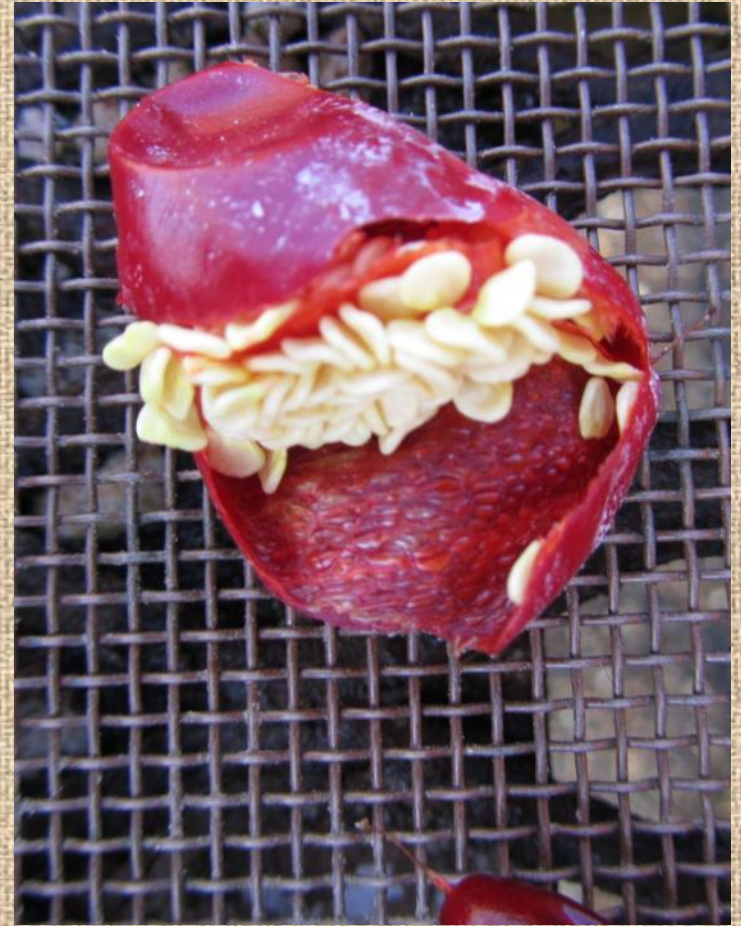


# Saving Pepper Seeds



# Why Save Your Own Seed?

There are many reasons why people choose to save their own seed. Some of the most common are:

- To preserve unique or rare varieties
- To learn more about plant biology and reproduction
- To limit outside inputs into crop production
- To create a new variety (saving seed is only part of this process).
- To save money



