

Fertilizers – What the Numbers Mean

Many people express frustration when it comes to selecting fertilizers at their local garden centers. They are often confused by the analysis (expressed by three numbers such as 25-3-6) and the use for all the different fertilizers they see. Fertilizers are mixtures of various major and minor nutrients that are necessary for plant growth. The major nutrients are nitrogen, phosphorous and potassium and are often referred to by their chemical signs of N, P and K respectively. These three nutrients are expressed as percentage by weight in the analysis of the fertilizer. For example, an analysis reading of 25-3-6 means that a minimum of 25% of the product is nitrogen, at least 3% is phosphorous and at least 6% is potassium.

Minor nutrients are not always listed on the labels, but when they are, they are also expressed as percentage by weight. Minor nutrients include iron, boron, copper, manganese, molybdenum, sulphur, calcium and others.

Many Colorado soils are low in available iron and have a high pH, so it's a good idea to buy fertilizers that have both iron and sulphur listed as minor nutrients. Sulphur, besides being a plant nutrient, helps lower the pH which makes iron more available to the plant for growth. For this reason I usually recommend fertilizers that have several percent of each of these.

Major nutrients of N, P, K as listed before, are obviously needed in larger amounts than the minor nutrients. Of these, nitrogen is usually needed in larger amounts than the minor nutrients. Nitrogen is the major nutrients used in plant growth. It is mainly responsible for the deep green color of a healthy plants leaves and also is used rapidly during the growth of the plant. Besides being a heavily used nutrient, it also tends to leach out of the soil quickly. For this reason it usually is supplied in the largest quantity in most fertilizer for lawns, trees and shrubs and other plants where green leaf growth is the major consideration.

Many higher quality fertilizers now use slow release nitrogen in their formulas. These are listed as polyon, water insoluble nitrogen (WIN), sulphur urea, sulphur coated urea and others. These fertilizers really help the homeowner and the environment by slowing the release of a very leachable nutrient. This allows more even feeding for the plant and less run off during rains.

Phosphorous functions in plant in the high energy compounds created during the decomposition of sugars and starches. It is instrumental in producing strong growth and root systems, producing high yields of flowers and fruit and also maturation of growth and fruits. Phosphorous is immobile in the soil and doesn't leach away. Therefore it is usually not supplied in as large a quantity as nitrogen.

Potassium functions in many enzymatic reactions in the plant but does not become a part of the compounds. It is needed in much smaller amounts than nitrogen and rarely exceeds 10% of the total fertilizer make up.

Most Colorado soils have fairly sufficient amounts of phosphorous and potassium, therefore most lawn and tree fertilizers use these sparingly. Look for a fertilizer with a 3-1-1 to 5-1-1 ratio such as 15-3-3 or 25-5-5 for grasses and trees. If you are fertilizing flowering plants in the garden a ratio of 1-1-1 to 1-2-1 such as 10-10-10 or 5-10-5 is better.

Remember, the experts at your local garden center can answer most of your questions about which fertilizer is best in your situation. They will be able and anxious to help you.