

## **AgroLab, Inc.**

### **Soil Sampling Instructions**

#### **The Importance of Taking Good Soil Samples**

A soil test is the only practical way of telling whether lime and fertilizer are needed. However, if the soil sample does not represent the general soil condition of the field or area from which the sample was taken, the recommendation and decisions may be wrong or misleading. An acre of soil to the depth of plowing weighs approximately 1,000 tons. Ten grams or less of soil is used for each test in the laboratory. Therefore, it is very important that the soil sample be characteristic of the field or area from which it was taken. The following guidance will help to take proper soil samples.

#### **When to Take Soil Samples**

Take soil samples at any convenient time. However, to receive an analysis and the recommendations early enough to enable getting the lime and fertilizer needed, it is best to sample in the Fall or early Spring. It is generally recommended staying consistent. If original samples were taken in the Fall, try to take new samples in the Fall also. Seasonal variation of some nutrients may occur.

#### **Sampling Area**

Areas selected for sampling should be as uniform as possible. Do not mix soils of differing color and/or texture. Dead furrows, eroded knolls, low spots, and parts of a field where lime, manure, or fertilizer have been excessively applied or under applied should be avoided or sampled separately. As a general rule of thumb, anywhere that the soil differs because of any significant factor; soil type, drainage, elevation, topography, productivity, management practice, tillage, etc. should be sampled separately.

#### **Sampling Methods**

Sampling methods will determine the representation of the farm or field and is critical when evaluating analytical reports. There are primarily two methods commonly used for soil sampling.

1. **Grid System.** A common grid system requires that a composite sample from every 4-5 acres be taken on a systematic grid pattern. A large number of samples allows mapping of inherent differences due to soil variability and past management practices. The actual grid size will be dependent on the information that is desired. Precision agricultural practices generally recommend a grid of 2.5 acres for accurate soil mapping.
2. **Sampling by Soil Type.** The field is divided into sampling units based on soil types or aerial maps. Further subdivisions can be made if size or past management dictates. The sampling area is seldom less than five acres, nor more than twenty acres. Collect five to twenty cores from the sampling area, or approximately one core for each acre represented.

More cores may be taken if there is an indication of soil variability, unknown fertilizer bands, or recent tillage system changes. Soil sample cores should be collected and mixed in a plastic pail to make one composite sample. Pails, buckets and mixing equipment should be plastic and not galvanized metal or most of other types of metal. Clearly and accurately mark the sample identification on the soil sample bag and the sample information form.

## **Frequency of Sampling**

Soil should be sampled every 1 to 3 years. Fertility level, soil type, and farming practice can alter this schedule. In the case of intensive cropping, manure or sludge applications, or sandy soils, annual sampling is suggested to monitor nutrient availability and potentially damaging salt accumulations. Crop, economics, rotation, irrigation, and yield goal also dictate the frequency of sampling.

## **Sample Depth**

Tillage system, frequency of tillage, and fertilizer application methods should be considered when determining sampling depth. General guidelines for sampling depth are as follows:

1. In general, soil samples should be taken to a depth of 6 to 8 inches. If a farmer plows the general 9" deep, then the sample should be taken to a depth of 9" to allow for lime consideration at varying depths of tillage. Recommended reporting units are ppm.
2. No-till systems may require some minor modifications. Collect routine samples to depths of 6-8" and take an additional sample to a depth of 2-3" to determine what affect surface-applied fertilizer may have had on the soil surface pH and nutrient levels. Soil pH and nutrient stratification is well documented in no-till systems.
3. When testing for  $\text{NO}_3\text{-N}$  (nitrate nitrogen), as is recommended for the PSNT (pre-sidedress nitrate test) or in more arid regions of agriculture, it is suggested that the soil be tested to a depth of 8-12 inches.

## **Materials Needed**

Materials needed include: plastic pail, soil probe or soil auger, soil sample bags, laboratory sample information forms, and shipping boxes. Plastic material is recommended. Metals, such as galvanized, will compromise the soil analysis. Soil sample bags, information forms, and shipping materials can be obtained from **AgroLab** upon request.