

NEWS REPORT

GREAT LAKES LABORATORIES, INC. FALL 1999

List of Contacts at A&L Great Lakes

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Fertilizer Analysis:

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CHECK YOUR (S)OIL

The over-riding theme in agricultural news these days is the depressed state of commodity prices for the basic producer. It seems you can't open a newspaper or turn on the radio without discovering another devastating twist to the poor farm economy. There was a time when a producer could make the mortgage payments by raising hogs. Now, they risk losing the farm by doing so.

Within this type of economy it is as important as ever to know that the fertilizer input needed to grow a crop is financially justified. Not many producers would cut back on the number of oil changes needed for their equipment to save some money. In the same manner, managing fields without maintaining the productivity level of the soil is not a wise move, and attempting to maintain that level without the knowledge of what is actually available can be penny foolish. No matter what type of economy a person is farming in, the ground rules are still the same - a crop will yield up to it's most limiting factor.

Today's precision ag practices help to minimize variability in a field's total potential and may squeeze more profits out. But that's not always the case. This financial situation may not be the best environment to make major farm management changes, but it's definitely not the time to sit in the dark and let your resources break down. It may make better economic sense to maintain your best fields as you have been and tackle the problem fields now. When profit margins are low, it is essential to optimize all of your equipment's input by checking the belts, hoses, and oil; and especially by checking your soil.

FALL 1999 SOIL SAMPLING

The soil laboratory is preparing for the Fall 1999 soil sample rush. Once again we have tried to anticipate what the Fall soil season will bring us, and tried to predict how to effectively deal with the increased sample volume. We will be bringing back our experienced seasonal help, and we are capable of analyzing 4,000 soil samples per day.

If you are sending GPS soil samples to the laboratory and have to use more than one box for shipping be sure to indicate Box 1 of 3, 2 of 3 (etc.) on the outside of each box. If you generate sample submittal forms using the SoilTrak software please verify that the number of samples listed matches the number of soils submitted.

If discrepancies exist between the submittal form and the soil sample bags we will immediately contact you for clarification. We appreciate your patience when we call and request help regarding your samples.

SOIL TEST DATA BY E-MAIL - FAST AND FREE

The number of customers receiving soil test data by e-mail from us is increasing rapidly. Data appears in the e-mail box shortly after soil test reports are completed and approved. The data can then be printed with our SoilTrak program for immediate use or imported into other programs. Any customer that has access to the Internet can receive data. Please note that there is no charge for this service and paper reports are still mailed to clients. Contact us to get set up!



NITRATES AND FEEDING

The current drought has produced conditions favorable for the accumulation of nitrates in plants. Nitrate poisoning occurs when animals eat forage materials with a high nitrate content. High nitrates can cause lower milk production, reduced weight gains, still births and abortions, and even death of the animal.

Nitrates accumulate in plant parts, particularly in the lower portions of plants. Corn harvested for silage should be cut 8-12" high. Harvest should be delayed as long as possible. Ensiling the corn will normally lower the nitrate concentration 40 to 60%. Do not cut drought-stressed corn immediately after a rain.

To check your corn plants for possible nitrate toxicity chop a representative number of plants and place three handfuls in a plastic bag. Send the sample immediately to the laboratory and ask for the Feed Nitrate Package. A & L Great Lakes Laboratory will complete the analysis the day following receipt, and fax the results and interpretations back to you.

Content of Nitrate (NO3)

Dry Matter Basis

0.00-0.26 % NO3

0.27-0.53 % NO3

0.53-0.90 % NO3

>0.90 % NO3

Interpretation*

Safe to feed. Use caution with pregnant or young animals at the upper level.

Generally safe when fed with balanced ration. For pregnant animals limit nitrate feed to 1/2 of daily dry matter intake.

Limit to 1/4 of the total daily ration. Ration should be well fortified with energy, minerals and vitamins.

Toxic. Extreme caution should be used.

*Oregon State University - Forage Information System July 1999

MEET THE PREP CREW



(L to R) Crewmen Paul Barbour, Carlos Garcia, and John Gonzales

If you have ever dropped off samples at A & L Great Lakes Laboratories, chances are you have met one or more of our prep crewmen.

