

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