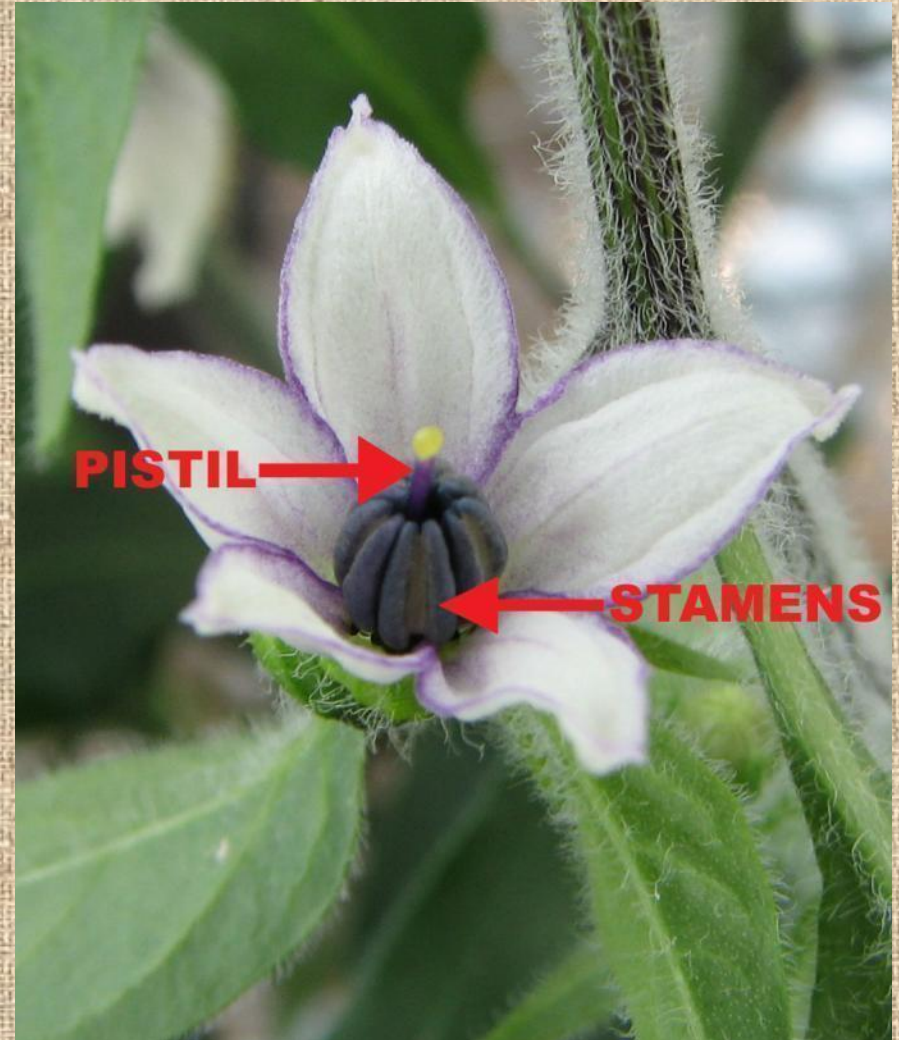
# Plan Ahead



Saving seeds requires planning and preparation to ensure that quality seed with the desired characteristics are selected. The first step is to decide how much seed you want to save of each variety. This will determine the number of peppers and plants that will need to be manipulated during the growing season.

# Pepper Flower Anatomy

Peppers have what are called “perfect flowers,” which means that each individual pepper flower contains both the male (stamens) and female (pistil) reproductive organs. As a result, each pepper flower can “self-pollinate” to produce a pepper on its own. Though peppers are capable of self-pollination, they often “cross-pollinate” and “outcross.”



# Cross-Pollination



Cross-pollination occurs when pollen from a plant is transferred to the pistil of a flower of a different plant. If the pollen was produced by an in-bred pepper of the same variety, the resulting seeds should produce plants with the same characteristics as its parents. However, pepper varieties within the same species and even some peppers from different species can share pollen to create viable fruit and seed. The seed from such out-crossing produces plants that tend to have a diverse range of traits. This is why isolation is important when saving seed.

# A Note About Hybrids

- Many varieties of peppers are “hybrids”. This is often designated by a F1 appearing after the variety name. Hybrid varieties tend to have favorable characteristics like high yield, good color, disease , or fruit uniformity.



Hybrids are produced from crosses between two distinct, inbred parent lines. The seed from hybrid plants is not usually saved

for future plantings, because it does not produce plants that are true to the original hybrid variety you planted.

# Open-Pollinated Varieties



Many traditional pepper varieties are open-pollinated. This term is commonly used for what is really controlled pollination, where plants have been in-bred for several generations and have a stable genetic make-up, and out-crossing from different varieties is prevented. Seed saved from such “open-pollinated” crops will breed true to type.

# Isolating for Pure Seed

When saving seed, it is important to protect against out-crossing to ensure that the traits of the seeds will be almost identical to those of the selected variety. Four common ways to isolate flowers or plants to get pure seed are:

- Grow plants from which seed will be saved indoors or in a greenhouse guarded from pollinizer insects
- Use insect netting to cover the plants of the same variety
- Separate different varieties in the field by at least 400 feet
- Place a small bag over an emerging flower bud and leave it until the flower has self-pollinated. Be sure to label the developing fruit to know which pepper contains the pure, protected seed.





