape, topography**
- **Management – tillage, banding vs. broadcast**

Evaluation of these soil sampling factors has led to differing, yet similar, approaches within the Great Lakes region.

State	Maximum Acres per Sample	Depth of Sample (inches)	Number of Cores	Sample Frequency (years)
Illinois	2.5	7	5	4
Indiana	25 – 30	8	15	2 - 4
Michigan	15 – 20	8	15 - 20	3
Ohio	10 – 20	8	20 - 30	2 - 3
Wisconsin	5	6 – 7	10 - 20	2 - 3
Tri-State	<25	8	20 - 30	3 - 4

With these differences, it is clear that even researchers don't entirely agree. To obtain best results for your situation, consider your local factors, establish a sampling protocol for your farm or business, communicate it to everyone that will collect soil samples, and stick to it.

Meet Dan Kite

When clients call with questions on soil fertility, nutrient management plans, GPS mapping software, or pesticide carryover, it's very likely they'll end up talking with Dan Kite. Dan wears many hats here at A & L Great Lakes, and his mixture of laboratory experience and agronomic expertise makes him a valuable resource person for many of our clients.

Dan is a Purdue University graduate in Agronomy, and he joined the A & L team to establish and manage the A & L pesticide department. His dedication to helping people resulted in his promotion to client services, where he has overseen the development of our agronomic brochures and training materials. Dan's easygoing manner has made him a favorite of clients and co-workers.



Dan has celebrated two milestones this year – his 25 year service award with A & L Great Lakes Labs, and his silver wedding anniversary with his wife. Dan and Patty have a small farm close to Fort Wayne where they enjoy spending time with their horses and dogs. They consider themselves “college poor”, as their two children are full-time college students, and they're all looking forward to graduation time.

Low Level Mercury Sampling & Analysis

Many municipal wastewater treatment plants are being faced with new National Pollutant Discharge Elimination System (NPDES) permits that place strict limits on the discharge of mercury. Due to the low level of detection required, samples can easily be contaminated by the sample collector. Samples need to be collected using a restrictive two-man technique known as “clean hands-dirty hands” sampling.

Once the samples are properly collected, analysis needs to be done according to EPA Method 1631, revision E. Using this method, the level of detection is 0.20 nanograms per liter

(parts per trillion) or 0.0002 micrograms per liter (parts per billion). Most new permits are also requiring laboratories to report a level of quantitation at 0.50 nanograms per liter.

If your facility is facing these new mercury sampling and analysis challenges, A & L Great Lakes Labs is ready to help. We offer sampling services for mercury or, if you prefer to collect your own samples, we can provide appropriate training. A & L can also provide certified clean glass sample containers and assist with sample analysis. Give us a call today to request more information.



HERBICIDE SPRAY DRIFT: *Documentation & Diagnosis*

Spray season 2005 is here and with it comes the concern of possible spray drift injury. Most areas don't have many days of ideal spraying conditions, but contract obligations still need to be met. Knowing what to do if you suspect spray drift will provide the best possible sample for laboratory confirmation, as well as demonstrate professionalism in the ag industry.

In the course of doing what they're supposed to do - kill weeds, herbicides are degraded into simpler compounds (metabolites) which further break down into naturally occurring elements such as carbon, hydrogen, oxygen, etc. Timing is critical when collecting plant samples for herbicide analysis. Herbicides can be metabolized rapidly by plants, drastically reducing the possibility of detecting even trace levels of the parent compound. Spray drift incidents of growth regulators are a good example of this problem, since they are active at such low levels. By the time leaf symptoms have developed, most of the parent compound has metabolized.

Another factor governing herbicide injury levels of plant tissue is the growth rate of the crop. If the plant's growth has been suppressed due to cold or wet conditions, the effects of the herbicide will also be suppressed. Once growing conditions improve, herbicide injury symptoms may dramatically appear.

If spray drift is suspected, collect a tissue sample immediately and freeze it.

This will essentially shut down plant metabolism, preserving any material that may have drifted onto the plant tissue. Crop symptoms in the field can then be observed and the samples analyzed if crop growth is impaired or yield loss occurs.

When collecting plant tissue samples, collect the portion of the plant most dramatically displaying symptoms, or the portion that would have received the highest level of the drift. Collect enough plant material to fill a quart size plastic bag, seal the bag and freeze it. Also collect a sample from an area not affected by the suspected spray drift to aid in the interpretation of test results.

Once collected, plant tissue samples must be frozen and remain frozen until they arrive at the lab. Should you decide to submit samples for analysis, pack the samples in an insulated cooler and cover them with ***dry ice***. In order to assure the samples arrive in good condition, they should be shipped to the lab using a 24 hour courier. In order to validate proper sample handling, we recommend accompanying the samples with a chain of custody document. These are available from the laboratory or on our website.

Plant Analysis – The Other Tool

Plant analysis is a very good tool to diagnose suspected plant nutrient problems and monitor fertilization programs. The ability to look *inside plants* (plant analysis), coupled with assessing what is happening *in the soil* (soil testing), are excellent tools to make good crop nutrient management decisions.

Plant analysis provides the opportunity to assess crop nutrition up to the time of sampling. Selecting the proper plant part from several plants, at the right stages of growth, and having it analyzed, can reveal the condition of the plants health.

Monitoring nutrient concentrations throughout the growth cycle provides multiple opportunities to evaluate the plants' nutritional condition. If plant analysis indicates a nutrient need early in the growing season, in-season fertilizer application can lead to improved crop yield and quality. Detailed feeding programs for crops such as potatoes, tomatoes, vegetables, grapes and orchards have been developed. Fast, accurate analyses can help provide a current measure of a crop's nutrient status.

Whether diagnosing a problem or monitoring growing plants over time, both plant analysis approaches can help determine crop nutrient needs.

PSNT– Right Tool, Right Time!

Ah, it's Spring... when corn growers thoughts turn to expectations of high yields. Although this may not have been what Shakespeare had in mind, it is possible to evaluate soil nitrate-nitrogen levels to determine whether additional nitrogen will be needed by the corn crop by using the pre-sidedress nitrate test (PSNT).

Instructions on how to take the PSNT samples and information on interpreting the results can be found on A & L Great Lakes Laboratories' Fact Sheet No. 18. You can get a copy by visiting our website at www.algreatlakes.com or by calling our office.

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