



Growing Peppers for Seed Saving

Peppers are a fascinating group of plants to grow, but not the easiest. They originated in tropical or semi-tropical areas of the world and are therefore heat-loving. They do best when temperatures are above 24°C. Peppers are one of the earliest plants cultivated in the New World and date back 8000 years.

They are in the same botanical family as tomatoes, potatoes, and eggplants. Five species of pepper are grown for their edible and ornamental fruits: *Capsicum annuum*, with the most common varieties (sweet peppers, cayenne, chili peppers, and many more); *Capsicum chinense*, with some of the hottest varieties (Scotch Bonnet, habaneros); *Capsicum baccatum*, or aji in South America, also with very hot varieties (Aji Amarillo, Aji Limon); *Capsicum frutescens*, with ornamental varieties and Tabasco (used for Tabasco sauce); and *Capsicum pubescens*, a relatively rare species that includes Rocato peppers.

With the exception of *Capsicum pubescens*, all of these species may cross-pollinate with each other. Seed-savers should isolate all varieties of pepper, as some will cross-pollinate readily. The distance between varieties should be 45 m (150 ft) for sweet peppers and 200 m (650 ft) for hot peppers. If sweet and hot peppers are grown in the same area, the isolation distance would be 200 m. This is rarely achievable in most gardens, so flowers should be “bagged” to prevent pollinators from accessing them.



Starting Indoors from Seed

Pepper seeds should not be sown directly in the garden. They need heat to sprout (germinate). Start peppers indoors in mid-March.

- Wash any seeding containers you have used before with strong dish soap (or diluted bleach) to prevent “damping off,” a fungal disease that could kill new seedlings.
- Fill small containers (like 6-cell plastic containers) with sterile, organic seeding soil. Water the soil thoroughly.
- Label each cell or container. Popsicle sticks work great if you are doing lots of plants. Use a permanent non-fading marker like Sharpie Extreme, and put the variety name on both sides of the stick in case the label gets difficult to read over time.
- Put 2-3 seeds of one variety into each cell or container labeled with that variety. You can either make holes about 0.6 cm (¼”) deep and put one seed in each hole, or put the seeds on the surface and cover with 0.6 cm of soil. Gently tamp the soil down over the seeds.
- Cover the containers with plastic wrap or a tray cover to keep them moist.
- Put the containers on a heat mat or on top of the water heater. The seeds germinate best at 27 – 29°C (80 – 85°F)
- Check the seed containers daily to make sure the soil stays moist, but let the surface dry before you water again (to help prevent damping off).
- Sprouts should appear from 5 to 10 days after planting.
- As soon as you see them coming up, remove the cover and put the new seedlings into bright light. They will need 12-14 hours of light a day.

An alternate method for germinating pepper seeds is to:

- With a non-fading permanent marker, label half of a paper towel with the variety name. Do a separate towel for each variety.
- Moisten the paper towel and lay the seeds for the variety on it.
- Fold the towel over the seeds and roll it into a tube.
- Repeat this for the next variety.
- Put the towel tubes in a glass jar and cover it tightly with plastic wrap (don’t use the jar lid). Put the date on a piece of masking tape and attach it to the jar.
- Put the jar on top of the water heater, on a heat mat, or any very warm place.
- After 3 days, carefully unroll the tubes and check the seeds for germination. Continue to check every day. When you see any seeds with sprouts, prepare seeding containers as above.
- With the eraser end of a pencil, poke 2 holes in each cell or container, 0.6 cm (¼”) deep. Put a label stick into soil on the edge of the container.
- With tweezers, carefully move one sprouted seed into a hole and another sprout into the other hole; repeat for more cells. Gently press the soil over the sprouts.
- Cover the containers and put them in a warm spot.
- As soon as you see the seedlings coming up, remove the cover and put them into bright light for 12-14 hours per day.

The first leaves are “seed leaves” or cotyledons. They will grow from the energy in the seed, so don’t fertilize them.

- When the first set of true leaves start to form, give them liquid organic tomato or fish fertilizer. Dilute it to about $\frac{1}{4}$ of the recommended strength - any stronger could damage the seedlings.
- Let the top of the soil dry out before watering or fertilizing.
- Continue to give your new plants dilute liquid fertilizer every 2 to 3 days.
- Transplant the seedlings to larger pots when they get their second set of true leaves.

Damping off is a fungal disease that causes the stem of a new seedling to rot. Seedlings can look healthy one day and be dead the next. To help ward off this disease, clean used containers and allow the surface of the soil to dry before watering again. You can also use a spray of strong chamomile tea to kill the damping-off fungus. Let it cool before applying.



Pepper Seedlings with Seed Leaves.

