

Tomato

Since tomatoes are America's favorite garden vegetable, it's no surprise that there are hundreds of varieties to choose from. Home garden tomatoes range from bite-size currant, cherry, and grape tomatoes to huge beefsteak fruits, in nearly every color except blue. You can grow tomato varieties that produce fruit extra early, and there are varieties for every type of climate, including many that are resistant to one or more common tomato diseases. Don't forget tomatoes especially developed for slicing, canning, juicing, or stuffing, too.

Types

Discovering which tomato varieties are best for your garden will involve some experimenting, and your climate and personal taste will play a role, too. Some early types such as 'New Girl' and 'First Lady II' will be ready to pick about two months after you set plants in your garden, while main-season hybrid and heirloom varieties can take up to 80 days. To extend your harvesting season, be sure to plant some of each type.

Many standard cultivars are adapted for a variety of uses, including slicing, canning, and salads. The large, meaty fruits of beefsteak tomatoes are especially popular for slicing. Italian or paste tomatoes are favorites for cooking, canning, and juicing. Sweet bite-size tomatoes in a range of colors are very popular for salads or as snacks.

Tomato plants are vines, and they have two basic ways of growing, called determinate and indeterminate. The vines of determinate varieties (sometimes called bush tomatoes) grow only 1 to 3 feet long, and the main stem and side stems produce about three flower clusters each. Once flowers form at the vine tips, the plant stops growing. This means determinate types set fruit over about a two-week period and then stop, which makes them excellent choices for canning. Indeterminate tomatoes have sprawling vines that grow 6 to 20 feet long. Most produce about three flower clusters at every second leaf. They keep growing and producing unless stopped by frost, disease, or lack of nutrients, which means you can keep picking fresh tomatoes the whole season. Pruning is necessary, however, or they will put too much energy into vine production.

Planting

Nurseries and garden centers offer a wide range of dependable, disease-resistant varieties such as 'Jet Star', 'Celebrity', and 'Sweet 100', and many sell transplants of popular heirloom tomatoes such as 'Brandywine', 'Green Zebra', and 'Cherokee Purple' as well. But if you want to take advantage of the full range of available cultivars, you'll have to grow tomatoes from seed. Unless you plan to preserve a lot of your crop, 3 to 5 plants per person is usually adequate. Unused seeds are good for 3 years. Specialty mail-order suppliers also offer individual tomato plants for sale, which could be a good option if you don't have space for growing your own from seed.

At 6 to 8 weeks before the average last frost, sow seeds $\frac{1}{4}$ inch deep and 1 inch apart in well-drained flats. Seeds will germinate in about 1 week when the soil temperature is 75° to 85°F; at 60°F the germination process can take 2 weeks.

In most places, a sunny spot indoors, such as a south-facing window, provides the warm, humid environment young seedlings need. If you don't have sunny windows, use a heating coil for bottom heat and a fluorescent or grow light overhead. Lack of adequate light will make seedlings leggy and weak. Once the seedlings emerge, keep the temperature no higher than 70°F, and water regularly. Once a week, feed with compost tea or fish emulsion, and discard any weak or sick-looking seedlings. When the second set of leaves - the first true leaves - appear, transplant to individual pots or deep containers (such as plastic cups), burying the stems deeper than they stood previously. Whatever container you use, make sure it has drainage holes in the bottom. After this initial transplanting, give the seedlings less water and more sun. As the weather warms, harden off the plants before planting them in the garden. Again, discard any weaklings that might harbor disease.

If you buy a four-pack or six-pack of transplants from a garden center, it's a good idea to transplant them to individual pots and harden them off for a week or two before setting them out in the garden. They'll have a more vigorous root system and you can make sure that the soil is warm and the weather settled before planting day.

Except in extremely hot climates, plant tomatoes where they will get full sun. To lessen shock, though, transplant seedlings on a cloudy day. Make the planting holes larger than normal for each seedling; cover the bottom of the hole with several inches of sifted compost mixed with a handful of bonemeal. For magnesium, which promotes plant vitality and productivity, sprinkle 1 teaspoon of Epsom salts into each hole. Disturb the soil around seedling roots as little as possible when you set them in contact with the compost.

