



# Vegetable Gardening Tips

Growing Information for the Home Gardener Series



## Peppers

Peppers are a popular crop in the home garden, especially in Louisiana. These colorful fruit (green, yellow, orange, red, purple and black) range from sweet and mild to hot in flavor. Consumed raw they are high in vitamins C, B6, A and E. In Louisiana, peppers are often used to flavor gumbo, jambalaya, etouffee, rice and gravy and other Cajun and Creole standards. While the pepper is a necessity for flavoring local cuisine, it is also an important ingredient in foods around the world.

The pepper plant is in the Solanaceae family as are the tomato, Irish potato and eggplant. It most likely originated in tropical America. Black pepper spice is the seed of a completely different type and family of plants.

### Types and Varieties

Peppers are classified as sweet, mild or hot. Their hotness is related to the amount of capsaicin, a chemical present mainly in the seed but also in the fruit walls. The heat or pungency of peppers is rated using the Scoville Scale. The Scoville Scale ranges from zero to a little over 2 million Scoville Heat Units (SHU). The higher the number, the more pungent the pepper. For example, bell peppers have a rating of zero SHU. The famous Tabasco sauce ranges from 500 to 2,500 SHU while the Carolina Reaper pepper has a rating of 2.2 million SHU. Removal of the seed and fruit wall directly beneath the seed will make a hot pepper milder. Pepper groups may also be based on other fruit characteristics and usage. The following is such a grouping:

**Bell Peppers:** The majority of peppers grown. Fruits are sweet and generally blocky with three or four lobes. Bell peppers are usually harvested in the green-mature stage, but some are bred for their yellow, orange, purple and red color at full maturity. Allowing colored bell peppers to mature to a full ripe color in Louisiana can be difficult because of the presence of insects, disease and our hot and humid climate during the growing season. Peppers can be harvested at the first blush and allowed to continue to change color off the plant.

### Bell Pepper Recommendations for Home Garden Production

**Open pollinated:** Jupiter, Capistrano and Purple Beauty.

**Hybrid:** Camelot X3R, Excursion II, Heritage, King Arthur, Plato, Paladin, Revolution, Aristotle X34, Summer



Gold, Valencia, Enterprise, Lafayette, Declaration, Purple Bell, Tequila and Purple Beauty. All America Selection (AAS)-winning hybrid bells are Super Heavy Weight, Blushing Beauty, Bell Boy and the piquant Mexibell.

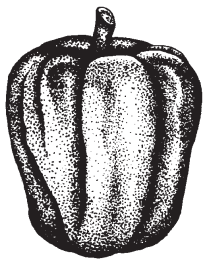
### Other Pepper Types

Peppers come in a large assortment of sizes, shapes and colors. The hotness varies from sweet to very hot. Some are for sauces or spices and some for frying, pickling or cooking. Types and varieties that produce well in the southeast include the following:

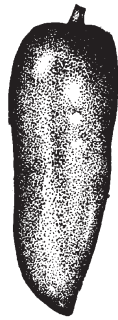
**Anaheim:** A long, slender pepper that is very mild in flavor. It is consumed raw or cooked. It is very popular in salsas. Home gardeners can try to find these peppers at a local nursery or mail-order catalog.

**Banana/Cubanelle:** Named for their color and shape. These peppers are generally 1-2 inches thick and up to 6 inches long. Banana peppers are slightly sweeter than cubanelles, and cubanelles mature into darker colors, but they are extremely similar. Try planting, Banana Supreme, Inferno, Aruba, Cubanelle, Biscayne, Anaheim, Hungarian Wax and the AAS winners Carmen, Giant Marconi and Gypsy.

**Cayenne Peppers:** A very slender pepper with a tapered end. This pepper is mostly consumed dried and ground as an herb to flavor foods. Try planting Charleston Hot and Large Red Thick, Mesilla, Large Thick, Long Slim, Super and Cayenne (N).



