INTERPRETIVE GUIDE FOR LAWN AND GARDEN SAMPLES

FACT SHEET

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The Lawn & Garden Soil Test Report lists the results of analyzing a soil sample for it's general fertility status. A graphic display shows the rating for each of the results related to optimum plant growth. Along with this are general fertilizer application rates suggested to either improve the fertility of the soil or maintain it. Finally, some comments are made specific to your planting requirements as listed on the submittal form. This Fact Sheet contains additional information about each of the sections in the report.

Analysis Results

Organic Matter measures the amount of plant and animal residues in the soil. Usually the darker the color of the soil the more organic matter is present. Organic matter is beneficial because it helps soil tilth and also adds plant nutrients as it breaks down. Organic matter levels in the soil may be increased by adding amendments such as leaf litter, grass clippings, manure, peat or muck. Where practical, strive for a level of at least 3 to 5 percent.

Phosphorus, Potassium, Calcium and Magnesium are essential nutrients for plants. Generally, when these nutrient tests are rated very low, low or medium, sufficient fertilizer or lime must be added to build up the soil. When ratings are high or very high, either no fertilizer is needed or just enough to maintain the current nutrient level is necessary. The source of phosphorus and potassium is usually commercial fertilizer or manure. Lime is most often the source of calcium and magnesium.

Cation Exchange Capacity (CEC) measures the capacity of the soil to hold nutrients. The higher the CEC reading the greater the capacity. Muck or peat soils may have CEC's far in excess of 25; heavy clay soils have CEC's from 15 to 25; loamy soils from 5 to 15; and sandy soils below 5. Although high CEC soils can hold more nutrients, they are not necessarily more productive. Much depends on good management. Soil CEC's may be lowered by adding sands or gravels and increased by adding clay, muck or peat.

Soil pH determines the level of active soil acidity or alkalinity. A pH of 7.0 is neutral. Values lower than 7.0 are acid (sour). Higher values are alkaline (sweet). Soils commonly range in pH from 5.0 to 8.0. Most plants grow best when the soil pH is between 6.0 and 7.0. When the soil pH is greater than 7.0, phosphorus and some trace minerals may be less available to plants. There are some acid loving plants such as blueberries, azaleas and rhododendrons which prefer more acid soils (less than 6.0). When the soil pH is too low (acidic), lime should be applied. When the soil pH is too high (alkaline), sulfur may be applied to help lower the pH.

Buffer pH is used to determine the amount of lime to apply on acid soils. A value is not given when the soil pH is greater than 6.8, since no lime is needed. The buffer pH starts at 7.0 and goes downward as more lime is necessary.

Annual Nutrient Requirements

Lime Adding lime helps control soil acidity (pH). Lime makes the soil less acid. However, not all soils need lime. Do not apply lime unless the soil test calls for it. Agricultural grade lime may be purchased at most garden stores.

Nitrogen (N) Nitrogen is partly responsible for the green color in plants and the growth of lush foliage. Plants grown for foliage usually require more nitrogen than flowering or fruiting plants. Be careful not to over apply nitrogen on fruits, flowers, or most vegetables. Over application may result in lush foliage with little or no fruit or flowers. Because nitrogen readily leaches (washes out) of the soil, it should be applied as close to planting as possible. For flowers, garden vegetables and especially lawns it is not advisable to apply all of the nitrogen at once. Spread the application over the growing season.

Phosphate (P_2O_5) This nutrient is very important in formation of the flowering and fruiting portion of the plant. Phosphorus is therefore most important for fruits, vegetables and flowers. Unlike nitrogen, phosphorus does not leach from the topsoil. It may be readily built to high levels by the addition of fertilizers or manures.

Potash (K_2O) Growth of supportive parts of the plants such as stalks and stems requires lots of potassium. Like phosphorus, this nutrient does not leach from the topsoil. Potassium levels in the soil may be built up by repeated applications of fertilizer.

Magnesium (Mg) and Calcium (Ca) Magnesium is essential for the formation of chlorophyll in plants. For this reason it is also partly responsible for the green color. Calcium acts as the cement that holds plant cells together. Usually, when the soil is within the desirable range of 6.0 to 7.0, there is adequate magnesium and calcium for the plant. Most lime has some magnesium and lots of calcium. Lime is usually the best source of these nutrients.

Sulfur (S) This element is an important part of many of the proteins in plants. Organic matter is a good source of sulfur in the soil. Usually, when soil organic matter is greater than 3 percent, no additional sulfur is needed. Sulfur may also be used as a soil amendment to help lower soil alkalinity when it is excessively high. Elemental sulfur, ammonium sulfate, iron sulfate and aluminum sulfate may be used for this purpose.

Suggested Fertilizer to Apply

N-P-K Fertilizer Grade To meet the Annual Nutrient Requirements, the proper fertilizer materials must be selected. A fertilizer bag is labeled with the three numbers which indicate the nutrient content. The first number indicates the percent nitrogen (N), the second is the percent phosphate (P_2O_5) and the third is the percent potash (K_2O) in the fertilizer. For example, a 50 pound bag of 20-10-10 fertilizer contains 10 pounds of nitrogen, 5 pounds of phosphate and 5 pounds of potash. If the exact grade of fertilizer is not available from your supplier, use a similar grade.

Description A general description of the type of fertilizer is given here.

Annual Application Rate The exact amount of the N-P-K fertilizer grade to use is given here. The approximate size of the area to be fertilized should be calculated (area = length X width) in square feet. For small areas, a kitchen scale can be used to weigh out the proper amount of fertilizer. For even application, wherever possible, use a mechanical spreader.