

Department of Plant Sciences

CONTAINER TOMATOES FOR THE TENNESSEE GARDENER

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Crop Description

Container growing means you can enjoy the irreplaceable taste of a garden tomato even without an in-ground garden. Containers can be successful and accessible for both novice and experienced growers while providing ready access to the kitchen to make use of harvests quickly and easily.

For container growing, it is particularly important to select a tomato variety that will be manageable and productive in the space and growing container. That means the mature size of the plant has to be matched to the location and container. Many container tomatoes are a determinate growing type, which means their vertical growth will be genetically limited — anywhere from 6 inches to about 4 feet, depending upon variety. Determinate tomatoes also bear fruit over a few weeks rather than the whole summer. The most compact (often called patio tomatoes) may not even need support.



Tomato types	Cultivar suggestions
Red cherry — determinate	VHN 968, Red Robin, Little Bing, Microtom, Tidy Treats (actually a dwarf indeterminate)
Yellow cherry — determinate	Patio Choice Yellow, Gold Nugget
Red grape — determinate	Fantastico
Red cherry — indeterminate	Jolly, Cherry Bomb, Candyland Red, Sugar Rush, Mountain Magic
Yellow cherry — indeterminate	Sungold, Citrine, Sun sugar, Firefly
Purple cherry — indeterminate	Midnight Snack, Black Cherry
Red grape — indeterminate	Valentine, Juliet
Red slicer tomato — determinate	Homeslice, Defiant, Iron Lady, Stellar, Celebrity
Red paste tomato — determinate	Little Napoli, Plum Regal
Unique compact slicer tomatoes	Tidy Rose (dwarf pink beefsteak type)

Many will need a cage or stake to support the main stem, though. Larger containers can support larger tomatoes that continue vertical growth and fruit production throughout the growing season. These are called indeterminate tomatoes.

Indeterminate cherry or grape tomatoes can grow well in larger containers but will need a large cage or stake support system to keep the plant growing vertically. This support will help increase light to leaves and air movement to keep the plant productive and healthy and enable access to pick fruit.

Planting and Growing

Containers and Growing Mixes

Selecting the best container for tomatoes requires understanding plant needs and then selecting containers and growing mixes to meet them. Personal preferences for aesthetics can also be considered since containers serve practical and decorative purposes. The permeability or air exchange of containers differs, so containers affect root aeration as well as the speed of growing mix drying.

Terra cotta is one of the most familiar and low-cost container types for small to medium sized pots. It is a porous clay material with high air exchange. This means the container will dry out rapidly, possibly too rapidly. So, use terra cotta with caution for tomatoes, and don't be tempted to grow tomatoes in small terra cotta pots even if readily available. Adequate size is especially important for containers that promote rapid drying of the growing mix.

Many concrete containers or those that contain some concrete material (like hypertufa) also have good root aeration and rather rapid growing mix drying. They could provide an interesting aesthetic while being somewhat less demanding to keep watered than terra cotta. However, concrete is likely to be more expensive.



A compact determinate tomato called 'Little Bing' has a concentrated fruit set.

Glazed ceramic containers have less air exchange than terra cotta due to the glazing, so growing mixes dry slower. And, there are a range of designs, color and options that can add interest to the porch or patio but may be higher cost.

Plastic containers offer slower growing mix drying, which can be a benefit in terms of management if there is adequate drainage in the container and growing mix. Plastic containers are also often lighter weight, which can be an asset for porches and balcony growing, but they are more likely to be top heavy or unstable as the plants grow. There are also a range of composite materials that provide long-term durability as well as pleasing aesthetics with more stability than plastic (due to their heavier weight) but are generally higher priced than traditional plastic pots.

For larger containers, wood options are also available where growing mixes would tend to dry out slower than in clay pots but more rapidly than in plastic. Drainage is essential for all container types. All containers for growing tomatoes need to be manufactured or augmented with drainage holes.

