

# Soil Nutrient Importance and Function

**Nitrogen (N)** - Sources of nitrogen are through decomposition of organic matter and application of commercial nitrogen fertilizers. With the exception of carbon, hydrogen, and oxygen, nitrogen is the most prevalent nutrient element in the makeup of plants. It is a major constituent of essential compounds such as amino acids, nucleic acids, enzymes, and many vitamins. Nitrogen is a component of chlorophyll (green color) in plants, thus giving plants the rich green color of a healthy plant. When used at recommended rates nitrogen improves the quality of leaf crops. Do not exceed 1 lb of nitrogen per 1000 square feet, excess nitrogen can have reverse effects on crops.

**Phosphorus (P)** - Phosphorus is necessary for the hardy growth of the plant and activity of the cells. It encourages root development, and by hastening the maturity of the plant, it increases the ration of grain to straw, as well as the total yield.

**Potassium (K)** - Potassium enhances disease resistance by strengthening stalks and stems, improves fruit size, flavor, texture and development, and helps prevent wilting. Soils with clays, such as the ones in Lake County, tend have fairly high potassium levels.

**Calcium (Ca)** - Soils in the arid West have the highest levels of calcium, white acid soils, primarily in the Southeast, has the lowest amounts of calcium. As an important mineral nutrient, calcium is a component of cell walls in plants and is known to stimulate root and leaf development as well as activate several enzyme reactions involved in plant metabolism. Indirectly, calcium influences crop yields by reducing soil acidity, which means that soils in Lake County tend to have high calcium levels. That is why gypsum should generally not be used on soils in Lake County, because it will raise the pH and calcium levels.

**Magnesium (Mg)** - The magnesium atom is incorporated into each chlorophyll molecule of all green plants. Without magnesium, photosynthesis would not occur. In plant nutrition, magnesium stimulates the uptake of phosphorus in the plant from the soil solution, and helps in starch translocation. Magnesium is often regarded as the companion to calcium, with both being derived dolomitic limestone. It then should not be a surprise that magnesium is also highly prevalent in the soils of Lake County.

**Humus** - Humus is not a soil nutrient, but it does play a vital role in the productivity of soil. Humus is the well decomposed vegetable and animal material which is capable of holding large amounts of plant nutrients and moisture. Humus gives the soil a loose texture that holds water and allows air to diffuse through it. The addition of peat, manures, and other organic matter to soil will provide humus to the soil.