Beginning Gardening Part 4

During the past month we have covered where you should put your garden, the soil, and soil preparation. This week we are going to discuss what fertilizer is and why do plants need it. In order for a plant to grow and thrive, it needs a number of different chemical elements. The most important are carbon, hydrogen and oxygen, which are available from air and water and are therefore in plentiful supply. Nitrogen, phosphorus, and potassium are what we call macronutrients and this is what you find in most packaged fertilizers. Sulfur, calcium and magnesium, are the secondary nutrients, and born, cobalt, copper, iron, manganese, molybdenum and zinc, are the micronutrients. The secondary and micronutrients are normally high enough in our soils so we don't have to add them.

The most important of these (the ones that are needed in the largest quantity by a plant) are nitrogen, phosphorus and potassium. They are important because they are the necessary building blocks a plant needs to grow, resist diseases and make to fruit. If these nutrients are not available we have production problems. It's like a car factory running out of steel, or a road crew running out of asphalt.

If any of the macronutrients are missing or are hard to obtain from the soil, the plant will have a limited growth rate. What would make the nutrients hard to obtain from the soil you ask? Low soil Ph; that is one reason we lime the soil. When we have the ph right, the plants are able to get the needed nutrients from the soil. In nature, the nitrogen, phosphorus and potassium often come from the decay of plants that have died. Nature is a great recycler and this is also one reason why composting organic matter improves a garden so much.

To make plants grow faster, what you need to do is supply the elements that the plants need in readily available forms. That is the goal of fertilizer. Most fertilizers supply just nitrogen, phosphorus and potassium because the other chemicals are needed in much lower quantities and are generally available in most soils. Nitrogen, phosphorus and potassium availability is the big limit to growth.

The numbers on a bag of fertilizer tell you the percentages of available nitrogen, phosphorus and potassium found in the bag. So 6-12-12 fertilizer has 6% nitrogen, 12% phosphorus, and 12% potassium. These ratios come from the old days when products were sold in 100 pound bags. In a 100 pound bag, therefore, 6 pounds is nitrogen, 12 pounds is phosphorus, and 12 pounds is potassium. The other 70 pounds is known as ballast and has no value to the plants.

So why don't people need fertilizer to grow? Because we get everything we need from the plants we eat or from the meat of the animals that ate plants. Plants are factories that do all of the work to process the basic elements of life and make them available to us.

For plants, look for products that claim to be all-purpose plant foods or all-purpose fertilizers. With this type of fertilizer, the three numbers in the analysis are usually identical (or nearly so), so they are also called "balanced" fertilizers. For example, a couple of top-selling manufactured granular, dry fertilizers have an analysis of 10-10-10 and 15-15-15, while a leading balanced organic fertilizer has an analysis of 5-5-5. Any of these will do for routine plant feeding. To determine how much fertilizer your new garden needs, use our soil test lab. To apply a granular or dry fertilizer, either mix it into the planting row in the soil prior to tilling and planting, or scatter it over the surface of the soil above the root zone of an established plant. Then use a hand cultivator to lightly scratch the fertilizer into the soil so it will not wash or blow away before rain can dissolve it and carry the nutrients into the soil in a form that plant roots can absorb.

Dry fertilizers are convenient to use, and they usually supply nutrients to plants for several weeks or even months, depending on the formulation. There are slow release products that last a long period of time and are handy but more costly to use. Sometimes you may need very fast results, which is what you get with liquid or powdered soluble plant foods that are mixed with water and then poured onto the soil surrounding the plants. When treated with a soluble fertilizer, struggling plants with yellowing leaves often show improved leaf color within a day. There is no better way to fertilize

container plants than to treat them to half strength helpings of soluble fertilizer on a weekly basis.

I hope over the last few weeks we have helped you begin your first garden or improve your current garden. If you've missed any of the previous articles, call us at the extension office 706-253-8840 and we will send them to you. You can also read them on our website www.ugaextension.com/pickens under the "news" section.