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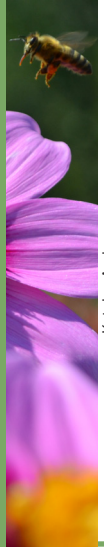
MontGuide



Katelyn Andersen

YARD AND GARDEN

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Harvesting and Saving Garden Seeds

By Cheryl Moore-Gough, Extension Horticulture Specialist

MODERN PLANT BREEDERS HAVE COME A LONG way toward developing vegetable cultivars of the highest quality. In many cases, yields and pest resistance of these new cultivars far exceed those popular just a few years ago.

Until the end of World War II most gardeners saved their own seeds in an effort to cut costs and/or because high quality seeds were not always readily available at a reasonable price. That's all changed. Now inexpensive, high quality seed is available and we generally recommend to purchase fresh seed from a reliable company rather than attempting to save seeds from year to year.

However, there is a small but growing group of hobby gardeners who prefer to save their own seeds. By doing this they not only save a small sum of money, but also can attempt to do their own amateur plant breeding and selection of what they consider to be superior cultivars. One caveat: be advised that saving seeds of some patented cultivars may be illegal.

Saving vegetable seed is fun but takes time and must be done right. Harvest seeds only from the best cultivars that produce the most vigorous plants and the finest crops. With carrots and parsnips, select the plants that produce small-cored roots with little zoning. (Zoning is the bicolor banding you see in a cross-section of the roots.)

Here are a few rules and definitions to keep in mind when saving seeds.

Types of Seeds

Hybrids

Many cultivars available from seed companies today are F_1 hybrids (that is, the first generation of a cross between two inbred lines). There are hybrids of cross-pollinated as well as self-pollinated crops. These produce vigorous, high yielding, pest-resistant plants with high-quality flowers, fruits or roots. The seeds you purchase and plant will produce plants true to type, but their offspring won't. Seeds saved from an F_1 hybrid plant will be the next (F_2) generation and will very likely produce plants inferior to the parent. Do not waste time saving the seeds from hybrid cultivars, unless you enjoy experimenting and your family isn't depending on the crop for food.

Open-pollinated cultivars

This refers to cross-pollinated cultivars that are not hybrids. They will produce plants reasonably true to type if planted in isolation. Most older cultivars of vegetables, such as the 'Straight 8' cucumber and the 'Sparkler' radish, are open-pollinated.

Cross-pollinated cultivars

Cross-pollinated cultivars are those that are pollinated by other cultivars of the same kind of plant. For example, seeds of 'Long Standing Bloomsdale' spinach are produced in fields planted only to that cultivar and isolated from other spinach cultivars. The traits passed on to the seeds will be within the acceptable known characteristics of the cultivar.

If you plant only 'Long Standing Bloomsdale' spinach, the traits will be passed on to succeeding generations and you will be reasonably sure of getting a 'Long Standing Bloomsdale' type plant from year to year. However, if you plant different cultivars of spinach—for example, 'Long Standing Bloomsdale' and 'Viking'—in a garden in the same year, they will cross-pollinate. The seeds from this cross-pollination will carry a combination of traits from the two cultivars. So, you can save seeds from cross-pollinated cultivars and be reasonably sure of getting satisfactory results **IF** you isolate the plants from other cultivars of the same type of vegetable.

Plants in **List 1** are naturally cross-pollinated. For home garden production, separate these plants from others of the same kind by at least 200 yards to reduce the chances of crossing among cultivars. As a group, most crucifers—also known as cole crops, or brassicas—cross readily, so isolate them from each other by at least 200 yards to save their seed. For example, broccoli will readily cross with kohlrabi, cabbage with cauliflower, etc.

Beets, chard, corn and spinach are cross-pollinated by wind (wind-pollinated). Separate these plants by at least one mile from other cultivars of the same kind. Always isolate super sweet corn varieties. If they cross with any other types of corn, the resulting corn will be tough and starchy.

The better seed companies indicate in their catalogs whether a cross-pollinated cultivar is open-pollinated or a hybrid.

List 1. Some common vegetable crops that are naturally cross-pollinated.

