



Department of Horticulture

Purdue University Cooperative Extension Service • West Lafayette, IN

Collecting Soil Samples for Testing

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Testing garden soil for nutrient status is an easy and relatively inexpensive planning tool. Yet, it is an all-too-common practice for gardeners to apply fertilizer, lime, sulfur or other materials to their soils without knowing its current status. And sometimes this may do more harm than good. The old adage "if one pound is good, two is better and three is best" does not hold for things like applications of fertilizers, lime, or sulfur or even for organic matter, manures, and the like. A soil test will reveal the current nutrient status and whether additional nutrients should be added as fertilizer.

Soil pH (a measure of acidity or alkalinity) affects the availability of most nutrients for uptake by plants. Nutrients are most readily available to plants at a pH of 6.5. Most garden plants will grow satisfactorily within a wide range of soil pH. However, most horticultural plants grow best at a soil pH of 6.0 – 6.8 (slightly acid). To make soil more alkaline, lime is added, while to make it more acid, sulphur is used. Some gardening books will advise a general application of lime to garden plants. Yet most Indiana gardens have a soil pH that is already near neutral, if not slightly alkaline. So applying lime will not help and may hurt nutrient availability in these soils. Accurate lime or sulfur applications can only be made on the basis of this soil analysis.

Generally, a soil test will measure phosphorous, potassium, soil pH and organic matter. A nitrogen test is not usually done because nitrogen is not retained by soil and must be replenished every year. Tests for other nutrients may be available at additional cost. To get an accurate soil test, soil samples need to be carefully collected and prepared.

Timing

A soil test once every three to five years is usually adequate. However, if fertility and soil pH levels for specific plants are important to your plans, test more often.

Take the soil sample well before planting, so there is time to treat the soil. Soil samples can be taken any time the soil is suitable for spading or rototilling, but late summer or early fall gives enough lead time to plan ahead. However, if a situation develops that suggests soil fertility may be the problem, collect samples immediately. Taking soil samples from the "normal" and "abnormal" plant growth areas is helpful for comparison.

Tools

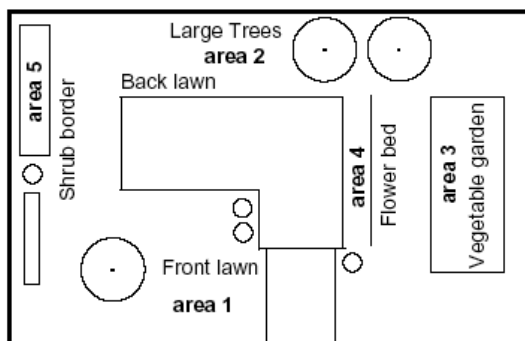
A soil probe or auger is ideal for taking soil samples, but a sharp spade, long knife or trowel can be used if you remove the same amount of soil from each sampling area. Place the soil in a clean pail or box until ready for packaging to send to the lab.

Sampling Techniques

Draw a diagram of your property where samples are to be taken. Sample dissimilar parts of the yard separately. Plot the areas to be sampled, then keep the diagram for future reference (see illustration).

Since only a small portion of the soil is used for testing, it is very important that the sample be representative of an area. Usually, it is better to prepare a single soil sample from several cores or slices rather than to have several tests made within

an area. So after you have divided the property into sample areas (front yard, shrub bed, garden, etc.), take several samples from each area. Mix these together by area to get your representative sample or "average" for each area. For large areas, 10-15 cores are needed, but for narrow shrub or flower borders, 4-6 cores will do the job. Be sure to take all samples from an area and place them together in a clean pail or box. Also, be sure to keep an accurate record of the sampled areas, and include this information in the soil report (called a field record) so you will be able to interpret the results.



- Sample turf areas to a 3-inch depth.
- Sample tree root zones to 8-12 inches or deeper.
- Sample row crops (in gardens) between the rows to avoid fertilizer bands.
- Sample light, dark-colored, limed and unlimed areas separately.
- Sample front and back yard separately if they have been managed differently or contain different types of fill soil.
- Dry samples at room temperature. (Do not use artificial heat.)
- Break up any lumps and remove all stones, debris, etc.
- When dry, mix well and crush so all the soil is the size of wheat grains or smaller, but do not pulverize.
- Remove 1 pint per composite sample and place in a clean, labeled container.

Testing

Many private laboratories in and around Indiana offer a wide range of soil testing services. To get price and other information, contact the laboratory of your choice before submitting your samples. The Purdue University Agronomy Department maintains a list of certified soil testing laboratories on their web site at:

http://www.agry.purdue.edu/ext/Soil_Labs.html.

You can also check with your local county office of the Purdue University Cooperative Extension Service to see if more local services are available.

Procedure

- Remove surface debris, such as plant residues, mulch or turf thatch, from the soil before inserting the soil probe, spade, or trowel.
- Sample gardens and shrub and flower beds to a depth of 6-8 inches.

For more information on the subject discussed in this publication, consult your local office of the Purdue University Cooperative Extension Service.