Preparing the Ground or Containers

Peppers can be grown in the garden, but they seem to do better in containers. For the garden, remove any weeds. Dig or rototill the soil and add manure, compost, or organic fertilizer. Rake the bed smooth. Before planting, water the soil, but not soaking wet.

For container growing, select one that is at least 20 L (5 gal.). Larger containers will result in higher yields. Make sure the container has a drainage hole in the bottom. To avoid pests and disease organisms, use potting soil rather than soil from your garden. Sunshine #4 organic potting soil mixed with Gaia Green 4-4-4 fertilizer is ideal (300 mL Gaia per 40 L of potting soil – just over 1 cup per 10 gal.).

Planting

Peppers should not be planted outdoors until the long weekend in May, or later if cold nights are forecast. Carefully remove any flower buds, so the plant will put energy into growing roots.

In the garden.

- Dig a hole twice as deep and wide as the pot. Add 60 mL (1/4 cup) Gaia Green to the hole and mix it with soil in the bottom.
- Water the plant. Turn the pot over while holding the soil and plant with one hand. Hit the bottom of the pot with the other hand to dislodge the root ball with plant.
- Put the plant in the hole with the top of the root ball at surface level with the garden soil.
- Fill the hole with soil, and tamp it down.
- Water the plant.
- Put a variety name label near the plant (the popsicle stick labels won't last the season, so use something more durable).
- Make a map on paper of the location of each variety.

In containers:

- Fill the container with potting soil mixed with dry Gaia Green or any organic fertilizer.
- Dig a hole in the centre.
- Extract the plant and root ball from its pot, put it in the hole, and water thoroughly.
- Put a durable variety name label in or on the container.

Watering

Peppers need a consistent supply of water to grow well. In the garden, they should have 25 mm (1") per week. During summer, containers should be watered at least daily. If the plants look droopy in the late afternoon, water them more frequently.

Problems

Peppers have very few pest problems, but young plants in the ground are susceptible to aphids and cutworms, and sometimes flea beetles. Slugs can be a problem. Check your plants regularly.

The fruit can be prone to sunscald if foliage is sparse. This is a pale-coloured spot on one side, which usually makes the fruit inedible.

Preventing Cross-pollination

Cross-pollination means that one variety receives or donates pollen to another variety. For example, you grow a King of the North pepper plant next to a plant of Joe's Long Cayenne. Bees pick up pollen from flowers of King and then visit Joe's Long. The fruit that formed from those flowers on Joe's Long would be typical for the variety. But if you saved seeds from these fruit and planted them the following year, you would have hybrid plants. The fruit would likely be inferior – they wouldn't look or taste like Joe's Long. Commercial hybrid varieties are carefully bred and maintained, but accidental hybrids may not be worth growing.

Peppers are largely self-pollinating, but many varieties depend on insects for pollination. If they can't be isolated, the plants should be contained by covering them. An easy way is to put organza gift bags over the flowers. The bags must let light and air in while keeping insects out. Many peppers have small flowers that are near the growing stem, so they can't be bagged individually. Use a large bag (20 x 30 cm, 8 x 12") and cover an entire branch. As with tomatoes, the bags should be tapped or shaken occasionally to help pollination.

Another way is to completely cover the plant as soon as it is planted with a cage made of fine-meshed screen or a fabric like tulle. When enough fruit have set, take the cage off and mark each fruit with a piece of yarn. These can be harvested for seed saving, while fruit that set after the cage is removed can be harvested for food.

Harvesting

Some peppers, such as green bell, Hungarian wax, and jalapeno are harvested for food before they are ripe. For seed-saving, the fruit must be fully ripe and left on the plant to mature before picking. For most varieties, peppers will be red or orange when ripe.

Saving Seeds

Peppers are one of the easiest vegetables to save seeds from. Simply cut the pepper open, scrape out the seeds, and put them on a plate with a variety label. You can eat the main part of the pepper. Let the seeds dry for a week. Small thin-walled peppers can be allowed to dry whole until they are brittle, then they can be crushed and the seeds extracted. Put the dry seeds into an envelope labeled with the variety name, year, whether the flowers were isolated, bagged, or caged, and your name.



King of the North pepper

Record Keeping

Fill out an evaluation form for each variety. This information will help us decide which varieties should continue to be grown for the seed bank. It will also help in determining whether the seeds you planted were “true,” not a hybrid.

If you keep a journal with notes on gardening activities, you will be able to remember when each variety was planted, how it grew, and whether you liked it.

Storage

Store seed bank seeds and your own in a paper envelope in a cool, dry place. Very dry seeds will last for years in the refrigerator if you put the envelope in a jar with a tight lid.

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