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# How to Grow Tomato Plants: The Complete Guide



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# Planting, Growing, and Harvesting Tomatoes

By [Catherine Boeckmann](#)  
**Last Updated:** April 24, 2025




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Are you growing garden-fresh tomatoes this

dates with the *Almanac's* Tomato Growing Guide.

## About Tomato Plants

**Tomato plants are tender, warm-season crops** that love the sun and cannot bear frost. It's important not to put plants in the ground too early. In most regions, the soil is not warm enough to plant tomatoes outdoors until late spring and early summer, except in Zone 10, where they are a fall and winter crop. [See when to start tomatoes for your location.](#)

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**Tomatoes take 60 days to more than 100 days to harvest**, depending on the variety (see more about varieties below). Due to their relatively long growing season requirements (and late planting date), gardeners either 1) plant small start plants from a reputable nursery or 2) start tomato seeds indoors to get a head start.

Now, let's dig into the complete guide to

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## Read Next

- [Starting Seeds Indoors: How and When to Start Seeds](#)
- [Understanding When to Plant Vegetables](#)
- [Choosing Tomato Varieties for Your Garden](#)

## PLANTING

Select a site with full sun! In northern regions, 8 to 10 hours of direct sunlight are preferred. In southern regions, light afternoon shade (natural or applied, e.g., row covers) will help tomatoes to survive and thrive. Dig the soil to about 1 foot deep and mix in aged manure and/or compost. Give it two weeks to break down before planting.

previous couple of years. See tips on [crop rotation](#).

## When to Plant Tomatoes

Tomatoes are long-season, heat-loving plants that won't tolerate frost, so wait until the weather has warmed up in the spring. See our [Planting Calendar](#) for when to start tomatoes in your location.

If you are starting tomatoes from seed, sow indoors 6 weeks before the [last expected spring frost date](#) in your area. Sow seeds 1/2-inch deep in small trays. Plant seedlings outdoors about 2 weeks after that date or when temperatures stay in the mid-50 degree range both day and night. [See our full guide to starting tomato seeds indoors](#).

If you have a long enough growing season, it is also possible to direct-seed tomatoes in the garden soil (1/2-inch deep)—but not before the soil is at least 55°F. Note that 70°F soil is optimum for maximum germination within 5 days.

## Hardening Off Tomatoes

week before transplanting them into the ground. Set them outdoors in the shade for a few hours on the first day. Gradually increase this time each day to include some direct sunlight. [Learn more about hardening off seedlings.](#)

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## How to Plant Tomatoes

- Transplant your seedlings (or your nurs-

and the soil is at least 60°F. See our

[Planting Calendar](#) for suggested transplanting dates.


- Place tomato stakes or cages in the soil when planting. Staking and caging keep developing fruit off the ground (to avoid disease and pests) and also help the plant to stay upright. [See instructions on how to build stakes, cages, and tomato supports.](#)
- **Optional:** When you transplant tomatoes, add a handful of organic tomato fertilizer or bone meal (a good source of phosphorus) to the planting hole. Do NOT apply high-nitrogen fertilizers such as those recommended for lawns, as this will promote luxurious foliage but can delay flowering and fruiting.
- When planting seedlings, pinch off a few of the lower leaves. Here are two ways to set seedlings in the soil:
  1. Place each root ball deep enough so that the bottom leaves are just above the surface of the soil. Roots will grow all along the plant's stem underground. Plant seedlings 2 to 3 feet apart. Crowded plants will not get sufficient sun, and the fruit may not ripen.
  2. Alternatively, lay long, leggy trans-

the first set of true leaves. Roots will develop along the buried stem. If you plant this way, consider setting four tomato plants in compass-point positions (north, south, east, and west).

This formation enables you to fertilize and water the plants in the middle.

- Remember to allow enough space for the plants to spread out.
- Water well to reduce shock to the roots.

**Make the Most of Your Available Space**  
See how many plants will fit and which crops can occupy the same space in your garden at different times of the year.



Tomato (Small) (14 plants) – row length: 21' 8"

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## Growing Tomatoes in Containers

- Use a large pot or container (at least 20 inches in diameter) with drainage holes in the bottom.
- Use loose, well-draining soil (e.g., at least 12 inches of a good “potting mix” with added organic material).
- A tray of some sort should be placed under the pot to catch any excess water that drains out the bottom.
- Choose determinate types, such as bush or dwarf varieties. Many cherry tomatoes grow well in pots. Taller varieties may



- Plant one tomato plant per pot and give each at least 6 hours of sun per day.
- Keep soil moist. Containers will dry out more quickly than garden soil, so check daily and provide extra water during heat waves.
- Learn more about [how to grow tomatoes in containers](#).