# Saving Seeds from Outcrossed Plants



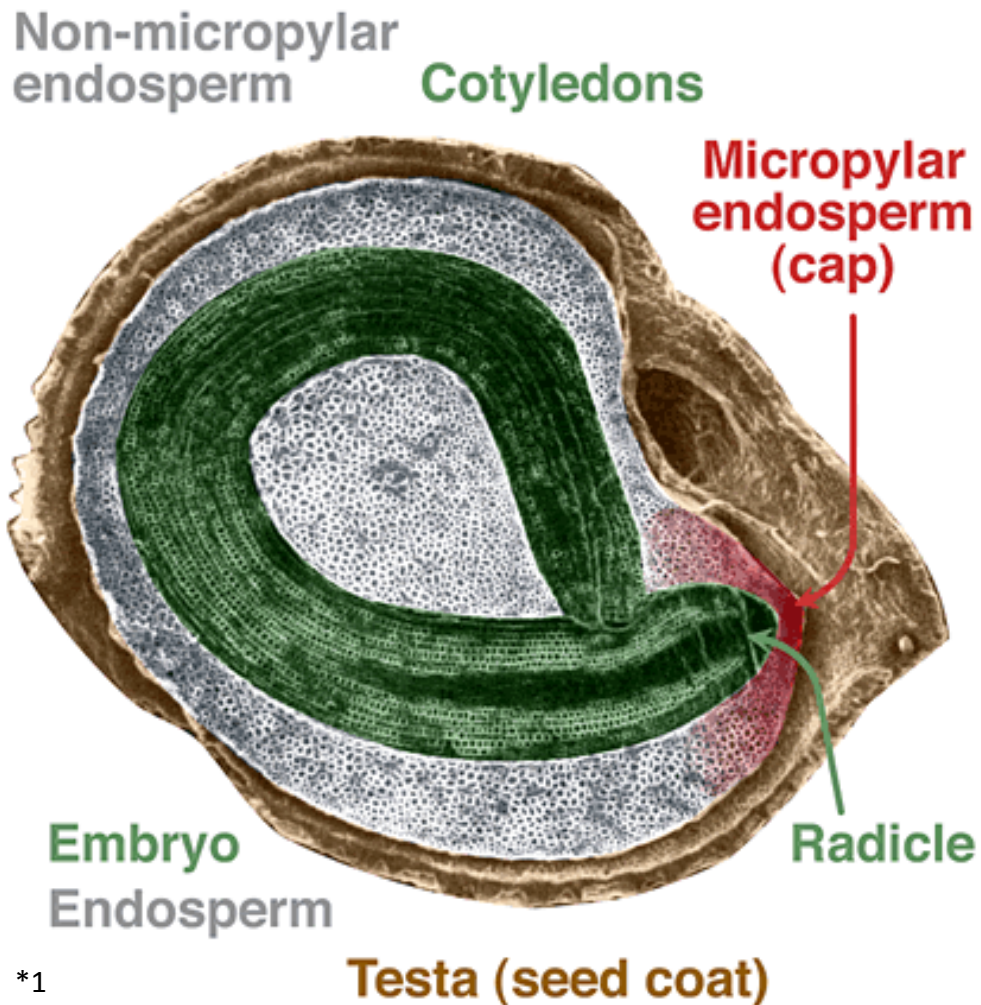
Seed from unprotected plants that have cross-pollinated can also be saved. It is an interesting experiment to plant seeds saved from a cross-pollinated plant to see if the characteristics of taste, fruit size, and shape vary. The image on the left illustrates the amazing morphological variation that results from saving seed from a cross of different parents. (shown at top).

# When to Harvest Seed

Once you have selected the varieties to save and adequately safeguarded against cross-pollination, you must wait until the peppers have matured. Most seeds saved from unripe fruit are not viable. Some studies suggest that seeds saved from early mature peppers that were allowed to dry for 1 to 4 months off the plant have higher germination rates than seed harvested fresh from the fully mature fruit. Be sure that the peppers that you are saving seed from are not moldy or obviously diseased in order to avoid contaminating the seed.



# Seed Anatomy



Before breaking open your peppers, take a moment to familiarize yourself with the pepper seed anatomy. The testa (visible light-brown seed coating) of seeds that you are saving should be completely intact. The radicle will be the first plant part to emerge upon germination, functioning as an embryonic root system. The cotyledons will be the leaf-like plant part that will be the first to emerge above ground.

