



## William T. Kemper Center for Home Gardening

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### Tomatoes

The tomato, *Lycopersicon esculentum*, is native to Central and South America with the largest number of wild relatives growing in Mexico. In the 1500s, Spanish priests harvested plants from Mexico and brought them to Europe where they were admired only as an ornamental. The tomato was nicknamed the ‘golden apple’ because the first wild relative taken back to Europe had yellow fruit. Later, they became known as the ‘love apple’ and for 400 years they were considered poisonous because the tomato plant looked like deadly nightshade. The wild species did not produce attractive, edible fruit; they were very seedy, sour and had a rough outer skin.

In the late 1800s, tomatoes started to emerge as an edible fruit though still recognized primarily as an ornamental. Breeding efforts in the 1870s produced the first commercial variety and now, the tomato is the most popular vegetable for the garden in the U.S. Hundreds of varieties are available to plant and catalogs commonly list dozens from which to choose.

#### **Growing Tomatoes**

Tomatoes can be grown from seed or more often, they are purchased as small plants from nurseries or garden centers. Producing tomato plants from seed is easy, however, it requires that they be grown inside under lights for about 8 weeks prior to setting out into the garden. If only a few plants are needed, it is easier to purchase them as transplants in peat pots or cell packs.

Most varieties available today are of the determinate or otherwise called bush type. This means that plants typically grow to a certain height, stop and the terminal buds set fruit. There is little maintenance to bush type tomatoes, however, harvest is generally short and much of the fruit matures at the same time meaning that you will have a large supply all at once. Indeterminate types or vine tomatoes continue to grow throughout the season. The flowers are produced early and continue to develop over a longer period of time compared to bush types. This gives a staggered harvest as fruits develop at different times. Growers of vine tomatoes commonly provide some support like a cage or trellis to control the growth and make harvesting easy.

If you do not have a garden bed, tomatoes can be grown in containers. Generally, the best selections for containers are the cherry tomatoes which have a smaller root system and therefore, are better suited for smaller soil volumes.

#### **Soil Requirements**

Tomatoes can be grown on a number of different soil types. The best is a deep, loamy soil that is well-drained and has a good supply of organic matter. The soil pH should be between 6.2 and 6.8 and should be checked early in the season prior to planting.

## **Establishing Plants**

Tomatoes are a warm-season crop and should not be planted outdoors until all danger of frost is past and the soils have begun to warm. In St. Louis, that occurs safely around May 15. If temperatures go below 50 degrees, they should be protected. The flowers will begin to set fruit when the night temperatures are between 55 and 75 degrees. Lower and higher temperatures will result in no fruit set.

Generally, planting two tomato plants per adult and one for children will provide enough fresh tomatoes for an average family. Plants should be set deeply into the soil so that the first leaves are just above the soil surface. This stimulates development roots on the upper part of the stem and results in a stronger overall root system.

Unstaked tomatoes should be spaced 3 feet apart with rows 5 feet apart. Staked tomatoes can be spaced 2 feet apart with rows 3 to 4 feet apart. Plants which are to be caged can be grown in rows a little closer. Once planted, they should be watered with a starter fertilizer solution that has a high phosphorous content. A recommended starter solution might be 1 tablespoon of 23-19-17 in a gallon of water.

## **Mulching**

After the plants have been in the soil for several weeks, they should be mulched with straw or leaf mulch. Mulching will assist in weed control, prevent excessive moisture loss, moderate soil temperature fluctuations and keep the branches or vines from contacting the soil where the fruit will rot. Sometimes, growers will place plastic sheeting down between rows to mulch the plants. This should be covered with bark or other coarse materials to hold it in place and prevent premature decomposition of the plastic.

## **Fertilizer**

Tomatoes will respond to fertilization, however, too much can damage the plants or result in poor fruit development and lower yields. When preparing the bed for planting in the spring, apply about 2.5 to 3 pounds of complete fertilizer like 5-10-10 or 5-20-20 to 100 square feet. This should be tilled or turned in to a depth of 12 inches. After the first fruit are about the size of a golf ball, an extra amount of fertilizer should be put down to support fruit development. Apply 1 pound of ammonium nitrate per 100 feet of row or about 1 tablespoon per plant. This is called side-dressing the plant or row. Repeat this two more times at three-week intervals.

## **Supports**

Providing some kind of support for the plants is generally recommended and can be done in a variety of ways; either by staking, caging or by a trellis. If plants are allowed to sprawl on the ground without support, the ground should be mulched to prevent direct contact of the fruit with the soil surface. More diseases and fruit rots will occur if this is not done.

Plants tied to a stake or trellis work best for vine type tomato varieties of indeterminate growth. Cages can be used for most any variety and are especially good for determinate types. Cages made of wire are most popular, however, they make harvesting, pest and disease control more difficult.

## **Pruning**

There are two types of pruning which can be done on tomatoes. The first involves removal of shoots or suckers from the leaf axils off the main stem. The second involves pruning to develop single or multiple stemmed plants. Removal of shoots (suckers) in the leaf axils on a regular basis is often a recommended

procedure to stimulate earliness and larger fruit. This can be done by pinching out the shoots by hand at weekly intervals or as they become 1 to 2 inches long. Suckers can be removed up to about mid-July then they should be allowed to grow. These will provide some shading of the developing fruit and help prevent sun scald.

Like the removal of suckers, pruning plants to form single stemmed versus multiple stemmed plants will promote larger and earlier fruit. If plants are trained to a trellis or a single stake, pruning is an easy task. If you use cages, then it is not. One disadvantage of single stemmed plants is that they are more susceptible to cracking fruit, blossom end rot and sun scald. Multiple stemmed plants require less maintenance, have fewer fruit problems, but produce later maturing fruit.

## **Cultivar Selection**

Which cultivar you select to grow is often a matter of personal preference. The first decision is to determine whether a determinant or indeterminate type is best for you. If a support system is used, indeterminate types typically require more effort to tie up the branches on a regular basis. However, they produce fruit over an extended period so that you do not have bushels of fruit at once. Determinant varieties are easy to care for because they are more self-supporting, however, most of the fruit will mature over a two to three-week period.

How long it takes for fruit to mature is one consideration when selecting a variety. You may wish to choose an early maturing variety (50 to 60 days). These generally do not produce fruit with the best taste, but might be the best choice if you can not plant as early as you want or you expect a short fall season. Later maturing varieties are usually better tasting but need to be maintained longer before they are ready.

The following are recommended varieties for St. Louis:

### ***Determinate***

'Show Me'  
'Celebrity'  
'Rutgers'  
'Supersonic'  
'Floramerica'

### ***Indeterminate***

'Big Girl'  
'Better Boy'  
'Jet Star'  
'Big Pick'  
'Lemon Boy' (yellow)  
'Quick Pick'

### ***Cherry***

'Sweet 100'  
'Sweet Million'  
'Cherry Challenger' (determinate)  
'Sundrop' (yellow)  
'Small Fry' (determinate)

***Paste*** (all determinate)

'Napoli'

'Veeroma'

'Veepick'

'Roma'