**Bell Pepper**



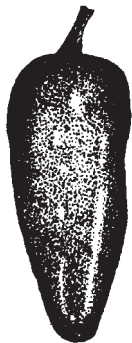
**Yellow Wax**



**Cayenne**



**Cubanelle**



**Jalapeño**



**Habanero**



**Tabasco**

**Habanero:** A short, small and round pepper that boasts a lot of heat. Try planting Habanero.

**Jalapeño Peppers:** These small fruit are 1 1/2 to 2 inches long and 1/2 to 1 inch wide. They have thick skin and taper to a rounded point. Jalapeños are mild to medium in heat. Try planting Tula, Jalapeño M, El Rey, Mitla, Grande, Ixtapa and Tormenta.

**Poblano:** A large, longer-than-wider heart-shaped pepper. The Poblano is mild and can be consumed raw, cooked or smoked. The dried or smoked version of the Poblano pepper is called an Ancho pepper.

**Ancho Peppers:** Try planting Tiburon, Ancho 101, San Juan and San Martin.

**Serrano:** A shorter pepper, 2-3 inches long, with a tapered end and a slim stature. These peppers boast a little more heat.

**Tabasco:** Famous in Louisiana for the sauce made from this pepper, the Tabasco pepper is very small, less than 1 inch long, slender and tapered at the end. The fruit mature from a pale green to yellow then orange to a deep red.

Please note that some very hot groups are dangerous. Use extreme caution to keep the burning irritant in any hot peppers away from the eyes or delicate tissues. Ornamental peppers generally have very small fruit and include both hot and mild varieties. Ripe fruit of any of the types can be dried and ground to make hot red pepper, chili powder or mild paprika.

## Cultural Practices

### Soil Preparation

Peppers are grown on most soils in Louisiana, but they prefer a well-drained soil rich in organic matter. Choose a location with full sun. Too much shade causes the plant to become thin and leggy and will produce low yields. Ideal conditions have a minimum of 6-8 hours of direct sunlight.

Acidic soils may cause stunted growth with chlorotic (yellow-spotted) and puckered leaves. Acidic soils (less than a 5.5 pH) should be limed in the fall or winter to a pH of 6. A soil test is the only accurate way to correct this problem. Your county agent can help you with this. When working the soil, till in or band about 1 pound of a complete fertilizer such as 8-24-24 per 20 feet of row. Make sure the fertilizer is 6 to 8 inches deep if banded.

### Consider Mulch

The soil-warming effect of black plastic mulch in large home gardens greatly increases the growth of peppers in early spring. This results in earlier and larger yields. The mulch also conserves moisture and fertilizer and helps control weeds and some disease. In many areas of the state, aluminum coated or silver plastic mulch is used to help with insect control. The reflected light from the painted surface helps to repel aphids and thrips – small insects that feed on peppers and transmit virus and disease. In small gardens mulch is still necessary for weed and moisture control. Consider mulching peppers with pine straw, newspaper, leaves or hay.



## Planting Dates

Peppers are commonly transplanted after temperatures have risen and danger of frost is past. Peppers are sensitive to low temperatures and may be stunted if transplanted too early. Generally, in the southern part of the state, peppers can be transplanted in late March. In north Louisiana, begin transplanting mid-April. Bell peppers may be transplanted through early May with acceptable yields expected.

Plantings made later than this will set few, small, poorly formed fruits because of the heat. This explains why bell pepper production continues June through early July and then stops. If these plants are maintained by spraying, watering and fertilizing, fruit will begin to set again in late summer after the temperatures become more favorable. For a fall crop, transplant bell peppers in late June through early July. Most other types of peppers will continue to set fruit through the summer and on into early fall if properly fertilized and watered. Plant seed 8-10 weeks prior to the spring planting date and 4-6 weeks prior to the fall planting date.

Bell peppers may be planted 15 to 18 inches apart in the row with rows spaced at least 36 inches apart.

If plants are to be kept through fall, thin out every other plant in mid-summer to allow room for growth. Varieties that produce larger plants, such as Tabasco or Cayenne, should be spaced about 3 feet apart and possibly wider. If space is limited, it is possible to plant two rows of bell peppers on a bed. Space the plants 18 inches apart within each drill, and space the drills 10 to 12 inches apart. This will help to increase the total yield of a given area. Apply a cup of diluted starter solution to each plant at transplanting. Even if starter fertilizer is not used, the plants should be watered in. Set transplants at the same depth they were grown in their containers.

