

## Testing the Soil in the Lawn

How do you know what fertilizer your lawn needs? The primary nutrients required by plants are nitrogen, phosphorus, and potassium. Testing the soil is the best way to find out what it needs. You can save time and money by determining the nutrients needed in the soil before applying fertilizer. In addition, you can cause problems by over-fertilizing or over-liming.

What does a soil test tell you? The soil test conducted through the University of Kentucky Soil Testing Laboratory tells you the pH, phosphorus, and potassium levels of the soil. A recommendation for the amount of the nutrients to apply to soil is given.



### pH

The pH indicates the degree of acidity or alkalinity of the soil. The pH scale ranges from 0 to 14. A pH of 7 is neutral. Values below 7 make up the acid range of the scale and values above 7 make up the alkaline range. The pH scale is not a linear scale but a logarithmic scale. A soil with a pH of 8.5 is ten times more alkaline than a soil with a pH of 7.5, and soil with a pH of 4.5 is ten times more acid than a soil with a pH of 5.5. Many plants will grow under pH levels of 6.0 to 7.0. Acid loving plants such as azaleas and rhododendrons prefer a pH of 4.5.

pH is important because it affects the availability of nutrients in the soil to plants. In highly acidic soils with a pH below 5 (pH is low), calcium, phosphorous, and

magnesium are less available to the plant. At pH levels above 7 (pH is high), phosphorus, iron, copper, zinc, boron, and manganese become less available.

The pH is used to determine if lime should be applied to increase the pH of the soil or if sulfur should be applied to decrease the pH.

### Phosphorus

Phosphorus (P) is essential for seed and fruit formation and root growth. The soil test, as well as the fertilizer bag, refers to phosphorus as  $P_2O_5$  instead of only P. On the University of Kentucky soil test results, phosphorus is referred to as phosphate.

Potassium (K), also mentioned as potash, is essential for root development and plant growth. The soil test result and fertilizer bag uses  $K_2O$  when referring to potassium instead of K.

### Nitrogen

The soil test does not determine the nitrogen (N) level. Plants need nitrogen to grow. When nitrogen is limiting, plants look yellow and grow slowly, often producing leaves that are smaller than normal. Nitrogen is leached out of the soil and used up regularly by all plants, so a basic nitrogen recommendation is given based upon the known nitrogen requirements of the plants being grown.

For the lawn with cool season grasses, apply 1 to 1.5 lbs. of actual nitrogen per 1000 sq. ft. per application. The timing and



frequency of nitrogen application depends upon the level of overall maintenance. Low and medium nitrogen levels are best for general lawns with little or no summer irrigation. For low maintenance, add one nitrogen application in October to November. For medium maintenance, add two nitrogen applications, one in September to October and another one in November to December.

### Preparing a Soil Sample



How do you obtain a soil sample for testing? To collect soil from the lawn, dig a hole 4 inches deep in the soil with a garden trowel or shovel. Set the soil from the hole aside. Then take a slice of soil about 1 inch thick to a depth of 4 inches. Trim the soil away from the side of the trowel or shovel to leave a 1-inch wide core of soil four inches long. Then place it into a plastic bucket or container. Repeat these steps for 8 to 10 locations in your lawn. The reason for taking soil from different locations is to get the best representative sample of the soil in the lawn. If you have a soil probe, you can use it instead of the garden trowel or shovel to collect cores of soil.

Take out roots and other debris from the soil. Mix all of the soil in your bucket together and make sure to crumble big clods. Place the soil on newspaper out of the way where it will not be contaminated by foreign matter for 1 to 2 days to let it air dry.

Then take 2 cups of soil to the County Extension Service Office. In Daviess County, the charge for a soil test is \$8.00 per sample. In 7 to 10 days the test will be completed and recommendations will be made. The soil should be tested every 3 to 4 years.

Usually only one sample from each lawn section, example front yard, back yard, is needed. However, if you have an area in the lawn where the grass is not performing as you think it should, take a soil sample from this area and keep it separate. At the same time, take a sample from the adjacent areas where grass growth is good. By taking these two samples, a comparison can be made to help determine the possible problem.

For more information about testing your soil to determine the amount of lime and fertilizer it needs, contact the Daviess County Cooperative Extension Service Office at 270-685-8480.

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