

SOIL SAMPLING FOR HOMEOWNERS

The soil test provides a starting place for a soil improvement program for the home gardener. Unless you know the problems in your garden soil, you are only guessing when you apply fertilizer.

A soil test should be taken every 3-5 years. Soils that have problems should be tested every 1-2 years.

To get an accurate soil test, soil samples need to be properly collected and prepared.

WHERE TO SAMPLE

To be sure the soil sample represents the general soil conditions of the turf or garden, you need to make a composite sample. Do this by collecting small cores or slices of soil from various locations in the sampling area, and mix them together to get your representative sample or "average" for the area. For large areas, at least 10 cores are needed, but for shrub borders and small areas, 5 or 6 will do the job.

Do not include soil from a turf area and a garden in the same composite sample. Areas that have been fertilized and treated differently should be sampled separately. Areas with more than one definite soil type require more than one composite sample.



HOW TO SAMPLE

First, remove debris (such as turf thatch or residue) from the soil before inserting the soil probe, spade, or trowel.

Soils from gardens should generally be sampled from the soil surface to the depth of tillage, about 6-8 inches. Shrub and flower beds may also be sampled to this depth. Sample turf areas to a 4 inch depth. When using a spade, turn out one spade full and then shave a one inch slice of earth from the side of the hole. Do this in at least 5 or 6 different places.

Allow the samples to dry at room temperature and break up any lumps and remove all stones, debris, etc. When dry, mix the cores well and crush so all the soil is about the size of wheat grains. Don't pulverize the soil, however. After mixing, save a total of 2 cups (1 pint) of soil from each composite sample and place in a clean container (plastic, paper, etc.).

If you have several composite samples, keep a record of which portion of the lawn or garden each sample represents. Label each sample with your name, address, and the crop you intend to grow (zoysia, vegetables, roses, trees, etc).

Bring the sample in to your County/District Extension Agent and they will take your sample and any information that is needed and have the soil tested at the Kansas State University soil lab. The agent will then make recommendations for you based on the soil test results.

Average Cost of soil analysis including postage \$14.00



MEANING OF pH:

The pH scale measures the acidity or alkalinity of soil. A neutral soil is one having a pH of 7. If a soil has a pH above 7, it is alkaline; below 7 it is acid.

Most plants prefer an acid to neutral pH range of about 6.0 to 7.0. At this pH level fertilizer elements are generally most available to the plant. If soils are extremely acid, lime may be recommended; however, most soils in the central Kansas area do not need lime. If a soil is extremely alkaline (above 7.5) an acidifying agent such as sulfur may be needed to reduce the pH.

FERTILIZING LAWN

Fertilize cool season grasses (tall fescue and bluegrass) in fall (September and November) and spring (May). Fertilize bermudagrass and zoysiagrass during summer months, April through August. Turf grasses are heavy feeders of nitrogen (N), especially where clippings are removed. Nitrogen determines, for the most part, the amount of top growth, provided phosphorus and potassium are present in adequate quantities.

Nitrogen (N), phosphorus (P), and potassium (K) are contained in what are termed "complete fertilizers".

Additional nitrogen can be supplied by applying various sources such as urea (46-0-0), ammonium sulfate (21-0-0), and others.

Fertilizer rates are usually based on the amount of nitrogen in a bag of fertilizer. A normal feeding is based on the rule of thumb: 1 pound of available nitrogen (N) per 1,000 square feet. If a portion of the nitrogen is an organic or synthetic source, a higher rate can be applied with fewer applications needed per season.

Example: To determine how much fertilizer to apply, first consider the results of the soil test. If phosphate and/or potassium is needed, apply an appropriate fertilizer containing these necessary elements. Figure the rate based on the nitrogen content. For example: Using an analysis of 31-3-8 (31%

nitrogen, 3% phosphorus, 8% potassium), only 3 pounds is needed per 1,000 square feet to provide about 1 pound of actual N (nitrogen) per 1,000 square feet. If a 10-6-4 is used, 10 pounds are needed for 1 pound of N per 1,000 square feet.

FERTILIZING TREES

New trees are not fertilized during the first year of establishment. After that nutrients are absorbed from the soil by tree roots and need to be available during periods of root growth. Maximum tree root growth occurs in spring during the weeks before bud-break and in fall after the leaves go dormant. A common method is by driving or boring holes to a depth of 4 to 12 inches and placing granular fertilizer below the surface of the ground in the vicinity of the root zone. This is usually near the drip line of the branches and inward. Fertilizer may also be spread on the soil surface and watered in thoroughly if a simpler procedure is desired.

Trees should be fertilized according to the size of the trunk diameter at 4 ½ feet above the ground. A common recommendation is to apply ¼ to ½ pound of actual nitrogen per inch of trunk diameter over the root zone.

STARTER FERTILIZERS

Most flower and garden crops respond to complete fertilizers high in phosphate such as 5-10-5 or 6-10-4 at 2 pounds per 100 square feet mixed in before planting.

Jason Graves, District Extension Agent- Horticulture
K-State Research & Extension,
Central Kansas District #3
300 W. Ash, P.O. Box 5040
Salina, KS 67402
(785) 309-5850
jlgraves@ksu.edu