## GROWING

### Watering Tomatoes

- Water in the early morning so that plants have sufficient moisture to make it through a hot day.
- Water generously the first few days that the tomato seedlings or transplants are in the ground.
- Then, water with about 2 inches (about 1.2 gallons) per square foot per week during the growing season. Deep watering encourages a strong root system.
- Avoid overhead watering and afternoon watering. Water at the base/soil level of a plant to avoid splashing water on the leaves (which invites disease).
- [Mulch](#) the plants 5 weeks after transplanting to retain moisture, keep soil from

weeds. Apply 2 to 4 inches of organic mulch, such as straw, hay, or bark chips.

- To help tomatoes through periods of drought, find some flat rocks and place one next to each plant. The rocks prevent water from evaporating from the soil.

## Fertilizing Tomatoes

- You should have already worked compost into the soil before planting and added some bonemeal to the planting hole when transplanting.
- Side-dress plants, applying liquid seaweed or fish emulsion or an organic fertilizer every 2 weeks, starting when tomatoes are about 1 inch in diameter (some folks say golf ball-size). If you are using an organic granular formula such as Espoma Tomato-Tone (4-7-10 or 3-4-6), pull mulch back a few inches and scratch 2 to 3 tablespoons fertilizer around the drip line of the plant. Water in, and replace mulch.
- Continue fertilizing tomatoes about every 3 to 4 weeks until frost.
- Note: Avoid fast-release fertilizers and avoid high-nitrogen fertilizers. As stated, too much nitrogen will result in lush foliage but few flowers and little or no fruit.

- If growing vining tomatoes, pinch off suckers (new, tiny stems and leaves between branches and the main stem). This aids air circulation and allows more sunlight into the middle of the plant.
- Gently tie the stems to stakes with rags, nylon stockings, twine, or soft string.
- As a plant grows, trim the lower leaves from the bottom 12 inches of the stem.

Check out [this post for even more tomato tips](#).



*Photo by Ozgurdonmaz/Getty Images*

## Types

The first job is deciding what to grow, and with at least 10,000 different varieties of tomato, there's certainly plenty to choose from, including cherry tomatoes, paste types, varieties with standard round fruits, and chunky beefsteak tomatoes.

STYLING: JESSICA WILSON/ISTOCK/GETTY IMAGES; TOMATOES: OZGURDONMAZ/GETTY IMAGES

3 feet (1m) tall, and 'vining' tomatoes, also called indeterminate or 'cordon' tomatoes, which continue growing to produce fruits on one long stem. [Learn more about the difference between determinate and indeterminate tomatoes.](#)

Do you only have a hanging basket? Hey, that's no problem—there are compact tomatoes for this situation, too.

- **Determinate tomatoes**, better known as bush varieties, grow 2 to 3 feet tall. These varieties tend to provide numerous ripe tomatoes at one time. They do not put on much leaf growth after setting fruit and tend to fruit for a (relatively) brief period of time. They are generally productive earlier than the vining varieties and not in the latter part of the growing season. Determinate tomatoes do not require staking or caging. These plants are ideal for containers and small spaces. Most paste tomatoes are determinate, which works well for making sauce and canning. Because they produce determinate tomatoes at the same time, they are a good selection for canning.

of mid- to late-season slicing tomatoes all summer and until the first frost. Because indeterminates experience more leaf growth, their production tends to be spread more evenly throughout the season. Indeterminate tomatoes need staking. They are ideal in large gardeners. Most beefsteak and cherry tomatoes are indeterminate.



*Tomatoes aren't only red! The flavorful heirloom 'Green Zebra' is featured here, a high-yielding indeterminate plant. Credit: VZaitsev/GettyImages*

Tomatoes come in a wide range of flavors, colors, and sizes. The choice also depends on how you use this versatile fruit in the kitchen. Cherry tomatoes are great for salads. Beefsteaks are great for sandwiches.