Asparagus	Leek
Beets	New Zealand Spinach
Broccoli	Okra
Cabbage	Onion
Carrots	Parsley
Cauliflower	Parsnip
Chard	Radish
Corn	Rhubarb
Cress	Rutabaga
Endive	Spinach

Partially cross-pollinated cultivars

Eggplant, pepper, celery and the cucurbits (vine crops—squashes, pumpkins, muskmelons, cucumbers and watermelons) are partially cross-pollinated, with the amount of cross-pollination dependent upon the environment. However, as with open-pollinated cultivars, there are hybrid cultivars available within this group. If you plan to save the seeds, plant a nonhybrid in isolation to be sure to get seeds that will produce plants that are true to type.

Cucurbits belonging to certain species will also cross-pollinate **(List 2)** and must be isolated from each other to remain reasonably true to type.

Self-pollinated cultivars

Peas, beans, lettuce and many tomatoes are self-pollinated. You can be fairly sure of getting plants true to type from seeds saved from an earlier generation, provided you do not start with hybrid seeds. Several cultivars can be planted together without worry about isolation to retain purity.

Biennials

Saving seeds from annuals is easy, but the seeds of biennials are borne in the second season following a cold period **(List 3).** Therefore, allow the plants to overwinter and collect seeds from the flowering structures the following year. Root crops present a special problem since they must be harvested to judge their quality. Carefully dig them in the fall and select those with the best characteristics (largest root, minimal zoning, etc.). Remove their tops and replant them right away just as they were growing previously. The following spring they will produce new tops and a flower stalk from which seeds can be harvested.

Figure 1: Crucifers bear seeds in pod-like siliques. These need to be dried and the seeds removed. BY CHERYL MOORE-GOUGH

Figure 2: Bag seed heads with porous materials to catch seeds as they dry. BY CHERYL MOORE-GOUGH

Figure 3: Squeeze seedy pulp from flesh fruits like tomatoes into a container, adding a little water. BY CHERYL MOORE-GOUGH

Figure 4: Dry seeds from fleshy fruits in a single layer on paper towels. BY CHERYL MOORE-GOUGH

Seed Saving Methods

Since plants bear seeds in different types of structures, the method for saving them varies with each general type: pod-like structures, flower heads, and fleshy fruits.

Saving seeds borne in a pod-like structure (beans, peas, crucifers, etc.) (Figure 1)

- Allow the pods to turn brown, then harvest the pods, dry them for one to two weeks in a warm, dry area, then shell.
- Store the seeds in a paper bag in a cool (below 50°F), dry place.
- The seeds of crucifers can carry diseases that will infect a garden. After harvest, soak seeds of cabbage in 122°F (50°C) water for 25 minutes to disinfest. Soak the seeds of broccoli, Brussels sprouts and cauliflower at the same temperature for 18 minutes. Pay attention to the time and temperature.
- After soaking, dry and store the seeds in paper envelopes in a cool, dry place.

Saving seeds borne in a flowerhead (lettuce, endive, dill, etc.)

- Cut off the seed stalks just before all the seeds are dried; the seeds may fall off the stalk and be lost if allowed to fully dry on the plant.
- Dry the harvested seed stalk, shake or rub the seeds off and store in a paper envelope in a cool, dry place. If seeds fall off the stalks as they dry (shattering), place the entire stalk upside down in a paper bag or cover the seed heads with a nylon stocking to catch the seeds **(Figure 2).**

Saving seeds borne in fleshy fruit (tomato, cucumber, etc.)

- Pick fully ripe fruit of cucumber and tomato and squeeze the pulp, including the seeds, into a container **(Figure 3).**
- Add a little water and let the mixture ferment several days at room temperature, stirring occasionally. Sound, viable seeds will settle out; nonviable seeds will float.
- Pour off the pulp, nonviable seeds and water and spread the viable seeds in a single layer on a paper towel to dry **(Figure 4).**
- Store them in a paper envelope in a cool, dry place.
- Scrape out the seeds of peppers, melons, pumpkins and squash and spread them onto a paper towel to dry. Then store them in a paper envelope as you would other seeds.

Saving herb seeds

Herbs vary in the way their seeds are produced. In general, allow herb seeds to remain on the plants until nearly dry. Some seed heads, like those of dill, shatter as soon as they are dry. Watch the early-ripening seeds; if they drop, harvest the other seed heads before they get to that point, leaving several inches of stem attached.

