

## Fertilizing The Garden<sup>1</sup>

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James M. Stephens<sup>2</sup>

### FERTILIZERS

All plants must have food for growth. Once plants use up the food stored in the seed, they must obtain sufficient amounts from the soil or other medium in which they are growing. Generally, plant food is in the form of commercial fertilizer or manures. The fertilizer recommended for most garden soils is called a mixed fertilizer. Both dry and liquid forms are effective. It must be placed in the soil where plant roots can reach it. Spraying fertilizer on the leaves is not suggested except for correcting micronutrient deficiencies.

### MACRONUTRIENTS

Materials applied to the soil to furnish plants with nutrient elements, except animal manures and other organic residues, are called "commercial fertilizers". The nutrient elements most likely to be needed on most soils are nitrogen, phosphorus and potassium. These nutrients are always given in this order in the analysis shown on the fertilizer tag. For example, a -8-6" is a fertilizer containing 6 percent available nitrogen (N); 8 percent phosphorus, expressed as phosphoric acid ( $P_2O_5$ ); and 6 percent potassium, expressed as potash ( $K_2O$ ).

Some commercial fertilizers are called slow-release because they are coated, pelletized, or derived from an organic source. If a slow-release type is to be used in the garden, it is advisable to apply a small amount of more readily available fertilizer along with it. For example, if a "00% organic" fertilizer is used, weather conditions (cold, wet) might prevent the immediate release of the nitrogen, thus creating N deficiency. Using 25% or 50% organic would prevent such a deficiency in most cases.

### MICRONUTRIENTS

Other elements are needed by plants, but these are usually present in the soil or are needed only in relatively minute quantities. They can be supplied in the fertilizer where needed. In some gardens, particularly on the marl soils, the land may be alkaline because of the high lime content of the soil. When alkaline water is used for irrigation, the soil may also become alkaline. In such cases it may be necessary to use fertilizer containing minor elements, particularly manganese and boron. On the other hand, gardens on sand, muck and peat soils may be so strongly acid that lime is needed to correct acidity and supply sufficient quantities of calcium and magnesium, as recommended in the leaflet on liming.

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2. James M. Stephens, professor, Horticultural Sciences Department, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville FL 32611.

Micronutrients are also sold as individual nutrients or as complete mixtures.

## ORGANIC FERTILIZERS

The use of organic fertilizers is covered in the document "Organic Vegetable Gardening". One of the most common forms of organic fertilizer is animal and plant manure. Manure is an excellent source of organic matter for garden soils and usually is a good source of nitrogen and potassium, but is low in phosphorus. Manures also contain micronutrients. Nutrients from manure are more slowly available than in commercial fertilizers. The quick availability of nutrients, especially nitrogen, in commercial fertilizers is very important in vegetable growing. Even when manure is used on the garden it is desirable to apply a commercial fertilizer containing some nitrogen and phosphate.

Fertilizers are available with a wide variation in the amounts of nitrogen, phosphate, and potash. Most commercial grades show specified amounts of minor elements (micronutrients). The kind of fertilizer to use on a garden will depend on the soil type and the previous treatment of the soil.

In home gardens where many kinds of vegetables are grown in a small area under intensive culture, it becomes necessary to suggest practices that are widely adapted and will be satisfactory for the crops that have large nutrient requirements, but will not be injurious to those with the lowest needs. It is possible to use too much fertilizer and thus injure crops.

**Caution:** Never recommend lawn fertilizer for the vegetable garden. It may (a) contain an herbicide, and (b) have the wrong proportions of nutrients for vegetables.

## AMOUNTS TO USE

Sandy, clay and marl soils in Florida are usually low in nitrogen, phosphorus and potash; fertilizer for these soils should contain a high percent of nitrogen, phosphorus and potash. Muck and peat soils are high in nitrogen, but lack phosphorus and are usually very low in potassium. With these facts in mind, the grades and amounts of fertilizer are recommended in Table 1.

One-half of the first and main application of fertilizer should be broadcast over the entire garden within one to two weeks before planting. The other half should be banded at planting time.

Do not put bands of fertilizer under the seed, as the young roots might be burned. Instead, place the fertilizer on each side of the seed row. To do this, you must make two furrows about six inches apart and only 2-3 inches deep. Spread the fertilizer down the furrows, then, fill the furrows level with soil.

Use a string to mark off a seed row between the two furrows containing fertilizer, after the fertilizer has been applied and covered properly.

A small amount ( 1/2 handful) of weak fertilizer such as 6-6-6 may be *mixed well* with the soil around the freshly transplanted plant (see Table 2). A fertilizer solution is effective and safe used this way also.

## SIDEDRESSING

Additional nitrogen may be supplied during the season by two or three light applications of soluble forms equal to 1/4 to 1/2 pound nitrate of soda per 100 sq. ft. Leafy crops, such as cabbage, kale, collards, lettuce and spinach, which often require more nitrogen than other garden crops, may be stimulated by sidedressing with a nitrogen fertilizer at the above rate. As a rule, the tuber and root crops, including sweet potatoes, potatoes, beets, carrots and turnips, need a higher percentage of potash than other vegetables. Additional potash may be added by applying soluble forms equal to 1/4 pound of muriate of potash to each 100 square feet of area. Where a sidedressing of both nitrogen and potash is needed, you may apply complete fertilizer as a sidedressing at one half the banded rates listed above; do not use the nitrogen carrier on muck and peat soils.

## LEGUMES

Leguminous vegetables, such as beans and peas, are able to make their own nitrogen from the air through their nodules. To avoid too much vegetative

growth at the expense of pod-set, do not apply as much fertilizer nitrogen as for the other vegetables. Instead of 4 lbs. of 6-6-6 per 100 sq ft. at planting, use only 2 lbs.

**Table 1.**

Table 1. Recommended amounts of fertilizer			
Soil	Grade	Amount/10 ft. Rowbanded	Amount/100 sq.ft.broadcast
Sandy, marl, rock or clay	6-6-6 or 15-15-15	5 oz.2 oz.	2 - 3 lbs.1 - 2 lbs.
Organic soils (muck or peat)	0-12-20	2 oz.	1 - 2 lbs.

**Table 2.**

<b>Table 2. Amount of Row for One Pound of 666 Banded</b>	
<b>If Row is:</b>	<b>Apply 1 Pint Every:</b>
1 ft. wide	50 ft.
1 1/2 ft. wide	35 ft.
2 ft. wide	25 ft.
2 1/2 ft. wide	20 ft.
3 ft. wide	16 ft.
3 1/2 ft. wide	14 ft.