Water lost to the air by the growing mix can reduce temperature. Keep in mind, though, that large plants will be rapidly transpiring water from their many leaves. This water loss is likely to be more important than evaporation from the growing mix under summer conditions. Container color is also important in terms of temperature management. Darker containers are warmer in the spring and fall but reach higher temperatures in the heat of the summer. Summer sunlight absorbed by black pots can lead to slower root growth or even root damage, so consider locations where black or dark pots can be shaded during the hottest part of summer.

The best growing conditions for tomatoes in containers will generally be found using a soilless mix containing organic materials, such as peat moss, pine bark or coconut husks (coir) as well as minerals such as sand, perlite and vermiculite. Different combinations of materials with high water holding capacity (peat moss) can be combined with materials that speed drainage (composted pine bark, sand) or increase aeration (perlite) to provide ideal conditions. Soilless growing mixes also have the benefit of being able to be largely pathogen free to reduce the risk of soil borne disease issues. High quality compost is also an excellent addition to container growing mixes as long as it is thoroughly composted and free from any herbicide residues.

For smaller growing containers, a greenhouse or indoor potting mix could be used successfully. Often these mixes will have a majority of peat moss in them with perlite to support aeration and drainage. However, for larger containers, it will be necessary to select a mix that supports more rapid drainage. Often these faster draining mixes will have a lower percentage of peat moss. As peat moss breaks down, it can result in smaller particles that can reduce air space in the container. Composted pine bark could be used in larger percentages as well as sand to encourage drainage and aeration in larger containers. While these materials with larger particle sizes will drain



These containers are actually plastic to slow soil drying and enable a larger size but with a terra cotta color. (Shutterstock image)

faster and promote root aeration, they will also likely need watered and generally fertilized more often.

Container size is a final crucial element that interacts with container type and color as well as growing mix type and plant size. Smaller containers will heat up and dry out faster while larger containers will warm, cool and dry out more slowly but will have a greater risk of poor drainage. Selecting the ideal container for your site and variety will depend on the location as well as your ability to manage the containers. If growing patio or determinate cherry tomatoes, a container that is at least 12 to 18 inches deep and 2 to 5 gallons is recommended. For determinate slicer tomatoes or indeterminate cherry tomatoes, at least a 5-gallon tomato is recommended. A larger pot will enable more time between watering as well as provide more ability to hold nutrients.

Keep in mind that smaller pots will require more frequent watering and hot sunny locations can often require watering once or more a day. It is generally better to err on the side of too large than too small for containers to prevent rapid drying and plant loss under hot or dry conditions. However, make sure to increase the particle size of the growing mix as the container size increases. Mixes that contain primarily peat tend to hold more water and drain slower. In large containers, this may result in young plants with low water usage sitting in a mix that is too wet, which can lead to root health issues.

Planting and Managing the Crop

Tomatoes are warm-season crop that cannot stand frost and prefers warm growing conditions. So, plant in porch or patio containers after the chance of frost has passed- between mid-April and early May in Tennessee. Tomatoes are also sensitive to low soil temperatures and grow and perform best when root zone temperatures are 65 F or above. An asset of containers is that the smaller volume of growing mix (as compared to in-ground soil) often warms faster than soil. So, container tomatoes can be planted and growing before in-ground plants in many cases. Another option is to move the young tomatoes outdoors during the day and indoors during the night in the early growing season to protect the plant from spring nighttime cold temperatures.

Generally, the young tomato is planted in the container slightly below where it was growing in the transplant container. Since tomatoes will root from their stems, you can plant deeper if it has stretched, but don't feel the need



Peppers and tomatoes are grown in individual containers to enable watering to be based on specific plant needs.

to bury it deep if it is a compact, stocky plant. Gently loosen the roots in the transplant cube to be ready to explore the new growing mix. Be sure to fill in with growing mix around the young plant roots and shake or firm the growing mix slightly to eliminate large air spaces that would deprive the roots in the vicinity of access to moisture. Don't firm to the point that water doesn't easily flow through the growing mix, though.

Watering properly is more complex than it appears. Underwatering will limit plant growth and lead to wilting and leaf damage while overwatering can damage or kill roots and often entire plants. There are some specially designed containers that have a reservoir to water plants built in. These can certainly be useful for gardeners, but since those systems are unique, this discussion will focus on traditional containers.

