



## GARDEN NOTES

# NUTRIENTS - VITAMINS FOR YOUR SOIL

*By Dennis Hinkamp*

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Our soils are a lot like we are. If we use and abuse them too much, they become weak and sick. Just like there are a lot of cure-all on the human vitamin shelves, many plant food manufacturers promise miracles. However, without knowing exactly what the different nutrients do in the soil, it's hard to make a wise decision.

There are 17 essential nutrients that a plant needs to survive, says Jerry Goodspeed, Utah State University Extension horticulturist. They are all important and necessary for growth and survival. Some nutrients are required in larger portions than others. They are called major nutrients. Those that require smaller portions are termed micro nutrients.

The major nutrients that make up a plant are carbon, hydrogen and oxygen, Goodspeed explains. These three are currently free, coming from water and the air. The roots are vital in the uptake of oxygen, and if the soil is water logged or simply over watered, it can deplete the plant of needed oxygen and cause severe damage or even death. The next nutrients in highest demand are nitrogen, phosphorus and potassium. These are the three elements found in a typical bag of fertilizer. Nitrogen is mobile in the soil and the one nutrient that needs to be replenished on an annual basis. It is responsible for green growth and other vital functions.

Many of our soils have an adequate supply of phosphorus and potassium, he continues. However, they can become depleted over time and require an application every few years. The best way to determine if the phosphorus and potassium in the soil are at adequate levels is to test it every few years. The next three elements in demand, calcium, magnesium and sulfur, are not normally found in fertilizers. In northern Utah we rarely, if ever, have a problem with calcium or magnesium. Sulfur is occasionally added to the soil to help temporarily reduce the acidity of a selected site. It has other benefits, but is seldom deficient enough in our soils to require an extra application for plant growth.

The remaining nutrients only require a small or trace amount for normal plant growth, and, except for iron, are rarely found to be deficient, Goodspeed says. These elements include boron, manganese, copper, zinc, chlorine, nickel, cobalt and molybdenum. Most of these micro nutrients are found in manures and other organic materials that we work back into the soil. The more organic matter added to the soil, the less chance there is of a problem with micro nutrient deficiencies.

“Iron deficiency is a common problem in our soils,” Goodspeed says. “No, throwing old nails into the soil does not replenish the iron supply. It just makes a mess for the next person who decides to till the area. In reality, our soils have plenty of iron, but a high acidity soil and excess water either tie up the iron or make it unavailable to the plants. Most iron products do little to help solve iron problems.”

The best thing to do is to add plenty of organic matter and not over water, especially in areas prone to a high water table and where the soils are heavy, he says. There are a few iron products on the market that work better than others. Iron chelates, such as Sequestrene 138 and Ferriplus, have been found to be the best but are usually also the most expensive.

“Products that claim to cure what ails your soil, yet contain little or no organic matter or nutrients, may not actually improve your soil,” he says. “If you are worried about your soil, start with a simple soil test. At least it will provide a good starting point. And, always feed that soil plenty of organic matter. That helps it build its own immune system to ward off illness. I wish I had listened to my own advice sooner. Maybe I could have avoided the flu.”

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