**Encourage Plant Growth:** Fruit set begins within a few weeks after transplanting, and harvesting begins about 70 days after transplanting. If a pepper plant begins setting peppers when it is too small (usually less than 1 foot), remove the small peppers and sidedress the plants with fertilizer to encourage more plant growth before further fruit set.

Sidedress after first set of fruit with either 1/2 pound calcium nitrate, 1/4 pound of ammonium sulfate or 3/4

pound of 8-8-8 per 20 feet of row. One pound of fertilizer is about 2 cups. On light sandy soils, it may be necessary to sidedress with a complete fertilizer such as 8-8-8. Otherwise, just use nitrogen. Sidedress again every four to five weeks thereafter. Older plants may have to be staked and tied to help support their later heavy growth and weak branches.

Peppers will drop blooms and develop blossom-end rot when stressed, especially as a result from lack of soil moisture. Blossom-end rot shows up as a sunken brown or black area on the bottom of the pepper. Because peppers have a shallow root system, water thoroughly every week or 10 days if an inch of rain has not fallen. Peppers can be harvested at any stage of development. Bell types are usually harvested when firm and green. If harvested immature, the fruit will be thin, soft and will shrivel. They may also be harvested after they have turned red or yellow. At this time, they will be sweeter and have higher carotene content. Carotene is a precursor to vitamin A. Other types may be harvested in the mature green stage or at full maturity and full color development. When removing the fruit, hold the stem and snap the pepper off carefully. Pepper plants are brittle and break easily. Fresh peppers may be stored four to five weeks in a refrigerator if kept at 33°-40° F.

## Pest Control

As with all crops, peppers that are properly cared for, fertilized, irrigated, mulched and spaced properly will have less trouble with insect and disease. When applying any pesticides, read the label first. The proper use of these materials will be beneficial to you, your crops and the environment. Proper timing, proper application and use of the correct amount are essential for the safe use of pesticides.

## Weeds

The roots of the pepper plant grow near the surface, so use only shallow cultivation (particularly on older plants) to control weeds. Several herbicides are approved for peppers. These include Dacthal and Treflan. These selective preemergence herbicides normally suppress weeds for six to eight weeks. Control grassy weeds postemergence with herbicide containing the active ingredient sethoxydim. Follow label directions, or contact your county agent for more information on the proper use of these herbicides.

## Insects

**Aphids:** Two types of aphids, the green peach aphid and the melon aphid, are responsible for damaging pepper plants. Aphids often infest pepper transplants as they come from the greenhouse. Heavy aphid infestation results in leaf distortion, stunting and yellowing of plants and reduced fruit set. Large numbers of aphids are found congregated on the lower side of leaves. Black sooty mold fungus grows frequently on honeydew (sticky sap-like residue) excreted by aphids. They also transmit plant viruses such as Pepper potyvirus and Pepper mottle virus. Presence of ants on plants often indicates an aphid population since ants feed on honeydew produced by aphids.



Select pepper cultivars with viral resistance for best protection. Using aluminum-painted plastic mulch and removing damaged plants may help in reducing virus transmission by aphids. Use water from the garden hose to dislodge and reduce concentrated aphid populations. Soap solutions, neem oil and insecticides malathion and imidacloprid are helpful in managing aphid populations. While spraying, thoroughly cover the whole plant especially the lower leaf surface. Controlling ants can also reduce aphid populations.

**Whiteflies:** Whiteflies are usually present on the underside of leaves. Whiteflies cause damage by feeding on plant sap. Heavy infestations may cause defoliation, wilting or stunting of pepper plants and reduced yield. Like aphids, whiteflies also secrete honeydew and can transmit viruses. Leaves with honeydew are sticky and may turn black due to growth of sooty mold fungus. Always check new plants before buying/planting for the presence of whitefly nymph and adults. Use of reflective mulches will help in reducing population buildup of whiteflies. Imidacloprid is labeled for use in home garden pepper to control whiteflies.