Set the transplant so the lowest set of leaves is at soil level; fill the hole with a mixture of compost and soil. Or you can bury the stem horizontally in a shallow trench so that only the top leaves show; make sure you strip off the leaves along the part of the stem that will be buried. Many growers claim this planting method produces higher yields. Press down the soil gently but firmly to remove air pockets, and water well.

If you're planting a bit early, or in general want to speed the growth of your tomatoes, you can shelter them with a commercial device such as a Wall O' Water or simply wrap tomato cages with clear plastic. Spacing between planting holes depends on how you grow your tomatoes. If you're going to stake and prune the plants or train them on trellises, space the seedlings 2 feet apart. If you plan to let them sprawl, space them 3 to 4 feet apart.

Letting plants sprawl involves less work, but it requires more garden space. And unless protected by a very thick mulch, the plants and fruits are also more subject to insects and diseases due to contact with the soil - not to mention being more accessible to four-legged predators, such as voles.

If you plan to train your tomato plants on stakes or in cages, install the supports before planting. Pound 5- to 7-foot-long stakes 6 to 8 inches in the ground or insert the cages (it's a good idea to secure cages with stakes, too). As the vines grow on staked tomatoes, tie them loosely to the stake at 6-inch intervals with soft twine or strips of cloth or panty hose.

Any slight frost will harm young tomato plants, and nighttime temperatures below 55°F will prevent fruit from setting. In case of a late frost, protect transplants with cloches or hotcaps, because cold damage early in a tomato's life can reduce fruit production for the entire season.

Growing guidelines

Cultivate lightly to keep down any weeds until the soil is warm, then lay down a deep mulch to smother the weeds and conserve moisture. Give the plants at least 1 inch of water a week, keeping in mind that a deep soaking is better than several light waterings. Avoid wetting the foliage, since wet leaves are more prone to diseases.

A weekly dose of liquid seaweed will increase fruit production and plant health, as will side-dressing with compost two or three times during the growing season.

If you stake your plants, you may want to prune them to encourage higher yields. Pruned tomatoes take up less space and are likely to produce fruit 2 weeks earlier than unpruned ones; they do, however, take more work. Pruning tomatoes is different from pruning trees and shrubs - the only tools you should need are your fingers. You'll be removing suckers, which are small shoots that emerge from the main stem or side stem at the base of each leaf.

Leave a few suckers on the middle and top of the plant to protect the fruit from sunscald, especially if you live in a hot, sunny area, such as in the South. Sunscald produces light gray patches of skin that are subject to disease. When the vine reaches the top of the stakes or cage, pinch back the tips to encourage more flowering and fruit.

Helpful hint for pinching tomato suckers

Use your thumb and forefinger to snap off the small, tender shoots that sprout at the base of tomato leaf stems. If you need to use scissors or pruning shears, you've waited too long.

Problems

Although tomatoes are potentially subject to a range of pests and diseases, plants that are growing in rich soil with adequate spacing and support to keep them off the soil usually have few problems. Here are some of the common potential tomato problems:

