

Saving vegetable seeds

Quick facts

- Tomatoes, peppers, beans and peas are good choices for seed saving. They have flowers that are self-pollinating and seeds that require little or no special treatment before storage.
- Seeds from biennial crops such as carrots or beets are harder to save since the plants need two growing seasons to set seed.
- Choose open-pollinated varieties rather than hybrids. These plants bear similar fruit and set seeds that will produce more plants that are similar.
- Open-pollinated varieties may be "heirlooms." These varieties may be passed down through generations, or they may be selections that are more recent.



You can save vegetable seeds from your garden produce to plant next year. Seed saving involves selecting suitable plants from which to save seed, harvesting seeds at the right time and storing them properly over the winter.

Self-pollinating plants

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Cross-pollinated plants

Plants with separate male and female flowers, like corn and vine crops, may cross-pollinate. It is difficult to keep the seed strain pure.

Popcorn can pollinate a stand of sweet corn from a nearby garden on a windy day. This will affect the flavor of the current sweet corn crop, and a crop grown from these seeds will be neither good sweet corn nor good popcorn.

Insects can cross-pollinate cucumbers, melons, squash, pumpkins and gourds.

Although cross-pollination will not affect the quality of the current crop, seeds from such a cross will grow into vines with fruit unlike that of the parent plant. This often results in inferior flavor and other characteristics.

Open-pollinated plants

When saving seed, choose open-pollinated varieties rather than hybrids. If open-pollinated varieties self-pollinate or cross-pollinate with other plants of the same variety, they set seed that grow into plants that are still very similar to the parent plant. These plants bear similar fruit and set seeds that will produce more plants that are similar.

Open-pollinated varieties may be "heirlooms." Gardeners pass these varieties down through the generations, or they may be selections that are more recent.

Some tomato varieties are not hybrids. They are open-pollinated types such as 'Big Rainbow', 'San Marzano' and 'Brandywine'. Seed produced by these varieties will grow into plants very similar to the parent plants, with nearly identical fruit.

Likewise, 'Habanero', 'California Wonder' and 'Corno di Toro' peppers; 'Lincoln', 'Little Marvel' and 'Perfection' peas; and 'Kentucky Wonder', 'Blue Lake' and 'Tendercrop' beans are all open-pollinated varieties that will come true from seed.

Once you have planted an open-pollinated crop,

- Select the plants from which you want to save seed.
- Choose only the most vigorous plants with the best-tasting fruit as parents for the next year's crop.
- Do not save seed from weak or off-type plants.

Hybrid plants

Hybrid vegetable plants are products of crosses between two different varieties, combining traits of the parent plants. Sometimes a combination is particularly good, producing plants with outstanding vigor, disease resistance and productivity. Hybrid seeds are generally more expensive as they cost more to produce.

Hybrid plants, such as 'Big Boy', 'Beefmaster' and 'Early Girl' tomatoes will produce viable seed.

- Plants grown from that seed are not identical to the hybrid parents.
- They will be a completely new combination of the good and bad traits of the plants from the initial cross.
- It is impossible to predict just how the seedling plant will perform or what qualities the fruit will have.

Harvesting

Tomato seeds

- Allow fruits to ripen fully and scoop out the seeds, along with the gel surrounding them, before you eat or cook the tomatoes.
- Put the seeds and gel in a glass jar with some water.
- Stir or swirl the mixture twice a day. The mixture will ferment and the seeds should sink to the bottom within five days.
- Pour off the liquid, rinse the seeds and spread them out to dry on paper towels.

Pepper seeds

- Allow some fruits to stay on the plants until they become fully ripe and start to wrinkle.
- Remove the seeds from the peppers and spread them out to dry.

Peas and beans

[Back to top](#)

- Save peas and beans by allowing the pods to ripen on the plants until they are dry and starting to turn brown, with the seeds rattling inside.
- This may be as long as a month after you would normally harvest the peas or beans to eat.
- Strip the pods from the plants and spread them out to dry indoors.
- They should dry at least two weeks before shelling, or you can leave the seeds in the pods until planting time.