- Water quality is important because the growing mix may not be able to protect the roots from high salts as well as soil. So, never use water that has gone through a water softener because ions in the water are usually replaced with sodium.
- Water quantity will depend on the size of the plant, the container volume and the environment. As a general rule, watering should be done until water drains out of the bottom of the container. This will help prevent the build-up of salts in the growing mix. Bottom watering can also be a simple way to keep leaves dry. But, it might also lead to salt accumulation, so try to top water a few times in the season to prevent salt build up. You can keep leaves dry when wetting the growing mix from the top by watering close to the stem.
- Frequency of watering will depend upon the location (temperature, humidity and light level) as well as the size and type of the plant and season. The best way to monitor moisture content in the growing mix is manually. Simply use your hand or finger to determine how moist the growing mix is and how deep that moisture can be found. Over time, you will become more familiar with the rate of drying and how that changes with season and watering timing will become easier to predict.
- Irrigation systems can be quite helpful in managing containers. Drippers can be individually placed in containers or special drip tube can be used. These irrigation systems can be used with timers to provide for plants during travel. However, irrigation timers are not a replacement for careful attention as timed irrigation can easily over or underwater plants.

Most soilless growing mixes will have a low level of plant nutrients (lower than soil), so proper supply of plant nutrients throughout the growing season will be important for plant growth and production. An important note about tomatoes is that an overabundance of nitrogen can lead to excessive leaf growth but poor fruiting, so use a fertilizer with potassium (K — the third number) that is as high or higher than the nitrogen (N — the first number). A controlled release fertilizer can be added to the growing mix at planting or soluble fertilizers can be used at regular intervals throughout the season to provide nutrients. A weekly feeding of a standard soluble fertilizer would likely be needed for many smaller containers while a longer frequency between feedings might be possible in larger containers that can hold more plant available nutrients. Many soluble and controlled release fertilizers will also contain micronutrients, which are more likely to be needed in container mixes than in native soils which often contain trace levels of many micronutrients. While the label and the table below can provide general instructions, visually monitor the plant through time to ensure that leaf color, growth rate and plant habit do not indicate an excess or deficiency of key nutrients.

Container tomato fertilization with balanced or fruiting formula (18-18-21 or 20-10-20)	Soluble fertilizer for 32 sq. ft. (4 ft. x 8 ft. raised bed) dissolved in 2-4 gallons of water	Soluble fertilizer for 25-gallon container in 1-2 gallons of water
Weekly 0 to 6 weeks after transplanting	1/2 ounce or 14 grams (about 1 tbsp)	1/16 ounce or 2 grams (about 1/2 tsp)
Weekly 7 weeks after transplanting and beyond	1 ounce or 28 grams (about 2 tbsp)	1/8 ounce or 4 grams (about 1/3 tsp)

Harvesting and Storage



Most home garden tomatoes are harvested fully ripe. This practice will enable full flavor development but also reduces shelf life and produces fruit that are more susceptible to damage during handling. Fruit harvested at 60-80 percent full color will ripen well in the home if handled correctly. Cherry tomatoes may be better picked slightly before full maturity to prevent cracking that can occur quickly after ripening.

Ripe tomatoes should be stored at room temperatures. So, it is best to harvest tomatoes from the garden when they will be consumed or processed in a few days. Tomatoes are chilling sensitive and refrigeration can cause flavor loss. It is common for newer hybrid cultivars to retain a firmer texture and avoid decay for longer periods after harvest than many heirloom cultivars. So, select tomatoes that can provide the taste and texture you prefer.

Common Pests, Diseases and Issues in Container Tomato Crops

Description	Possible cause(s), signs	Prevention/ Control Steps
Cracking fruit	Uneven moisture	Moderate watering Timely picking
Leaf spots	Early blight (yellow to brown spots with concentric rings) Septoria (typically smaller round brown spots)	Remove any diseased leaves Select resistant cultivars Keep leaves as dry as possible Use protective organic or conventional sprays
Dark sunken spots or holes on fruit ends	Blossom end rot	Physiological, so not a disease. Ensure proper nutrition and pH and moderate watering — not too wet or too dry.



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