

Soil Sample Collection

Collecting soil samples is important when you want to specifically identify the characteristics of your soil. Collecting a representative soil sample is important for demonstrations and hands-on activities. While the below information focuses on lawns and gardens soil sampling for soil analysis, however, this information may be useful if you are soil sampling for classroom activities and need more than one core sample.

What is a soil test?

A soil test can help us to determine whether an area of soil will provide favorable soil conditions for good plant growth or not. A soil test analyzes a representative sample of soil for specific characteristics, including physical, chemical and biological properties. Most soil tests use standard procedures to measure these indices such as available nutrients, soil pH, salt levels, organic matter or decomposed plant-carbon material, soil texture, etc. Soil texture indicates the relative proportion of sand, silt and clay, which can be determined by hand which influences water retention, infiltration and availability for plants.

The soil test estimates the amount of nutrients available for plant roots to absorb and availability of nutrients varies due to the environment and soil types, so it is important to use a soil test that is calibrated for your growing area.

What does a soil test not measure?

A basic soil test will not measure some variables that can adversely affect plant growth. These include chemical residues (i.e. pesticides, toxic chemicals), disease and insect infestations or poor physical characteristics of the soil. Soil tests do not measure factors such as light conditions, water quality and water quantity.

A general soil test won't provide information on the soil biology such as the bacteria, fungi, worms, insect and other living organisms that benefit the soil. Specialty test labs can provide this analysis.

Steps for Collecting a Sample

The first step of gathering a good soil sample is to draw a diagram of your property and indicate where you will take soil samples from. It's important for you to take samples from different parts of your property that have different characteristics. Soil samples should be collected by dividing the area to test into similar sections. These differences could be in color, soil types, slope, drainage, degree of erosion, etc. For example, you will likely want a different soil test for a front yard, a shrub bed, a vegetable garden, and so on. When you diagram your property, plot the areas you sample, and keep the diagram for future reference. Sampling these areas separately will allow you to



tailor fertilizer and lime/sulfur applications to each site separately. Since your sample will use only a small portion of the soil, it is very important the sample represents the area.

Usually, the best way to do this is to take several core samples (with a soil probe), evenly distributed, in the area. Try to take samples so that individual samples are spaced out evenly, this way samples will better represent the whole sample area. You will mix all of these smaller subsamples together, and then prepare a single soil sample from those several cores or slices rather than to have several tests made within an area.

How many samples? Depends on the size of the yard!

Tips for soil sampling:

- First remove and discard the surface litter or dead plant material.
- Most samples are taken from the surface to the tillage depth (6 inches) – use your soil probe!
- Place collected samples together in a clean plastic bucket or plastic tray. Break up any lumps or clods before mixing samples.
- Mix all the collected samples together thoroughly to make a composite sample. Any material other than soil, such as roots, pebbles, stones, etc., should be removed.
- From the composite sample, a mixed sample of about 1 pint (2 cups) should be placed in a clean soil sampling bag provided by the laboratory or in a plastic zipper bag.
- Never use brass or galvanized tools or containers for soil sampling, as they will contaminate the sample and will lead to misleading results.
- Avoid sampling soon after fertilizer or manure applications have been done.
- Avoid soil sampling during wet conditions.
- Soil sampling is usually done in late fall just before the soil freezes or in early spring before the growing season.

Sources:

<https://extension.unr.edu/publication.aspx?PubID=2223>

<https://extension.unr.edu/publication.aspx?PubID=2849>

<https://www.extension.purdue.edu/extmedia/HO/HO-71-W.pdf>