Storage

Keeping your saved seeds

Store seeds in tightly sealed glass containers. You can store different kinds of seeds, each in individual paper packets, together in a large container. Keep seeds dry and cool. A temperature between 32° and 41°F is ideal, so your refrigerator can be a good place to store seeds.

A small amount of silica-gel desiccant added to each container will absorb moisture from the air and help keep the seeds dry. Craft supply stores sell silica gel in bulk for drying flowers.

You can also use powdered milk as a desiccant. Use one to two tablespoons of milk powder from a freshly opened package. Wrap the powder in a piece of cheesecloth or a facial tissue and place it in the container with the seeds. Powdered milk will absorb excess moisture from the air for about six months.

Be sure to label your saved seeds with their name, variety and the date you collected them. It is easy to forget the details by the following spring. Use saved seed within one year. The older the seed the lower the germination and vigor.

Start with clean seeds and transplants

Preventing disease

The tomato disease **bacterial canker** has been found in local community gardens and small vegetable farms in Minnesota. There are other diseases commonly found in home gardens that are more easily managed.

Bacterial canker is difficult to control once established in the garden so it is important to prevent it.

- Bacterial canker can be brought into the garden on infected tomato seed or transplants.
- The bacteria can be attached to the outside of the seed coat or carried within the seed.
- Infected transplants and seeds rarely show obvious symptoms of infection.

There are several steps you can take to improve the chances of starting with healthy seeds or transplants.

- Purchase seeds from a reputable supplier. Most seed companies will not guarantee disease free seed but a good seed company will take steps to reduce the chances of seed borne pathogens.
- If you are saving seed or swapping seed with neighbors, save seeds only from healthy plants.
 - In Minnesota it is difficult to grow a completely disease free tomato in the garden. There are many fungal and bacterial pathogens that infect garden tomatoes.
- Choose healthy fruit from healthy plants whenever possible.

If you suspect seed may be contaminated, there are two seed treatment options that can help to clean seed. Both treatments can reduce germination of seed that is old or of poor quality, but have minimal effect on fresh, good quality seed.

Bleach treatment

- Make a solution with one part bleach (5.25% hypochlorite) and four parts water.
- Add a few drops of dish soap.
- Add seed to the solution and allow it to sit for one minute, stirring occasionally.
- Seed should be able to float freely so that all surfaces come in contact with the solution.

[Back to top](#)

- Pour the solution through a thin mesh sieve or a cheese cloth.
- Rinse the seed in cool running tap water for 5 minutes.
- At this point seed can be directly planted or dried completely on a screen, then stored. Direct planting is preferable.

Bleach seed treatment can be used on any kind of seed including tomato. It will remove pathogens from the surface of the seed coat but not from within the seed. This means for bacterial canker, bleach treatment only partially reduces the risk of infection from contaminated seed.

Hot water treatment

- Soak tomato seeds in water heated to 100 F for 10 minutes.
- Move seed into water heated to 122 F and soak the seeds for 25 minutes.
- Pour the seed through thin meshed sieve or a cheese cloth.
- Rinse the seed in cool running tap water for 5 minutes.
- It is critical that to precisely meet the exact time and temperature requirements. This can be done with a laboratory quality hot water bath. A sous vide, is a cooking device designed specifically to maintain exact temperatures in water and can be used instead of a water bath.
- Finally seed can be directly planted or dried completely on a screen, then stored. Direct planting after treatment is preferable.

Hot water seed treatment is effective in eliminating the majority of bacterial plant pathogens from both the surface of the seed coat and from within the tomato seed.

The time and temperature requirements for **hot water treatment** <http://www.oardc.ohio-state.edu/sallymiller/extension/factsheets/organicseedtrt.pdf> varies by plant and some seeds like peas, beans and squash may be seriously injured by hot water treatment. The description above covers only tomato seeds.

Tomato transplants should be purchased from a reputable local grower. Inspect plants carefully and reject any transplants with discoloration of leaves or stems, or any signs of wilting. Avoid any transplants that have been pruned or cut back, as bacterial pathogens can easily spread on tools.

Avoid all types of garden diseases by following the tips in [Growing healthy vegetables](#).

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Back to top