- The tomato hornworm - a large, white-striped, green caterpillar - is an easy-to-spot pest. Just hand pick and destroy, or spray plants with Bt (*Bacillus thuringiensis*). If you're hand picking, check to see whether horn-worms have been attacked by parasitic wasps first - if they have, the wasp larvae will have pupated, forming structures that look like small white grains of rice on the back of the hornworm. Leave these hornworms be so the wasps can spread. Also, plant dill near your tomatoes. It attracts hornworms, and they're easier to spot on dill than they are on tomato plants.
- Aphids, flea beetles, and cutworms may also attack your tomato plants.
- Hard-to-spot spider mites look like tiny red dots on the undersides of leaves. Their feeding causes yellow speckling on leaves, which eventually turn brown and die. Knock these pests off the plant by spraying with water, or control with insecticidal soap.
- If you are new to growing tomatoes, check with your county extension agent to find out what diseases are prevalent in your area. If you can, choose varieties that are resistant to those diseases. Such resistance is generally indicated by one or more letters after the cultivar name. The code "VFNT," for example, indicates that the cultivar is resistant to Verticillium (V) and Fusarium (F) wilts, as well as nematodes (N) and tobacco mosaic (T).
- Nematodes, microscopic wormlike creatures, attack a plant's root system, stunting growth and lowering disease resistance. The best defenses against nematodes are rotating crops and planting resistant cultivars.
- Verticillium wilt and Fusarium wilt are two common tomato diseases. Should these wilts strike and cause leaves to curl up, turn yellow, and drop off, pull up and destroy infected plants, or put them in sealed containers and dispose of them with household trash.
- Another disease, early blight, makes dark, sunken areas on leaves just as the first fruits start to mature. Late blight appears as black, irregular, water-soaked patches on leaves and dark-colored spots on fruits. Both blights tend to occur during cool, rainy weather. To avoid losing your whole crop, quickly destroy or dispose of affected plants. The best defense is to plant resistant cultivars. Bicarbonate sprays can also help prevent the disease from infecting your plants.
- Blossom drop, where mature flowers fall off the plant, is most prevalent in cool rainy weather or where soil moisture is low and winds are hot and dry. It can also be from a magnesium deficiency or from infection by parasitic bacteria or fungi. Large-fruited tomatoes are particularly vulnerable. Fruit set can sometimes be encouraged by gently shaking the plant in the middle of a warm, sunny day or by tapping the stake to which the plant is tied.
- Blossom-end rot appears as a water-soaked spot near the blossom end when the fruit is about 1/3 developed. The spot enlarges and turns dark brown and leathery until it covers half the tomato. This problem is due to a calcium deficiency, often brought on by an uneven water supply. Blossom-end rot can also be caused by damaged feeder roots from careless transplanting, so always handle seedlings gently. Try to keep the soil evenly moist by using a mulch and watering when needed.
- Prolonged periods of heavy rainfall that keep the soil constantly moist can cause leaf roll, which can affect more than half the foliage and cut fruit production significantly. At first, the edges of leaves curl up to form cups; then the edges overlap and the leaves become firm and leathery to

the touch. Keeping soil well drained and well aerated is about the only method of preventing this problem.

- Fruit with cracks that radiate from the stems or run around the shoulders are often caused by hot, rainy weather or by fluctuating moisture levels in the soil. Such cracks, aside from being unsightly, attract infections. To avoid them, make sure you don't over water.
- Tomatoes - like eggplants, potatoes, and peppers - are related to tobacco and subject to the same diseases, including tobacco mosaic. Therefore, don't smoke around such plants, and wash your hands after smoking before handling them. Plan your garden so that nightshade-family crops, such as peppers and tomatoes, are separated by plants from other families.

Harvesting

Once tomatoes start ripening, check the vines almost daily in order to harvest fruits at their peak. Cut or gently twist off the fruits, supporting the vine at the same time to keep from damaging it.

Most plants can survive a light frost if adequately mulched, but at the first sign of a heavy frost, harvest all the fruits, even the green ones. To continue enjoying fresh tomatoes, cut a few suckers from a healthy and preferably determinate plant and root them. Plant in good potting soil in 3-gallon or larger containers. Keep in a warm, sunny spot, and with a little luck and care, you can enjoy fresh tomatoes right through winter.

Ripe tomatoes will keep refrigerated for several weeks, but their taste and texture will decline. Green ones will eventually ripen if kept in a warm place out of direct sunlight. To slowly ripen green tomatoes, and thereby extend your harvest, wrap them in newspaper and place in a dark, cool area, checking frequently to make sure that none rot. Sliced green tomatoes are delicious when lightly dipped in egg, then in flour or cornmeal and black pepper, and fried.

Tomatoes in Small Spaces

Even if you don't have much room to grow vegetables, you can still enjoy the taste of a fresh-picked tomato. Tomatoes are easy to grow in containers, making them perfect for decks, patios, or balconies. If you have the space, try growing full-size tomatoes in large fiberglass tubs or wooden barrels. For people with less room, there are dwarf cherry tomato cultivars, such as 'Tiny Tim' and 'Pixie Hybrid II', that can grow in 6-inch-deep pots.

All container tomatoes need lots of sun, plenty of water, and a rich, well-drained potting mixture. Compensate for the restricted root zone by applying liquid fertilizer, such as compost tea, lightly but frequently, increasing both water and nutrients as the plants grow.