Fertilizer Basics

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Proper fertility is essential for optimum production of any crop. A key part of fertility management is a basic understanding of fertilizer materials. There are multiple formulations of fertilizers and fertilizer sources, everything from animal manures, to compost, to legume plants, to commercial fertilizers. Of course, good fertility management always begins with an accurate soil sample analysis.

There are 17 nutrients which are considered essential for good plant nutrition and are responsible for things such as growth, plant strength, yield, proper fruit development, fruit and seed quality, and disease resistance. These 17 nutrients are divided into the categories of macronutrients (those needed in large quantities) and micronutrients (those needed in small quantities). Lets focus on the major three macronutrients which are nitrogen, phosphorous and potassium. The most common bagged fertilizers are formulated to provide these three. The three numbers you see (usually on the front) of most bags of fertilizer represent the percentage of nitrogen, phosphate (phosphorous source), and potash (potassium source) in the bag by weight. For example, a 50 pound bag of 10-10-10 fertilizer would have 5 pounds of nitrogen, 5 pounds of phosphate, and 5 pounds of potash in the bag (10% of each compound). The rest of material is essential to provide a carrier that makes it possible for us to distribute it evenly. A 50 pound bag of 10-20-20 would have 5 pounds of nitrogen, 10 pounds of phosphate, and 10 pounds of potash in it (10%, 20% and 20% respectively).

A soil analysis will tell you how much (in pounds or units) of nutrient you need. It is rare that the recommendation and the analysis of bagged fertilizer match up exactly. In those cases, to meet the most critical need you end up over-applying certain nutrients or if you only meet the least critical need you under-apply certain nutrients. In the first case you spend money on nutrients not needed and in second case you do not meet the needs of the crop and production suffers. Fortunately, for crop producers, we have access to dealers that can blend the various nutrients to match the soil analysis recommendations, such that over or under application of each nutrient is avoided.

Blending fertilizers for small quantities such as for a garden or lawn is rarely practical. In those cases, we have to use good judgment and come as close as we can to the recommendation with the product that is available. Call your Extension office for more information.