

# Department of Plant Sciences

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## PEPPERS FOR THE TENNESSEE VEGETABLE GARDEN

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### Crop Description

With a full range of flavors from sweet and fruity to hot and spicy and an array of beautiful colors, it's no wonder that peppers are one of the most popular garden vegetables. They are also a great source of vitamin C and other compounds that can be beneficial, such as carotenoids. However, the most well-known compounds in peppers are the capsaicinoids that provide the characteristic spicy, pungent or even painful heat. Sweet peppers have genetic differences in the control of these compounds, so they lack the pungency of hot peppers.



Most of the peppers we grow in our gardens are *Capsicum annuum*, but other species are also grown. Peppers are part of the *Solanaceae* family, sometimes called nightshades, along with tomatoes, Irish potatoes and eggplants. Because of this relationship, they share many of the same growing environment requirements of tomatoes and eggplants as well as some of the same pests and diseases. So, always be sure to rotate them together and don't plant peppers in a location where tomatoes or potatoes have recently been planted. Pepper preferences for warm weather, the wide variety of flavors and colors, their suitability for containers or in-ground production, and wide harvest period make peppers a great option for Tennessee gardens.

### Planting and Growing

Because of their need for a long growing season and warm soil and air temperatures (they are frost tender), peppers are almost always placed in the garden or container as a transplant. Plants may be purchased from high-quality garden centers or grown indoors. Keep in mind that some of the most destructive diseases of peppers are bacterial and seedborne. This means that transplant

## Peppers for the Tennessee Vegetable Garden

production areas can quickly spread disease through hundreds or thousands of seedlings unless clean seed and good growing practices are used. Use caution and buy healthy, disease-free transplants or seeds that have been screened for diseases, such as bacterial leaf spot.

Growing your own plants from seed gives access to a wider variety of cultivars than are available as transplants. Pepper seeds should be planted indoors 8-10 weeks before the last frost, which means that in Tennessee, you will want to sow the seeds in February or March. It is important to use seedling growing media that is free of pathogens and weed seeds. Often peppers seeds are initially placed in a seedling tray and then transplanted to a larger cell pack to continue growing until transplanting to the garden (see images on right). Keep the soil moist (but not wet) and warm. Seed heat mats are often required to keep growing media between 75 and 80 F, which is needed for good germination. Even under optimum temperatures and moisture, peppers can take 7-14 days to germinate.

A garden site with good drainage is essential for peppers, and they prefer a garden soil with high organic material. Raised beds can increase drainage, and dark plastic mulches can increase soil temperatures early in the season to support root growth.

Whether in ground or a raised bed, wait to transplant peppers into the garden until the soil has warmed. In most of Tennessee, that time will be in early to mid-May, but it could be later in cooler or higher elevation areas. Early planting may not provide many benefits as peppers require warm air and soil temperatures to grow. Place rows 3 to 4 feet apart and place plants 14 to 24 inches apart in rows in traditional gardens. For small space gardening, use at least 1 square foot in raised beds or a container that is 8 inches deep and 2-5 gallons in volume. Peppers prefer growing conditions of 70-75 F, and extended periods of temperatures above 86 F can interfere with flowering and fruiting.

Take soil or media tests and follow fertilization recommendations before planting and add a side dressing when the first fruit is 1 inch in diameter. Use caution not to over apply nitrogen as it can promote leaf growth over fruit growth. Using cages or the stake and twine system will support the pepper plants, keep the fruits off the ground, and prevent breakage under heavy fruit load.



Pepper types (species)	Days to harvest (transplant)	Cultivar suggestions
Sweet bell ( <i>C. annuum</i> )	55-85 (ripe)	Purple Beauty, Alliance, Red Knight, King Arthur, Big Bertha, Mecate (yellow), Flavorburst (yellow), Orange Blaze
Baby bell ( <i>C. annuum</i> )	55-75 (ripe)	Sweetie Pie, Cute Stuff Red, Cute Stuff Gold, Eros
Sweet roasting ( <i>C. annuum</i> )	55-80 (ripe)	Carmen (red), Escamillo (yellow), Mama Mia Giallo (yellow), Corinto Giallo (yellow), Cubanelle (green)
Sweet banana ( <i>C. annuum</i> )	60-85 (ripe)	Sweet Sunset, Goddess
Small sweet ( <i>C. annuum</i> )	55-75 (ripe)	Candy Cane, Pretty N Sweet, Lipstick, Yummy
Hot baby bell ( <i>C. annuum</i> )	60-80 (ripe)	Cajun Bell, Mexibell, Chili Pie
Hot wax ( <i>C. annuum</i> )	75-85 (ripe)	Hot Sunset, Hungarian Hot Wax, Hot Spot
Jalapeno ( <i>C. annuum</i> )	65-75 (ripe)	Emerald Fire, Spicy Slice, El Jefe
Serrano ( <i>C. annuum</i> )	55-75 (ripe)	Flaming Jade, Hot Rod
Fresno ( <i>C. annuum</i> )	65-75 (ripe)	Flaming Flare
Cayenne ( <i>C. annuum</i> )	55-80 (ripe)	Red Ember, Giant Ristra
Anaheim ( <i>C. annuum</i> )	65-85 (ripe)	NuMex
Poblano ( <i>C. annuum</i> )	80-90	Mosquerto, Don Emilo
Habanero ( <i>C. chinese</i> )	70-90 (ripe)	Roulette (red- not as hot), Helios (yellow)
Other hot peppers	85-105 (ripe)	Mad Hatter (bishops crown type- <i>C. baccatum</i> ), Holy Mole (pasilla type- <i>C. annuum</i> ) Tabasco ( <i>C. frutescens</i> ), Aji Rico ( <i>C. baccatum</i> )

## Harvesting and Storage

Peppers can be harvested immature green or fully ripe as red, yellow or orange. Keep in mind that there is a greater potential for disease or insect feeding damage when fruit is left on the plant to ripen to full coloration. A knife or pair of clean pruners should be used to harvest peppers as breaking them from the plant by hand can damage plants. Peppers can be stored for up to two or three weeks between 45 and 55 F at high relative humidity. It may be best to place them in their own bag or container as they can produce off flavors in some nearby produce. Peppers can be chilling sensitive if stored at less than 45 F for long periods. Some hot peppers are also commonly dried.

## Common Pests, Diseases and Issues in Pepper Crops

Description	Possible cause(s), signs	Prevention/ Control Steps
Wilting	<ul style="list-style-type: none"> <li>• Southern blight — White fungal mass or tan to brown sclerotia near soil line</li> <li>• Phytophthora crown rot — Black lesion near soil line</li> </ul>	<ul style="list-style-type: none"> <li>• Rotations to non-host crop</li> <li>• Use resistant cultivars for Phytop</li> <li>• Do not plant in poorly drained areas or overwater, remove infected plants</li> </ul>
Leaf spots	Bacterial leaf spot (image below)	Buy clean seeds, plants, resistant varieties, copper sprays
Dark sunken spots or holes on fruit ends	Blossom end rot	Physiological, so not a disease. Ensure proper calcium nutrition, pH and moderate watering. Anthracnose can also infect fruit, but the resulting damage is often circular with concentric rings and may have orange-salmon colored spores.



*Image credits: Yonghao Li, The Connecticut Agricultural Experiment Station, Bugwood.org*



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