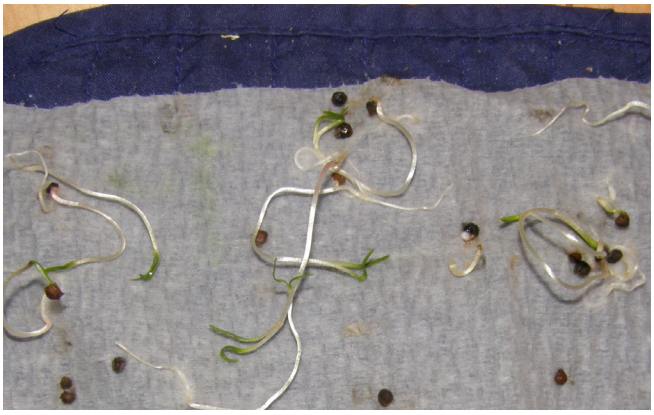

Figure 5: Test germination of stored seeds using a "rag-doll" test.
BY CHERYL MOORE-GOUGH

Tie several stems together and hang them upside- down, covered with a paper bag to catch falling seed, in a warm, dry place until completely dried. Remove seeds from the heads and store them in a paper envelope in a cool, dry place. Herb seeds for flavoring, such as dill, anise and cumin, are used when dry.

Mark storage containers clearly with permanent ink, indicating the cultivar of seed and date saved. Most seeds remain viable for years if properly stored in paper envelopes in a cool place **(List 4).**

Test germination in February by the traditional "rag-doll" test. Count out 100 small seeds or 25 large seeds and wrap them in moistened paper toweling. Squeeze out the extra water and place the "rag-doll" in a glass jar with the cover loosely fastened. Place the jar on a sunny windowsill. Unroll the paper after a week and calculate the germination **(Figure 5)**; if germination is below 50 percent, either discard the seed or double the planting concentration to give the desired number of plants.

Acknowledgements

The author would like to acknowledge the original author of this MontGuide, Dr. Bob Gough, former Extension Horticulture Specialist.

List 2. Some commonly grown cucurbits (vine crops), their species and common cultivars.

Species	*Cucurbita pepo* [z]	*Cucurbita moschata* [yz]	*Cucurbita maxima* [y]	*Cucurbita argyrosperma* [z]	*Cucumis melo*	*Cucumis sativus*	*Citrullus lanatus*
Cultivar	Jack O'Lantern pumpkin	Butternut squash	Buttercup squash	Green striped cushaw pumpkin	Netted muskmelons	Cucumber	Watermelon
	Connecticut field pumpkin	Dickinson pumpkin	Hubbard squash	White pumpkin	Honeydew melons		
	Acorn squash	Kentucky field pumpkin	Turk's turban squash		Casaba melons		
	Spaghetti squash	Golden cushaw pumpkin	Big Max pumpkin		Crenshaw melons		
	Zucchini		King of mammoths pumpkin		Snake melon		
	Yellow crookneck						
	Yellow straightneck						
	Bush scallop						

Any two cultivars within the same species will freely cross. Cultivars within species with the same subscript will also cross. For example, *C. pepo* will cross with *C. moschata* and *C. argyrosperma* while *C. maxima* will cross only with *C. moschata*. Other crosses between species (for example, *C. melo* and *C. sativus*) will not occur, nor will crosses among genera.

List 3. The following plants are biennials and normally will produce seeds in their second season. Do not save seeds from this list if they form the first year planted.

Beets
Cabbage
Carrots
Cauliflower
Celery
Chard
Chicory[1]
Collards
Endive[1]
Kale
Leeks
Onions
Parsnips
Parsley
Rutabaga

[1] Late Cultivars

List 4. Average number of years seeds may retain good viability when properly stored.

1 Year
Leek
Onion
Parsnip
Sweet Corn

2 Years
Parsley

3 Years
Asparagus
Bean
Carrot
Pea

4 Years
Beet
Mustard
Pepper
Pumpkin
Tomato

5 Years
Broccoli
Brussel Spouts
Cabbage
Cauliflower
Celery
Chinese Cabbage
Collard
Cucumber
Eggplant
Endive
Kale
Kohlrabi
Lettuce
Muskmelon
Radish
Rutabaga
Spinach
Squash
Turnip
Watermelon

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