**Thrips:** Thrips feed on new leaves and developing flowers, causing distorted and cupped leaves. Larval feeding also causes discoloration in developing fruit. Thrips are not easily visible on plants but can be seen by shaking flowers and new foliage over a white sheet of paper. The major damage caused by thrips is transmission of Tomato spotted wilt virus (TSWV). The virus can only be acquired by the immature stage of thrips, whereas plant-to-plant transmission occurs by adults. Use of reflective mulches will make the plants less attractive to thrips and hence reduce virus transmission. Spraying thoroughly with insecticidal soaps, neem oil and imidacloprid soil drenches will help in managing thrips; however, use of insecticide sprays may not be very effective in preventing TSWV.



## Diseases and Disorders

Blossom-end rot and sun scald are two common disorders of pepper fruit. Blossom-end rot begins as a light green to yellow sunken spot on the bottom of the fruit. Fruit with blossom-end rot often turn color prematurely and are more susceptible to other diseases. Blossom-end rot is caused by a calcium deficiency and aggravated by drought stress. Amending the soil with calcium-based fertilizers can help to alleviate this disorder.

Sunscald of fruit occurs when the fruit is overexposed to sunlight. Maintaining a healthy thick canopy is the best management option. Plants under poor soil fertility, drought stress or that are diseased will have thin canopies. On a small-scale, shading cloth can be used to protect the plants from the heat of the day. Excessive defoliation caused by bacterial leaf spot may result in sunscald. Varieties that produce a thick canopy are usually less susceptible to sunscald.

Bacterial spot, Tomato spotted wilt virus (TSWV), southern blight, Phytophthora root rot and anthracnose fruit rot are common diseases found on peppers grown in the home garden. Bacterial spot is caused by a seed-borne bacterium that attacks the leaves and fruit of pepper. Warm and humid weather favors disease development, and the pathogen is easily spread from plant to plant by rain splash and common production practices such as tying and harvesting. Symptoms first appear as small circular water-soaked spots with a yellow halo. Over time, the entire leaf turns yellow and the affected leaves drop off prematurely. Plants with bacterial spot are more susceptible to sunscald. Management of bacterial spot relies on prevention. Select varieties with resistance to bacterial spot. Only use certified disease-free seed and transplants. Avoid overhead watering and pruning when the leaves and stems are wet. Copper-based fungicides applied weekly will slow the spread of disease but only if applied before the onset of the disease.

Tomato spotted wilt virus is vectored by thrips. Thrips acquire the viruses by feeding on nearby weeds that are harboring the virus. Disease symptoms include stunting, bronze spots on the leaves and twisted or cupped leaves. TSWV is best managed by selecting pepper cultivars with resistance to the virus. Always check transplants for thrips or thrip damage before planting. Removing symptomatic plants and keeping the garden free from weeds can slow the spread of this disease.

Southern blight is caused by a soil-borne fungus. The fungus attacks the crown of the plant at the soil line causing stem girdling resulting in plant wilting and death. The disease develops when soil temperatures warm up in mid-spring. At the base of the plant white fungal growth on the plant and soil may be observed. In later stages the fungus develops mustard-seed like structures on the stem near the soil line. There are no varieties with resistance to southern blight and no soil-applied fungicides registered for the home garden. When symptoms are first observed, remove and discard affected plants along with the associated topsoil. Do not compost diseased plants. In severe cases soil sterilization or a new planting site should be considered.

Phytophthora root rot is caused by a fungal-like, soil-borne pathogen. Disease develops if soil around the base

of the plant remains wet for long periods of time (one to two days). The disease spreads through water in the soil and is most common in late summer and early fall, when rainy weather is common. Wilting of the entire plant, even when the soil is moist, is the most common symptom. As the disease develops, the stems will wither and dieback. Providing good soil drainage by incorporating compost and selecting resistant varieties are the best options to prevent *Phytophthora* root rot. Root rot is fatal and removing diseased plants is critical to prevent further spread of the disease.

Anthrachnose fruit rot, caused by a fungus, affects both immature (green) and mature pepper fruit. Medium to large sunken spots form on the fruit, and these spots may be covered with masses of salmon-colored spores, under wet and humid conditions. The fungus can survive on seed and in the soil or on plant debris. Protecting the plants from soil splashing onto them using mulch can prevent fruit infection. Avoid the use of overhead watering, and pick fruit regularly. Diseased fruit should be bagged and discarded. The fungus can be killed during composting if temperatures of 120° F are sustained for at least three days.

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