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The garden diet: Plants are what they eat

**LEE REICH**

For the Associated Press

You wouldn't eat as much pie as bread, so why feed your plants a bunch of junk?

Don't feed your plants without considering how rich their food is. Urea, for example, is the fertilizer equivalent of a chocolate bar, a very rich food, rich enough so that one cup could kill a rose bush. Near the other extreme might be bone meal, the unbuttered popcorn of fertilizers, providing nourishment but nothing to get fat on.

Whether a fertilizer is organic or synthetic, the label on the bag or carton spells out clearly just how rich it is. Although plants require at least 15 elements for health, three are needed in especially large amounts, and they are nitrogen, phosphorus, and potassium.

**Look at the numbers**

Take a look at a fertilizer label and you will see three numbers prominently displayed. Those numbers represent the percentages of nitrogen, phosphorus, and potassium, in that order — "NPK" in gardening jargon. (Potassium is K because that is its chemical symbol, derived from its Latin name Kalium.)

A soil test, available through your local Cooperative Extension office or with a home-testing kit, can tell you what nutrients your soil needs. You take a number of representative samples from throughout your garden, combine them, then take out a subsample — about a cup's worth — for testing.

But only when you know how much of each nutrient is in a particular fertilizer can you know how much of that fertilizer to use. Just divide the amount of actual nitrogen, phosphorus, or potassium needed by the percentage, expressed as a decimal, of nitrogen, phosphorus, or potassium in the fertilizer.

For example, if a soil test indicates that you need one-tenth of a pound per hundred square feet of potassium for your flower garden, you know to spread one pound of a fertilizer that is 10 percent potassium, 2 pounds of one that is 5 percent potassium, and so on.

**Hungry for nitrogen**

Barring a soil test, you could merely replenish your soil with nitrogen each year. Nitrogen is the element needed by plants in greatest amounts, especially in the vegetable garden, and also is the plant food most easily lost from the soil. Besides what you carry off with the harvest, nitrogen can waft off as a gas or be washed through the soil by rain.

Most soils need about two-tenths of a pound of actual nitrogen per 100 square feet to replenish annual losses. For organic feeding, you could use about three pounds of soybean meal (which is 7 percent nitrogen), but this same amount of actual nitrogen could also be supplied by, for example, 2 pounds of 10-10-10 or 0.5 pound of urea (46 percent nitrogen).

The reasons we can often ignore phosphorus and potassium in computing fertilizer needs are threefold. First, many soils contain great reserves of these nutrients. Second, annually enriching a soil with abundant quantities of compost, leaf mold, straw, and other organic materials helps release these minerals from the soil.

What's more, these organic materials themselves contain phosphorus and potassium, as well as a slew of other nutrients needed in small but important amounts.

### **The wonder food**

Just as the richest foods are not necessarily the best for us, they also are not necessarily the best for plants. One of the least concentrated plant foods — compost — is also the best.

A layer an inch or two inches deep spread over the ground should furnish all the food your plants need for a year, in addition to supplying bulk for aeration and moisture retention, and other substances that keep roots happy and healthy.