Introduction

The major objective of soil analysis is to inventory the soil's nutrient reserves and chemical composition. Since insufficiencies of essential elements can limit crop yields, this information is essential to determine what, if any, additions of fertilizer or lime are justified to produce maximum economic yields. Soil analysis is one of many Best Management Practices to insure that lime and fertilizer nutrients are applied in both an economically and environmentally responsible manner. Backed up by chemistry and research, soil analysis should be part of every producer's arsenal to control costs, maximize returns and protect the environment.

Reasons to Test

Scientifically sound soil fertility programs based on soil testing provide many benefits:

1) Improved yields, market quality and profitability. Response to other management inputs is optimized.

2) More uniform crop maturity simplifies harvest and can improve market quality.

3) Crop input dollars are allocated to provide the greatest return. Intensive sampling and variable-rate application create even more opportunity to fine-tune fertility programs.

4) Soil testing provides a scientific basis to confidently reduce fertilizer rates for fields with excessively high levels of nutrients. Optimum plant nutrients rates means less potential losses from leaching or surface runoff into the environment.

Sampling Methods

A quality soil testing program demands that samples be representative of conditions present in a field. Areas selected for sampling should be as uniform as possible. *Grid Sampling* and *Sampling by Soil Type* are two methods commonly used for sampling.

1) ***Grid Sampling*** requires a composite sample from every 2 to 5 acres taken on a systematic grid pattern. A large number of samples allows mapping of inherent differences due to soil variability and past management practices.
2) ***Sampling by Soil Type*** requires dividing the field into sampling units based on common soil type and past management practices. Sampling areas are seldom less than 5 acres nor more than 20 acres.

When to Sample

Sampling can be done at any time. Samples are usually collected before or after a crop is planted. Winter sampling is acceptable as long as representative samples can be collected. The time of year that samples are collected may influence results, so consistency in time of sampling is important.

Soils should be sampled every 2 to 3 years. Fertility level, soil type, and farming practices may alter this schedule. For example, low soil test levels on sandy soils may require re-sampling each year. Conversely, high soil test levels on clay soils may require re-sampling only once every 4 years. Crop, economics, rotation, irrigation, and yield goal also influence the frequency of sampling.

Sampling Depth

Tillage system, frequency of tillage, and fertilizer application methods should be considered when determining the proper sampling depth. General guidelines for sampling depth follow:

1) Conventional Tillage: Sample to plow depth.
2) Conservation or Reduced Tillage: Sample top 75% of tillage zone.
3) Ridge-Till: Combine 6" samples from the ridge with 4" samples from the valley to form a composite sample.
4) No-Till: Sample 6" to 7" deep. Avoid fertilizer bands. Because of continuous surface nitrogen applications may cause acidity to accumulate at the soil surface, an additional sample for soil pH may be needed from the 0" to 3" depth.

Advantages of Using Litchfield Analytical Services

We utilize the most modern laboratory methods available. Our staff is trained and experienced in soil analysis, which ensures you accurate and consistent results. Sample analysis will be completed within 72 hours of receipt of samples. Results can be reported by Email, phone or fax upon customer request.

Compare our turn-around time, the quality of the tests that you receive, and our very competitive rates. We are sure that you will want to place your soil analysis work in our experienced hands. Our goal is to provide you with quality laboratory services at competitive rates.