

Extension Talk – Soil Testing

Anthony Carver, Extension Agent

It's that time of year where people reseed their lawns and pastures, plant annual strawberries and sow cover crops on fields to over winter them. It's also a great time to soil test. Soil testing is the oldest and best Extension recommendation. Testing the soil, is the best tool to growing anything. My papaw always said, "It always helps to know as much as you can about whatever it is you are doing." Isn't that the truth.

A soil test gives important information about the nutrient and pH levels present at a given site. For only \$15.00, a standard test will rate Phosphorus (P) and Potassium (K) levels in the soil. These rates are low, medium, high or very high. It will also recommend a suitable Nitrogen (N) amount to add to the site. Nitrogen is in a constant cycle, in which it is always moving from the air to the soil and into the plants. Therefore, a soil test never tests for the Nitrogen (N) level. Calcium, Magnesium, Zinc, Manganese, Iron, Copper, Organic Matter and Soluble Salts can be tested for an additional fee.

Along with the nutrients, pH is tested, too. pH is a scale that ranges from 1-14. It ranks the acidity or alkalinity of the soil. pH is an abbreviation for potential hydrogen. 1 to 6.9 is considered to be an acid soil. 7 is neutral and 7.1-14 is alkaline. What does all that mean? Well, the majority of plants like the pH to be 6.0 to 7.2. When the pH drops below 6.0 or goes above 7.2 the plant can't use the nutrients to their full potential. I get calls all the time that say they fertilized every week but their plant still looks sick. It usually is a pH problem. Most fertilizers cause the soil to be acid. Lime is used to bring the pH back up to normal levels. A soil test gives recommendations for the amount of lime needed for a soil. I mentioned this is a great time to soil test and that is because it takes lime 6 months to bring the pH back up to normal. By putting lime on a field in the fall, the soil's pH is ready for spring planting.

A soil test is also crop specific. From cucumbers to lawns to Christmas trees, the test will tell you what your crop needs. We covered the why's all that's left is the how's. The soil should not be too moist or too dry. Everyone needs to remember no mud or desert.

The Sampling Area

A composite sample should be collected, consisting of small portions of soil taken from approximately 10 locations. For field crops, soil portions should be taken from an area not to exceed 10 acres (Figure 1). Pasture and hay ground which lay the same should not exceed 30 acre areas. For lawns and gardens, soil portions should be collected at random from eight to 10 locations. Areas of contrasting soils, problem spots or portions of fields where crop response is significantly different should be sampled

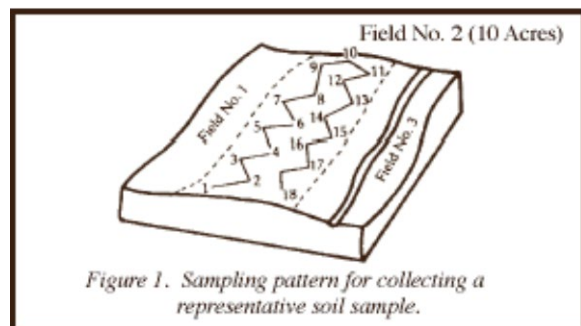


Figure 1. Sampling pattern for collecting a representative soil sample.

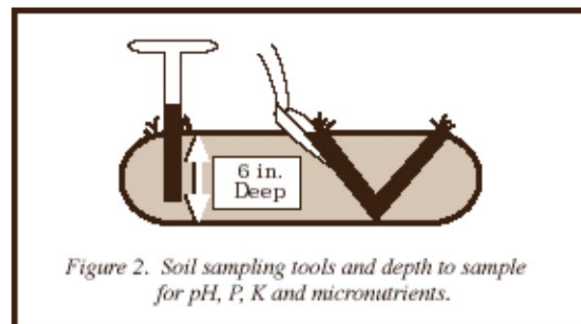
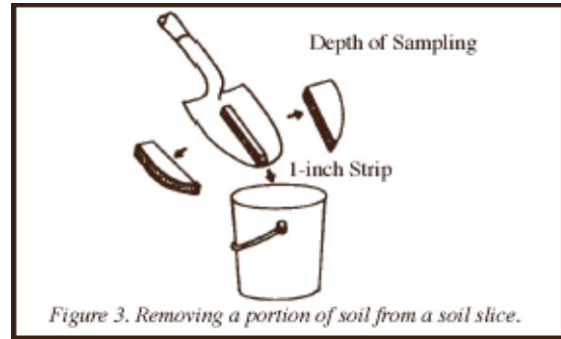


Figure 2. Soil sampling tools and depth to sample for pH, P, K and micronutrients.

separately, provided the area can be fertilized separately.

Sampling Tools and Depths to Sample

Several types of tools can be used for collecting soil samples. One is the soil tube or probe. A uniform portion of soil is collected rapidly and accurately by pushing the tube into the ground to the desired depth and removing a soil core (Figure 2). The most common tool used is a shovel or spade. With this tool, a uniform portion of soil is collected by first making a V-shaped cut into the soil to the depth of sampling. Next, a 1-inch thick vertical slice of soil to the same depth is removed from the smoothest side of the cut (Figure 2). From this, a 1-inch strip of soil the length of the slice is removed as indicated in Figure 3. If other tools are used for sampling (garden trowel, auger, etc.), make sure that a uniform amount of soil is collected to the desired depth



from a sufficient number of sites within the sampling area. Remove organic debris, rocks and trash from the soil surface before collecting the sample. Soil portions for each composite sample should be placed into a clean container and thoroughly mixed. From this, remove enough soil to fill a sample box (Figure 4).



Where to Find Information

Information sheets, soil sample boxes and sampling instructions can be obtained from your UT Extension Office (460 Water Street, Rutledge beside Rutledge Primary School).

Mailing Information

Check and information sheet should be mailed separate from samples. Samples boxes should be taped and placed in a priority envelop at post office and mailed to:

UT Extension
Soil Testing Lab
5201 Marchant Drive
Nashville TN 37211-5112

The test will take about a week and a half to receive the results. Please feel free to contact me with any questions at 865-828-3411. Until next time, happy growing.