Paul Barbour has been with A & L since 1980, and has witnessed a lot of changes in the laboratory. Paul floats between feed and plant tissue preparation and

the soil receiving area. Paul and his wife Betty have two daughters and a brand new son-in law. Paul enjoys go-cart racing and working around his home in his free time.

Carlos Garcia came to us from Texas, and has worked at the laboratory for four years. Carlos works exclusively in the soil prep area, and is directly responsible for receiving, sorting and preparing soil samples. Carlos and his wife Diane have three daughters and a son who keep them both young. His hobbies include softball, fishing, watching wrestling and Spanish soap operas.

John Gonzales is celebrating his 10th anniversary with the laboratory. John has been cross training with other technicians in the Agricultural Division recently, and is gaining more insight into the laboratory beyond the preparation area. John and his wife Mary have two daughters and a very active grandson, Phynix, who fills his grandpa's free time.

The quality work of our prep crew assures both the laboratory and our clients that the samples have been identified and prepared properly. Paul, Carlos and John are happy to help unload your samples and provide you with additional sampling forms, bags or boxes. Please take a moment to stop and say "Hi!" the next time you are dropping off samples.

TRI-STATE, UNIVERSITY OF ILLINOIS FERTILIZER RECOMMENDATIONS AVAILABLE

We have added the capability of supplying Tri-State and University of Illinois fertilizer recommendations. Nutrient management plans in several states now, or will, require fertilizer recommendations based on these systems.

Following are the crops for which fertilizer recommendations are available:

Tri-State	U. Illinois
Alfalfa	Alfalfa
Corn	Barley
Corn Silage	Corn
Soybeans	Corn Silage
Wheat	Oats
	Soybeans
	Wheat

When requesting recommendations please indicate on the soil sample submittal form which recommendation system is desired (e.g. Corn - Tri-State, Soybeans - U. Illinois)

AGRONOMIC REVIEW

Starter Fertilizer Revisited

Coinciding with the increasing use of reduced tillage systems over the past several years, there has been a re-evaluation of starter use recommendations for corn by Midwest researchers. The high residue levels associated with reduced-tillage can cause soils to be cooler and wetter than in conventional tillage systems. Reduced tillage can also result in a more compacted soil as compared to moldboard plowing. All of these conditions have been shown to increase the probability of response to starter fertilizer.


Studies have shown a positive yield response to the use of starters, especially under no-till conditions. For example, in Indiana, starter fertilizer responses were obtained in 8 of 11 experiments with no-till, while only 1 positive response was measured with conventional tillage. All of the studies were conducted at soil test levels above which response to P and K would not normally be expected. The average overall yield response in these studies was 7.8 bushels per acre under no-till. In Minnesota, corn response to starter averaged across four years was 9.1 bu/a for conservation tillage systems, compared to 5.5 bu/a for a fall-plow system.

Phosphorus is traditionally thought of as the nutrient responsible for starter response. However, work in Wisconsin and Minnesota has also indicated a large response to potassium, especially in no-till. Some of this response was thought to be related to the compacted conditions often experienced with conservation tillage. Other work in Indiana has shown that the yield response due to starter placement was primarily due to nitrogen. Again, responses were observed mainly in no-till.

It is evident from a review of recent Midwest research that starter fertilizers are an essential part of a nutrient management plan for fields where reduced-tillage practices are used. For conventional tillage, the use of starters should still be considered where soil fertility is low, crops are planted early or there are compaction or drainage problems. Under some conditions the addition of potassium in the starter mix may be justified.

NONPOINT SOURCE WATER POLLUTION

Nonpoint water pollution is contamination that can occur when rainwater washes off plowed fields, city streets and lawns. As water moves across the land surface it can pick up soil particles and pollutants such as nutrients, bacteria and toxins. Primary nutrients include nitrate in sewage, animal waste and fertilizers as well as phosphorus from fertilizers. Excess nutrients overstimulate growth of aquatic plants and cause algae blooms. Nitrate in groundwater is one of the principal contaminants leading to closure of wells. Bacteria and waterborne viruses cause illnesses such as typhoid and dysentery. These pathogens can enter waterways through leaking septic systems and livestock yards. When fecal coliform is present it could indicate that more dangerous organisms might be present. Toxins include heavy metals, pesticides and toxic chemicals such as hydrocarbons. They may accumulate in fish and pose a threat to drinking water supplies.