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Romas are not usually eaten fresh out of hand but are perfect for sauces and ketchup. [See our separate Guide to Growing Roma Tomatoes.](#)

Also, tomatoes can be susceptible to [pests and diseases](#). To avoid problems, choose disease-resistant cultivars whenever possible.

**Early Varieties** (fewer than 70 days to harvest)

Early-maturing cultivars such as 'Early Girl' may be slightly less flavorful but will produce fruit 2 to 3 weeks earlier than mid or late-season cultivars.

- 'Early Cascade': indeterminate trailing plant, fruit in clusters; disease-resistant
- 'Early Girl': indeterminate, meaty fruit; produces through the summer

**Mid-season Varieties** (70 to 80 days to harvest)

- 'Floramerica': determinate; disease-resistant; firm, deep red flesh, strong plant
- 'Fantastic': indeterminate; disease- and crack-resistant; meaty, rich flavor, heavy yields

**Late-season Varieties** (80 days or more to harvest)

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- 'Amish Paste': indeterminate; heirloom; large plum tomatoes, acorn-shaped fruit; juicy, excellent for sauce.
- 'Brandywine': indeterminate; heirloom; beefsteak with perfect acid-sweet combination; many variants are available
- 'Tomato, Roma VF': determinate; compact Roma tomatoes; resistant to wilts. Meaty interiors and few seeds; heavy-yielding;



*Roma tomatoes.*

*Credit: Ben185/Getty*

## Cherry Tomatoes

- ‘Sun Gold’: 57 days to maturity; indeterminate; resistant to Fusarium wilt and tobacco mosaic virus; bright tangerine-orange color on grapelike trusses; intensely sweet taste
- ‘Matt’s Wild Cherry’: indeterminate, disease-resistant (including blight)
- ‘Yellow Mini (F1)’: 57 days to maturity; indeterminate; sweet, juicy flavor; compared with other cherry tomatoes, Yellow Mini resists the splitting that is caused by too much rain or inconsistent watering; high resistance to tobacco mosaic virus.





Credit: [Johnny Seeds](#).

## Large Tomatoes

- Beefsteak, Beefmaster, Ponderosa, and Oxheart are noted for their large fruit. However, these larger fruited types often are more susceptible to diseases and skin cracking.



*Black Krim heirloom beefsteak tomato. 80 days; indeterminate; wonderfully rich flavor.*

Credit: [Park Seed](#).

[Learn how to choose tomato varieties.](#)

## HARVESTING

- Leave garden tomatoes on the vine as long as possible.
- Harvest tomatoes when they are firm and very red, regardless of size, with perhaps

yellow, purple, or another rainbow shade)

when they turn the correct color.

- If temperatures start to drop and your tomatoes aren't ripening, use one of these methods:
  1. Pull up the entire plant, brush off dirt, remove foliage, and hang the plant upside down in a basement or garage.
  2. Place mature, pale green tomatoes, stem up in a paper bag and loosely seal it. Or wrap them in newspaper and place in a cardboard box. Store in a cool (55°F to 70°F), dark place. Cooler temperatures slow ripening; warmth speeds it. Check weekly and remove soft, spotted, diseased, or ripe fruit.
- Never place tomatoes on a sunny windowsill to ripen. They may rot before they are ripe!
- Watch [this video for tips on how to ripen green tomatoes](#).
- You can harvest seeds from some tomato varieties. [Learn how here](#).

## How to Store Tomatoes

- Never refrigerate fresh garden tomatoes. Doing so spoils the flavor and texture that give them that garden tomato taste.

bags or containers. Seal, label, and freeze.

The skins will slip off when they thaw.

See more on properly [storing tomatoes and other vegetables](#).

## GARDENING PRODUCTS



## WIT AND WISDOM

- The tomato originated in South America. Spanish explorers brought the seed from the “New World” to Europe.
- Initially, tomatoes were thought to be poisonous and only grown in the 19th century as an ornamental plant called “The Apple of Paradise” in Germany and “The Apple of Love” in France.

plant belongs to the Nightshade family, of which some species are truly poisonous.

- In 1781, there is a record of Thomas Jefferson, an experimental farmer, raising tomatoes for his guests!
- People have argued for quite a long time about whether tomatoes are fruits or vegetables!
- Ease a headache by drinking tomato juice blended with fresh basil.
- The various varieties of tomatoes range from as large as grapefruits to as small as marbles.
- Compact tomato plants may be referred to as “dwarf,” “micro,” or “patio.”