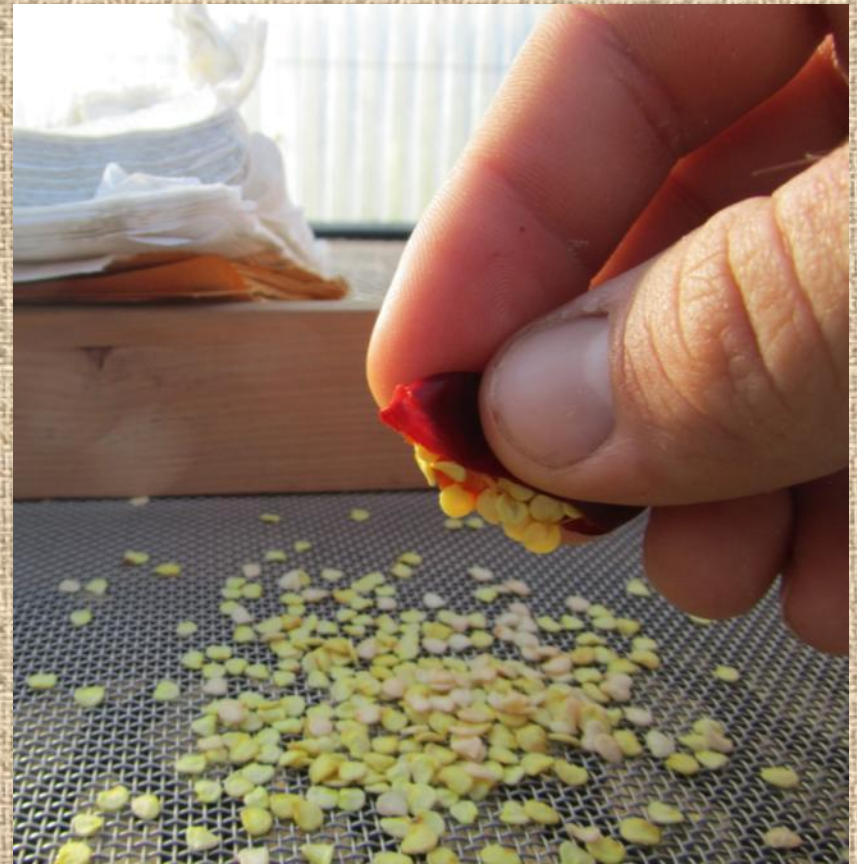
# Protect Yourself

As previously mentioned, there are advantages to allowing the peppers you harvested to dry off the plant for about a month before removing the seed. Once you are ready to save the seed, make sure that you have goggles, gloves, and a dust mask to wear if the varieties that you will be saving are very spicy. The alkaline compounds that gives hot peppers their spice, *capsaicinoids*, can be very irritating to the eyes, nose, skin, and throat. These compounds do not spread as easily when moisture in the fruit has been reduced by allowing it to dry.



# Removing Seed From Fruit

Removing seeds from dried peppers is fairly straightforward. Tear open the skin of the fruit and gently rub and shake the seeds from the central cone onto a small mesh surface. Some seed savers recommend using a blender to separate the seeds from the fruit when saving a large amount of seed from freshly picked peppers. Rinse away the pepper residue and immature seed that float to the top of the blender and save the good seed that sinks to the bottom.



# Wash and Dry



If the peppers were allowed to dry well, your saved seed may be clean enough to skip this step. However, often times your seed will be mixed with pepper debris or will still be slimy with residue (especially when using the blender method). Use a garden hose or a kitchen sink to gently rinse the seeds on your mesh screen to clean away any unwanted material. Once clean, allow the seeds to dry in a cool location until the seeds are dry enough to break under pressure from a fingernail. Another drying option is to spread the seeds on a clean baking tray and dry them at 100° F for about 6 hours.

# Label and Store

After allowing the seed to dry, funnel the seeds into small paper bags, small glass jars, sealable bags, or other moisture-proof containers that are clearly labeled with the date and the pepper variety. Store your seed packets in a cool, dry, dark location until you are ready to plant. If stored seed becomes moist and warm, some may begin to germinate or become moldy and contaminated with pathogens. A kitchen freezer is an ideal location for storing seed.

# Testing Your Seeds' Quality

If saved and stored under ideal conditions, pepper seed can remain viable for over 25 years. However, pepper seed usually only keeps for 2-5 years. There are several easy ways that you can determine whether your seed will still grow if planted:

1. Floater test: Place seeds in a jar of water and remove any that float. The floating seeds are less dense than viable seed because they are either damaged or never developed the seed embryo. Make sure to dry the seed again before storage.
2. Germination tests: Arrange 10-15 seeds in between several damp paper towels making sure that no two seeds are touching. Place the towels and seeds into a sealable plastic bag and leave them someplace warm for two weeks. After two weeks, open the paper towels and count how many seeds have sprouted. This number divided by the original number of seeds is the damp towels can be used to calculate an approximate percentage of viable seeds of that lot.



# Authors and Acknowledgements

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Photos by Ethan Grundberg and Theresa Hill except where noted:

1. <http://www.seedbiology.de/images/pepper.gif>



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