

Tomato

Tomatoes (*Lycopersicon esculentum*) are valuable garden plants in that they require relatively little space for large production. Each plant, properly cared for, yields 10 to 15 pounds or more of fruit.

PLANTING

Tomatoes are warm-season plants that grow best at temperatures of 70 to 80 F during the day and 60 to 70 F during the night.

Tomato plants may be started indoors from seed, or transplants may be purchased from a reputable garden center. If starting your own plants, use a light soil mix and give the plants plenty of light. Tall, spindly transplants are usually caused by low light levels in the home. Unless you have a sunny, south-facing window, supplemental light will probably be necessary. The seeds are sown six to eight weeks before the last frost date in your area. A week before transplanting time, harden-off indoor-grown plants by exposing them to an increasing number of hours outdoors each day.

PLANTING DATES		
Area	Spring	Fall
Piedmont	May 1-May 30	July 10-20
Central	April 5-25	July 10-20
Coastal	March 25-Apr. 10	July 25-30

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When you are ready to put homegrown or purchased plants into the ground, select stocky transplants about 6 to 10 inches tall. Set tomato transplants in the ground, covering the stems so that only two or three sets of true leaves are exposed. If transplants become "leggy," horizontal planting of tomato plants is an effective way to make plants stronger. Roots will form along the buried portion of the stem, giving better growth and less chance of plant injury from an excessively weak stem. Do not

remove the containers if they are peat or paper pots, but open or tear off one side to allow roots to become free. If non-biodegradable containers are used, knock the plants out of the pots and loosen the roots somewhat. Press the soil firmly around the transplants so that a slight depression is formed for holding water. Pour about 1 pint of starter solution (2 tablespoons of 5-10-10 or 5-10-5 fertilizer per gallon of water) around each plant.

If plants are to be staked or trellised, space them 24 inches apart in rows 3 feet apart. Although it requires more initial work, staking makes caring for tomatoes easier than letting them sprawl. Since they are off the ground, fruit rots are reduced, spraying is easier and may be required less, and harvesting is much less work. Use wooden stakes 6 feet tall and 1 1/2 or 2 inches wide. Drive them 1 foot into the soil about 4 to 6 inches from the plant soon after transplanting. Attach heavy twine or strips of cloth to the stakes every 10 inches.

Prune staked tomatoes to one or two main stems. At the junction of each leaf and the first main stem a new shoot will develop. If plants are trained to two stems, remove all other shoots, called suckers, weekly to maintain these two main stems. Pinch shoots off with your fingers.

Growing tomatoes in wire cages is a popular method among gardeners because of its simplicity. Cage-growing allows the tomato plant to grow in its natural manner but keeps the fruit and leaves off the ground. Using wire cages requires initial expenditure, but they will last many years. Be sure to get fencing with at least 6-inch spacing between the wires so that you can get your hand inside to harvest the tomatoes.

If tomato plants in wire cages are pruned at all, once is enough. Prune to three or four main stems. Wire-cage tomatoes develop a heavy foliage cover, reducing sunscald on fruits. Caged plants are less prone to the spread of disease from plant handling, since they do not have open wounds and are handled less frequently than staked plants. However, it helps to space the plants somewhat further apart (3 feet) to allow good air circulation between plants. Humidity is higher because of the foliage density, and diseases, such as late blight, spread rapidly in humid situations.

TYPES

The varieties of tomato plants available may seem overwhelming, but they can be summed up by several major types:

- Midget, patio or dwarf tomato varieties have very compact vines and grow well in hanging baskets or other containers. The tomatoes produced may be, but are not necessarily, the cherry-type (1-inch diameter or less).
- Cherry tomatoes have small fruits often used in salads. Plants of cherry tomatoes range from dwarf (Tiny Tim) to 7-footers (Sweet 100).
- Compact or determinate tomato plants grow to a certain size, set fruit and then decline. Most of the early-ripening tomato varieties are determinate and will not produce tomatoes throughout a South Carolina summer.
- Beefsteak types are large-fruited. These are usually late to ripen.
- Paste tomatoes have small pear-shaped fruits with very meaty interiors and few seeds. They are a favorite for canning.
- Some tomatoes are orange or yellow. Sometimes the only way to get these is by growing your own.
- Winter storage tomatoes are set out later in the season than most tomatoes and fruits are harvested partially ripe. If properly stored, they will stay fresh for 12 weeks or more. While the flavor does not equal that of summer vine-ripened tomatoes, many people prefer them to grocery store tomatoes in winter.