## PESTS/DISEASES

### Tomato Problems

If no flowers form, plants may not be getting enough sun or water. Too little of either can stop flowering.

If plants are producing abundant flowers but no fruit, it could be due to insufficient light, inadequate watering or irregular watering schedule, extreme temperatures (above 75°F

If flowers form but drop off the plant, this is due to high daytime temperatures (over 90°F). Provide shade during the hottest part of the day by using row covers or shade cloth.

Low humidity can also affect pollination. The ideal is 40 to 70 percent. If humidity is low, mist the plant to help pollen to stick.

## Tomato Pests

Tomatoes are susceptible to insect pests. To avoid overpopulation of insect pests, follow these basic tips:

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1. Monitor tomato plants daily, checking under leaves, checking fruit, and checking near the soil.

the hose.

3. Handpick bigger insects like [Tomato Hornworms](#) with gloves on, dropping them into a bucket of soapy water.
4. Apply insecticidal soap directly to the insect on the plant. This works for smaller pests, such as aphids and spider mites.
5. Apply horticultural oils or sprays diluted in water. Neem oil sprays block an insect's air holes.
6. If you choose as a last resort to use insecticides like Sevin, keep in mind that you may be killing beneficial insects as well.

When it comes to tomato diseases and other problems, most of the work is in prevention.

Here are some tips to avoid tomato diseases:

1. Plant disease-resistant tomato varieties. Tomato disease-resistant codes are listed on seed or seedling packets (example: F = Fusarium Wilt).
2. Rotate crops at least every 3 years in the same spot. Avoid planting other members of Solanaceous/nightshade family in the same area as well. This includes potato, pepper, and eggplant.
3. Ensure well-draining soil. Always mix in

4. Water consistently! Do not overwater or underwater. Uneven watering may cause a condition called blossom end rot.
5. Destroy infected plants. Unfortunately, you often need to remove and discard infected plants, or the disease will overwinter. Do NOT put them in your compost pile.
6. Solarize the soil. If the problem is really bad, you can treat your soil by covering it with plastic during the hottest part of the summer for 6 to 8 weeks; the sun will destroy the bacteria.

## Tomato Diseases

- Blossom-End Rot causes the bottom side of the tomato to develop dark, sunken spots due to a calcium imbalance due to uneven watering. See the link for remedies and prevention.
- **Early Blight** is a fungal disease that causes leaves to drop. In July, the risks of blight increase, due to the combination of high humidity and warm days and nights. It starts with dark, concentric spots (brown to black), about 1/2-inch in diameter, on the lower leaves and stems. If you catch it early and destroy infected leaves, your plant may survive. The best defense for

develop. This also helps the ripening process, as tomatoes have maximum exposure to the sun.

- **Late Blight** is a fungal disease that causes grey, moldy spots on leaves and fruit, which later turn brown. The disease is spread and supported by persistent damp weather. Unfortunately, once your tomato has late blight, there's really no solution. [See our blog on "Avoid Blight With the Right Tomato."](#)
- **Mosaic Virus** creates distorted leaves and causes young growth to be narrow and twisted, and the leaves become mottled with yellow. Unfortunately, infected plants should be destroyed (but don't put them in your compost pile).
- **Fusarium Wilt** starts with yellowing and wilting on one side of the plant and moves up the plant as the fungus spreads. Unfortunately, once this disease strikes, the plant needs to be destroyed.
- **Powdery Mildew** is a fungal disease that leaves white spots or a dusting of white on the leaves. It can be managed. See the link to learn more.
- **Cracking:** When fruit growth is too rapid, the skin will crack. This usually occurs due to uneven watering or uneven moisture



periods). Keep moisture levels constant with consistent watering and mulching.

[See more information about Tomato Diseases and Disorders.](#)

## RECIPES

**SPINACH-STUFFED TOMATOES**

**TOMATO HERB BREAD**

**SKILLET CHICKEN WITH FRESH  
TOMATOES**

**CHICKEN-STUFFED TOMATOES**

**FRESH TOMATO TART**

### CHERRY TOMATO AND BEET CROSTINI

### FRESH TOMATO AND ZUCCHINI AU GRATIN

## COOKING NOTES

- Tomatoes are nutritious and low in calories. One medium-sized tomato provides 57% of the recommended daily allotment (RDA) of vitamin C, 25% of vitamin A, and 8% of iron, yet it has only 35 calories.
- Preserve your harvest to enjoy all year long by [canning tomatoes](#) or [drying tomatoes](#).