Recognizing problems with nonpoint source water pollution, local Soil and Water Conservation Districts, under the leadership of the U.S. Environmental Protection Agency, have formed an Intergovernmental Task Force on Monitoring Water Quality. As part of this effort, EPA, state and local agencies along with Soil and Water Conservation Districts are collaborating on monitoring programs and projects. These projects will provide information on nonpoint sources of various contaminants in watersheds so that management agencies and the public can take appropriate corrective measures. *A & L Great Lakes Laboratories has assisted numerous Soil and Water Conservation Districts with analytical testing on several projects.* For more information on nonpoint source pollution, watershed analytical testing or project assistance, contact Keith Henley. 



MANURE NUTRIENT AVAILABILITY

Manure nutrient content can vary greatly. Animal type (dairy, swine, etc.), diet, and other management factors determine the initial nutrient content of manure. Storage and handling methods then affect the amount of nutrients that are retained until manure is applied. Finally, the application method influences the amount of nutrients in manure that are eventually available to a crop. Nutrients contained in manure are a valuable fertilizer source. With all of these variables, what is actually available to the plant?

We have recently updated our manure analysis report to include estimates of nutrient availability

based on the manure nutrient content, animal type and application method. Just submit a manure sample to us with the proper information (contact us for our new manure sample submittal form) and we will provide an accurate analysis and nutrient availability estimate specific to your management system. Please contact us if you have any questions.

Note: We strongly encourage including an ammonium-nitrogen analysis on samples from liquid manure storage systems to obtain an accurate picture of N availability.

1999-2000 Tradeshow

Following are several tradeshow and meetings where we will be exhibiting. We hope to see you there!

- Oct. 4, 1999** Sewage Treatment Alternatives, Pokagon State Park, Angola, IN
- Oct. 27-28, 1999** Wisconsin Potato and Vegetable Industry Show, Plover, WI
- Nov. 15-17, 1999** Indiana Water Pollution Control Association Annual Meeting, Indianapolis, IN
- Jan. 10-12, 2000** Michigan Agri-Business Association Winter Conference, Lansing, MI
- Jan. 17-19, 2000** Indiana Agribusiness Exposition and Annual Convention, Indianapolis, IN
- Jan. 18-20, 2000** Fort Wayne Farm Show, Fort Wayne, IN
- Jan. 19-20, 2000** Wisconsin Fertilizer and Chemical Association Annual Meeting, Madison, WI
- Jan. 24-26, 2000** Illinois Fertilizer and Chemical Association Annual Conference & Exhibition, Peoria, IL

QUALITY CONTROL - SOIL TESTING

Producing quality data is the primary goal of A & L Great Lakes Laboratories. We use a variety of quality control samples and measures to assure that the soil test data we produce is the best quality in the industry. Over 10% of the soil samples analyzed each day are quality control samples. Following is a description of several of the soil quality control samples we analyze and what is monitored:

In-house check. Soil samples, from a large batch which has been dried, ground, and homogenized, are analyzed every 20 to 30 samples. This allows us to monitor the soil scooping and extraction steps.

"Blind" check. Check soil samples (from a different source than the in-house check sample) are randomly placed in the batch. This allows us to monitor the consistency of our technicians.

Control solution. A solution with known elemental concentrations is analyzed every 20 to 30 samples. This solution is from a separate source than the calibration standards and is used to verify the calibration of the instruments.

Daily check. Each day samples are randomly selected from the previous day's group of samples. They are analyzed again and compared with the previous day's data to confirm our consistency.

Weekly check. Once a week we randomly select two samples from each day of the previous week. We compare the data of those ten samples to the first analysis, again to confirm our consistency.

Additionally, we participate in several quality control programs that compare our data with other laboratories around the country. All of these quality control measures are just a part of our investment in producing the best soil test data possible for our customers.

SOILTRAK 3.0 RELEASED

We continue to evolve our soil sampling and data management software with the announcement of **SoilTrak 3.0**. We think it is a great efficiency tool for our soil testing customers.

Many refinements have been incorporated into existing features along with several new enhancements. **SoilTrak 3.0** is now a 32-bit application capable of running on Windows 95, 98, and NT. It is fully Y2K compliant. Optional plug-ins for the Tri-State and University of Illinois fertilizer recommendation systems are available. Contact us for more information.



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