RECOMMENDED CULTIVARS

The following tomato cultivars are recommended for South Carolina gardens. Most cultivars are indeterminate, except for Celebrity and Small Fry.

- Better Boy, Better Bush Improved, Big Beef, Celebrity, Early Girl, Park's Whopper, Terrific
- Cherry Type: Juliet, Small Fry, Super Sweet 100, Sweet Million
- Plum Type: Viva Italia
- Trellis: Tropic

Always choose varieties with disease resistance. Fusarium wilt is a common disease that can destroy a whole tomato crop. Many varieties are resistant to this disease. This is indicated by the letters VF after the cultivar name. VFN means the plants are resistant to Verticillium, Fusarium and nematodes; VFNT adds tobacco mosaic virus to the list.

FERTILIZING

A soil test is always the best method for determining the fertilization needs of a crop. Information on soil testing is available in the fact sheet HGIC 1652, *Soil Testing*. The desired soil pH for tomatoes is between 5.8 and 6.5. Tomatoes are heavy feeders. Use a starter solution for transplants. Sidedress when the first fruits are about the size of quarters, using 1 ½ ounces of 33-0-0 fertilizer per 10 feet of row. Sidedress again two weeks after the first ripe tomato with a balanced fertilizer such as 5-10-5, and repeat this one month later.

CULTURAL PRACTICES

Blossom-end rot can be a serious problem with tomatoes. The main symptom is a dark-colored dry rot of the blossom ends of the fruit. It occurs when there are extremes in soil moisture, which cause calcium deficiency in the fruit. When rain or irrigation follows a dry spell, the roots cannot take up calcium fast enough to keep up with the rapid fruit growth. Blossom-end rot also occurs if the delicate feeder roots are damaged during transplanting or by deep cultivation near the plants.

The following measures will help prevent blossom-end rot:

- Test the soil and maintain a pH between 6 and 6.5 and an adequate calcium level by liming or applying gypsum.
- Mulch with 2 to 3 inches of materials such as grass clippings, pine straw and leaves. Mulching prevents rapid soil drying and allows roots to take up available calcium efficiently.
- Do not overfertilize plants with nitrogen or potash. Excessive amounts of these nutrients depress the uptake of calcium.
- Keep moisture levels fairly uniform by regular watering and by maintaining a mulch layer around the base of the plants. Water plants during extended dry periods. Tomatoes need 1 to 1 ½ inches of water per week.
- Add organic matter to the soil. This will help “loosen” clay soils and will improve the water-holding capacity of sandy soils. In either soil, organic matter will increase plant uptake of water and calcium.

HARVEST AND STORAGE

It takes 55 to 105 days to maturity depending on the tomato variety. Pick fruit when it is fully vine-ripened but still firm; most varieties are dark red. Picked tomatoes should be placed in the shade. Light isn't necessary for ripening immature tomatoes. Some green tomatoes may be picked before the first killing frost and stored in a cool (55 F), moist (90-percent relative humidity) place. Do not store green tomatoes in the refrigerator since red color will not develop at less than 50 F. When necessary, ripen fruits at 70 F. Green tomatoes can be stored at 50 to 70 F for one to three weeks. Ripe tomatoes should be stored at 45 to 50 F for four to seven days.

COMMON PROBLEMS

Besides blossom-end rot, the following problems are common:

- Leaf roll: This is a physiological condition caused by excess water.
- Growth cracks: Tomatoes crack when environmental conditions (drought followed by heavy rain or watering) encourage rapid growth during ripening of the fruit.
- Sunscald: This occurs when tomatoes are exposed to the direct rays of the sun during hot weather.
- Poor fruit set: This occurs for several reasons, such as extreme temperatures, dry soil, too much shade and excessive nitrogen.
- Tomato blossoms are very sensitive to temperature. At temperatures of 55 to 60 F, pollination can be severely impaired and very few fruits will form. Temperatures of 90 to 95 F are also very unfavorable for pollination.
- Catfacing: This is a disorder caused by cold, wet temperatures during fruit set. The fruit is extremely malformed and scarred.

For more information, refer to HGIC 2217, *Tomato Diseases*, and 2218, *Tomato Insects*.

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