### VEGETABLES

## ABOUT THE AUTHOR

### Catherine Boeckmann



Catherine Boeckmann loves nature, stargazing, and gardening so it's not surprising that she and The Old Farmer's Almanac found each other. She leads digital content for the

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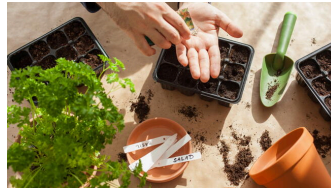
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## COMMENTS

ADD A COMMENT

**georgis (not verified)** 1 month 3 weeks ago

I've tried Early Girls a few times, as an attempt to get some tomatoes sooner than the big beefsteaks my spouse prefers. Every time, I get a couple of branches that produce cherry tomatoes! and once the cherry-sized tomatoes start up, the rest of the plant doesn't work as hard. I give up, I'm going to stick with beefsteak types.

Oh, and paste/Romas - these are great to have in the freezer. Core them and freeze them whole, take out of the bag when you need them, hold under running water and the peel slips right off. Then

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**Donna Sanders (not verified)** 1 year 9 months ago

What caused leaf curl at new growth on top of my tomato plants?

[REPLY](#)

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**Bst (not verified)** 2 years 8 months ago

You're missing "Ramapo". A classic Jersey tomato with that great old time flavor that was reintroduced by Rutgers University a few years ago. I've grown them in NH for 3 years now. They're a heavy producer, large size great for slicing. Gardening and growing tomatoes for well over 50 years, Ramapo is the best I have ever run across. Beats anything out there!

[REPLY](#)

---

**Thomas Cameron (not verified)** 3 years ago

I have started 3 tomato plants in containers inside my house. They are now 18" in height but have very few branches. Is this normal?

[REPLY](#)**The Editors** 2 years 9 months ago

Tomatoes are sun and heat lovers. They need at least 8 hours of direct sunlight per day PLUS a surrounding temperature of around 70 degrees Fahrenheit or higher.

[REPLY](#)**Benard Odaro (not verified)** 2 years 10 months ago

The tomatoes may fail to produce more branches while growing tall due to lack of enough sunlight. Adequate sunlight is very useful for it's growth.

[REPLY](#)

---

**Danielle (not verified)** 3 years 1 month ago

My big new tomatoes (still green) are getting holes (bugs) can I save them, I don't see any bugs, very frustrating

**The Editors** 3 years ago

Hi Danielle, We are sorry to hear about the issues with your tomato crop. It must be quite frustrating, especially since you can not see what is causing the holes. Some of the more common pests are the tomato fruitworm and tomato hornworm. Whatever is creating the holes in your tomatoes is likely causing damage and promoting decay to the inside of the fruit as well. It is best to get rid of the severely affected tomatoes and then keep a watchful eye for pests in an attempt to salvage what remains of your crop.

**REPLY**

---

**Cheryel Lemley-McRoy (not verified)** 3 years 3 months ago

I sliced open an over ripe tomato and it was filled with sprouted seeds. I scooped them out and put them in an inch of potting soil. I now have a forest of 2 inch tall seedlings. Will they produce the same kind of tomatoes as the tomato they came in?

**REPLY**

**Mr. Mike (not verified)** 2 years 9 months

ago

Cheryel,

If it was an heirloom variety it should. If it was a store bought variety it in all probability will not produce anything like what you had, if it produces anything at all.

Store bought tomatoes are genetically modified to the point where growers have to buy new plants each year. They do not save seeds as they cannot grow plants from those tomatoes that they grow. I grow heirloom tomatoes simply for the fact that I can save seeds plus I get much better tasting fruit. I took a 2 day seminar in commercial hot house tomato growing and learned of this from the seminar. I don't like genetically modified produce for this, and other reasons. Before I started growing my own tomatoes and had to buy store bought fruit I have had tomato seedlings growing in my compost and tried growing plants just to see what happens and none of them have produced fruit.

I hope this helps.

Mr. Mike

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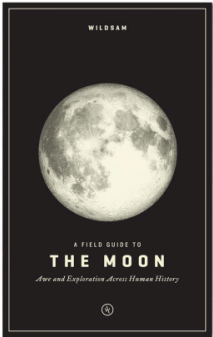
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