



## Soil Test Note 19: Vegetable and Flower Gardens

*(Supplement to Soil Test Report)*

*Authored by Joyce Latimer, Extension Specialist, Horticulture, Virginia Tech, and  
S.E. Heckendorn, Laboratory Manager, Soil Testing Laboratory, Virginia Tech*

### Liming

**For Established Plants** — When less than 5 pounds per 100 square feet is recommended, spread lime evenly around plants and, if possible, rake into the top inch of soil without disturbing the root system. Wash off any lime that comes in contact with foliage.

Where more than 5 pounds per 100 square feet is recommended, apply the lime in several applications of 5 pounds each at intervals of approximately 1 to 6 months until the full amount is applied. Spread evenly around plants and, if possible, rake into the top inch of soil without disturbing the root system. Wash off any lime that comes in contact with foliage.

**Preplant** — When less than 10 pounds per 100 square feet is recommended, broadcast the recommended amount before planting and disk, rototill, or spade 5 inches deep into the soil.

When more than 10 pounds per 100 square feet is recommended, disk, rototill, or spade one-half of lime 5 inches deep into the soil and work the remainder into the top 2 inches of soil to ensure good germination and seedling growth.

### Fertilizing Gardens

#### Vegetables

**How to Apply** - Broadcast the recommended amount of fertilizer before planting and disk, rototill, or spade 5 inches deep into soil.

**Tomatoes, Green Peppers, Lima Beans** — If the garden area has been liberally fertilized in the past and the soil tests high or very high for phosphate and potash, for best results apply one-half the recommended amount of fertilizer before planting and the remaining half after fruit set. Too much fertilizer applied early in the spring for these vegetables will encourage vegetative growth and reduce fruit set.

**Sidedressing** — Corn and leafy vegetables such as broccoli, cabbage, celery, kale, lettuce, and spinach will

respond to a sidedress application of fertilizer applied between the rows about one month after planting. To sidedress, apply one pound of 10-10-10 or two pounds of 5-10-5 (or 5-10-10) per 100 feet of row and scratch into the top inch of soil with a rake.

#### Organic Matter

Organic matter loosens and improves the structure of heavy clay soils. In medium and light sandy soils, organic matter helps to hold moisture and nutrients. Some sources of organic matter are peat moss, compost, plant residues, leaf mold, manure, and sawdust.

#### Flowers

**Preplant** — Broadcast the recommended amount of fertilizer before planting and disk, rototill, or spade 5 inches deep into soil. Avoid excessive fertilizer application because this may cause succulent vegetative growth and few flowers.

**For Established Plants** — Spread fertilizer evenly around plants and, if possible, rake into the top inch of soil without disturbing the root system. Immediately wash off any fertilizer that comes into contact with foliage.

**Additional Rose Fertilization** — Roses require periodic fertilization throughout the growing season to promote new flower development. Repeat the basic fertilizer application each month from March through August.

#### Organic Fertilizers

*(Use in place of Fertilizer Recommendations on Soil Test Report.)*

For optimum growth of garden plants, maintaining a high level of all the plant nutrients in the soil is desirable. This can be accomplished by adding materials such as compost, manures, and lawn clippings throughout the year.

**Nitrogen:** A nitrogen source should be applied each year for a successful garden. If a nitrogen-

rich material such as compost or green manure (especially from legumes) has been incorporated in the garden soil (1- to 2-inch layer worked into a 6- to 8-inch depth of soil) within a few weeks before planting, then little or no further nitrogen will be required. Otherwise, incorporate any one of the following materials per 100 square feet before planting: 5 pounds of blood meal; 5 pounds of fish meal; 10 pounds of soybean-seed meal; 10 pounds of cotton-seed meal; or 15 to 25 pounds of poultry manure.

If the plant nutrients phosphorus (P), potassium (K), calcium (Ca), and magnesium (Mg) indicated on the soil test report fall into the medium (M) or low (L) category, then the following materials may be added per 100 square feet to bring the nutrients back up to a high level:

**Phosphorus:** 10 pounds of bone meal or rock phosphate.

**Potassium:** 10 pounds of granite dust or green sand. Wood ash is high in potassium but should be used sparingly only on acid soils (pH less than 6.0) due to its potential to make the soil too alkaline. (General rule of thumb: If applying 10 pounds of wood ash, reduce the lime applied by 5 pounds per 100 square feet.)

**Calcium:** If limestone is added as recommended due to low pH, this will correct low calcium levels. If limestone is not recommended, add 10 pounds of gypsum.

**Magnesium:** If dolomitic limestone is recommended due to low pH, this will correct low magnesium levels. If limestone is not recommended, add 10 pounds of Epsom salts.

## Potted House Plants

Potted house plants normally grow well with minimal care other than periodic watering and fertilization, provided they have adequate light for normal growth. Common problems in growth of houseplants are over fertilizing (causing excessive fertilizer salts to accumulate in the soil to toxic levels), over-watering, too little light, and heavy, compacted soil which results in poor drainage and root growth.

Books explaining the fertilization, water, and light requirements of various potted houseplants are commercially available from retail stores or may be found in your local library. The following are instructions for preparing soil mixes, and for fertilizing and liming potted houseplants.

## Preparing Soil Mixes

A successful potting mixture should have the right texture – one that will hold moisture without becoming waterlogged, and will allow free drainage. It should be free from soil pests, weed

seeds, and plant diseases. To have these conditions, a commercially prepared soil mixture may be best. If not available, equal parts of a good garden soil and peat moss make an excellent soil mixture for potted house plants. Add to the mix limestone at 1 tablespoon per 6-inch pot, and a 5-10-5 fertilizer at 1 teaspoon per 6-inch pot or a 10-10-10 fertilizer at 1/2 teaspoon per 6-inch pot. Mix thoroughly into the soil-peat moss mix.

## Fertilizing

**Important:** Make sure soil is moist before fertilizing! Do not fertilize when the soil is dry as this will result in root burn. Apply 1 teaspoon of 5-10-5 fertilizer (or 1/2 teaspoon of 10-10-10 fertilizer) per 6-inch pot and water thoroughly into soil. Do not allow fertilizer to come into direct contact with foliage. Repeat application every 2 months when plants are actively growing, normally during the period from March to November. If other commercial houseplant fertilizers are to be used, follow directions on label. Do not over fertilize, because this may damage plants.

## Liming

Most potted houseplants grow well at a pH of 6.0 to 6.5. Apply the recommended amount of lime around the base of the plant and scratch it into the upper 1/4 to 1/2 inch of soil if possible without disturbing the root system.

## Additional Information

### Fertilizer Substitution Table

For each 10 lbs. of this grade	You may Substitute			
		lbs.		Analysis
5-10-5	=	6.3	of	8-16-8
	or	4.2	of	12-24-12
5-10-10	=	8.3	of	6-12-12
	or	5.0	of	10-20-20
10-10-10	=	8.3	of	12-12-12
	or	6.7	of	15-15-15
10-5-5	=	8.3	of	12-6-6
	or	6.3	of	16-8-8

For more information, contact your local Virginia Cooperative Extension office or go to [www.ext.vt.edu](http://www.ext.vt.edu).