

10-Step Guide to Saving Seeds and Avoiding Cross-Pollination

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1. Know your plant

Open pollination occurs when pollen can flow freely between cultivars of the same species. Look for (OP) next to the plant name. Hybrid plants are borne from intentional cross-pollination. Seeds from hybrid plants will produce plants that differ from the parent plants. Look for (F1) next to the plant name. Cross pollination occurs when pollen is shared between to plants of the same species but different cultivars or varieties. Resulting seed won't produce true-to-type plants, so it's important to prevent cross-pollination from occurring.

The scientific name of each plant [read as Genus species 'cultivar/variety'] will tell you the potential for cross-pollination. For example, a Valentine bean (*Phaseolus vulgaris* 'Valentine') will cross with a Dappled Grey bean (*Phaseolus vulgaris* 'Dappled Grey') because they are the same species. Neither will cross with a Phebe Vinson lima bean (*Phaseolus coccineus* 'Phebe Vinson') because they are different species.

2. Know the lifecycle

Annual plants will complete their life cycle in one growing season, producing seed in one year. Biennial plants need two growing seasons, typically with an overwintering period, to produce seed. In the Midwest, biennial plants must be overwintered in root cellars to avoid winter cold damage.

Common annuals: arugula, basil, beans, some broccoli, cilantro, corn, cucumber, dill, eggplant, lettuce, melon, some mustard greens, okra, pea, pepper, pumpkin, radish, spinach, squash, tomato, watermelon

Common biennials: beet, some broccoli, Brussels sprouts, cabbage, cauliflower, celery, celeriac, Swiss chard, chicory, collards, kale, leeks, some mustard greens, onions, parsley, parsnip, radicchio, rutabaga, turnip

3. Know how your plant pollinates

Self-pollinated plants, called selfers, pollinate themselves before bloom and won't readily cross-pollinate. Potential outbreeders can self-pollinate, but are susceptible to cross-pollination through insects. Necessary outbreeders require cross-pollination through insects or wind.

Common selfers: pea, bean, lettuce, tomato

Common potential outbreeders: eggplant, pepper, heirloom tomato

Common necessary outbreeders: beets, brassicas, corn, cucurbits, spinach

4. Know how to isolate your plants

Isolation techniques prevent cross pollination. By variety isolation, only one cultivar is grown at a time. With distance isolation, enough space is kept between varieties that wind and insects are not likely to carry pollen between varieties. Timing isolation prevents cross-pollination by growing varieties that have different bloom times. And finally, physical isolation creates barriers that prevent insect from reaching the flower in the first place. Hand-pollination is a way to save seed from necessary outbreeders through physical isolation when variety, distance, or time cannot be achieved.

5. Know how many plants to grow

Proper plant counts encourage genetic stability over time. Population requirements are determined by a plants inbreeding and outbreeding likelihood, along with sensitivity towards inbreeding depression.

Plant types requiring roughly 10-20 plants: beans, cucurbits, lettuce, peppers, squash, tomatoes

Plant types requiring roughly 80 plants: beets, brassicas, eggplants, radish, spinach

Plant types requiring 200+ plants: carrots, corn

6. Know your environment

The length of the growing season will determine what varieties and plant types you can successfully grow. Some long season varieties won't produce viable seed by the time your first fall frost comes.

7. Know when to harvest for seed

Harvest dry seeds when the pod is dry and crispy. Harvest wet seeded when ripe and ready to consume. Allow wet seeded fruits as much time on the plant as possible, avoiding rot or frost. Cucumbers and eggplants require a physiological change before the seeds are viable, indicated by a change in color.

8. Know how to process for storage

Allow dry seeds to cure before processing. Thresh seed pods by gently crushing in a contained environment, such as a tray, basket, or pillowcase. Winnow to separate the seeds from the pods by carefully pouring the crushed pods and seeds over a fan or in a breeze. Chaff and lighter plant parts will blow away as the heavier seed drops into a bucket below.

Remove wet seeds from the plant material, rinse, and dry on paper plates. Ferment tomatoes innards to remove seed from the slimy seed capsule. To do this, squeeze the tomato insides into a cup. Allow contents of the cup to ferment for a few days until seeds have settled onto the bottom. Carefully remove the liquid, rinse the seeds, and dry on a paper plate. Seeds are ready for storage when they can be snapped in half.

9. Know how to store

Always label your seeds. For longevity of seeds in storage, keep them a cool and dry place. Avoid fluctuating temperatures, such as those found in self-defrosting freezers. Smaller seeds will last longer than bigger ones.