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# Collecting and Storing Seeds from Your Garden

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Success of a garden depends in part on the quality of seeds planted. The easiest way to obtain high quality vegetable seeds is to buy fresh seeds from a reputable company each year. The cost of the seeds is usually a small fraction of the expense and effort devoted to a successful vegetable garden.

Important reasons do exist for saving your own seed, however. Since commercial growers are the largest markets for seed, the seed companies tend to offer cultivars (varieties) suited to the needs of these growers. The characteristics important for commercial vegetable production are not always desired by home gardeners. These may include firmness of the product and shortening of the harvest period. Some people feel that flavor and local adaptation also have been neglected in cultivar development.

Some of the older, hard-to-obtain cultivars may be just what you are looking for. Once you obtain seed initially, saving it each year may be easier than finding it again. Indeed, some useful cultivars have become completely unavailable and possibly extinct.\*

Another important reason for saving seed from the garden is the sense of satisfaction and self-sufficiency the practice provides. These may be the most important reasons for growing your own vegetables in the first place.

## Getting Started

Some kinds of seeds are especially easy to save. The paragraphs that follow list these easy-to-save kinds, together with brief instructions for their collection. Some of these crops may not mature seed in high altitude regions of Idaho. If the species is difficult to grow in your region because of cool temperatures or a short season, don't collect seeds from it. Do not grow seeds for sale or for large-scale production. The seed industry is regulated and to do so without proper license and inspection is against the law. Furthermore, without specific attention to certain dangerous plant diseases, you

could damage the important Idaho seed industry. To save seeds not on the list we suggest that you consult Rogers' book, "Growing and Saving Vegetable Seeds."

**Tomato:** Do not save seeds from hybrid varieties (many tomatoes are hybrids). From a fully ripe tomato of the desired plant, squeeze the seeds onto a paper towel or a piece of screen. Leave at room temperature until thoroughly dry.

**Pepper:** Select a mature pepper, preferably one that is turning red. Place seeds on towel or screen to dry at room temperature.

**Eggplant, husk tomato (groundcherry), garden huckleberry:** Separate seeds from mature fruit (mashing with water may help), and dry thoroughly at room temperature.

**Beans, peas, soybeans and other legumes:** Leave pods on plant until they are rattly dry. Watch carefully because pods of some varieties will split when they are dry and scatter the seeds. Pick dried pods and place them in a well-ventilated area at room temperature. When pods are completely dry, remove the seeds.

**Lettuce:** Lettuce seeds are more difficult to collect, but they can be saved. Leave a plant or two to produce a seedstalk. After the plant blooms and the flower forms a miniature "dandelion head," gather the seeds. Separate the seeds from the chaff by rubbing with fingers.

**Okra:** Leave a few pods on the plant until they are dry and rattle. Break open pods and remove seeds.

**Flower seeds:** Many flower seeds may be easily saved. Over a period of time, crossing of some kinds may cause deterioration from the original. Gather mature seed pods (stock, poppies) or seed clusters (zinnia, strawflower). Some flower seeds are extremely small and very quickly drop from the mother plant, so collecting them requires care and attention.

**Sunflower:** Permit sunflower heads to stay on the plant as long as birds do not bother them. When the top of the blossom has separated from the seed or birds are eating the seeds, cut the head and complete curing in a warm, ventilated area. Seeds can be eaten or used as bird feed any time they are dry.

\*Help for tracking down rare cultivars may be available from the Seed Savers Exchange, 203 Rural Avenue, Decorah, Iowa 52101, or from the book, "The Garden Seed Inventory," by Whealy. See the supplemental reading list on page 3.

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## Seed Saving Problems

Problems often occur when vegetable seed is saved. This is the reason the list of easily saved seeds is not longer. The problems fall into four categories: (1) biennial habit, (2) hybrid crops, (3) cross pollination and (4) plant disease.

**Biennial Habit** — Biennials such as carrot, beet, onion, cabbage and others identified in Table 1 require two growing seasons to yield seeds because they flower only after exposure to cold temperatures. Seed may be produced in the second season by leaving the plants in the garden over winter. Mulch deeply in regions with bitter cold winters. Alternatively, you may dig up the roots, or plants in the case of cabbage, and store them at near-freezing temperature for re-planting in the spring. In general, biennial crops for seed must be planted in late summer so that the food storage organ (root or head) matures in late autumn. Consult the Rogers' book, "Growing and Saving Vegetable Seeds," for more specific information and hints before producing seed of biennial vegetables.

**Hybrid Crops** — Hybrids are becoming increasingly popular with home gardeners. These crops are made

Table 1. Seed production characteristics of popular vegetables.

Kind of seed	Plant habit	Type of pollination	Approximate longevity (years)
asparagus	P	C	3
beans	A	S	3
beets	B	C	4
broccoli	A	C	3
brussel sprouts	B	C	4
cabbage	B	C	4
cabbage, Chinese	B	C	3
carrot	A	C	3
cauliflower	B	C	4
celeriac	B	C	3
celery	B	C	3
chard, Swiss	B	C	4
corn, sweet	A	C	2
cucumber	A	C	5
eggplant	A	S	4
kale	B	C	4
kohlrabi	B	C	3
leek	B	C	2
lettuce	A	S	1
muskmelon	A	C	5
okra	A	S	2
onion	B	C	1
parsley	B	C	1
parsnip	B	C	1
pea	A	S	3
pepper	A	S	2
pumpkin	A	C	4
radish	A	C	4
rutabaga	B	C	4
salsify	B	S	1
spinach	A	C	3
squash	A	C	4
tomato	A	S	4
turnip	B	C	4
watermelon	A	C	4

A-annual; B-biennial; P-perennial; C-cross-pollinated; S-self-pollinated

by the controlled crossing of two distinct parental lines or strains. The offspring of the cross are often stronger, higher yielding and more uniform than non-hybrid cultivars. Unfortunately, if seed is saved from the hybrid plants, the next generation is loaded with a wide variety of plant types that are generally inferior to the hybrid. All the diversity may be an adventure if you are an aspiring plant breeder, but don't expect to duplicate the performance of the hybrid.

**Cross Pollination** — All the plants listed as having easily saved seeds have flowers that pollinate themselves. They are called self-pollinating crops. You need not worry about intercrossing of adjacent bean cultivars, for example. Infrequently, different or off-type plants are found as a result of rare crosses in these crops, or more likely, from contamination of the original seed with seeds of other cultivars. Don't collect seed from off-type plants unless they have some desirable feature. In that case keep the seed separate from the bulk of the seed saved.

Most kinds of plants do intermate freely with nearby plants of the same kind as insects or winds carry pollen from plant to plant (note the numbers of cross-pollinated plants listed in Table 1). This creates two problems for the amateur seed producer. First, to avoid inbreeding, you usually will need to collect and mix seed from at least 12 to 15 plants. A more serious problem occurs when different cultivars of these crops grow close enough together to contaminate each other with foreign pollen. A principal reason for saving your own seed is to maintain hard-to-obtain cultivars. Intercrossing will destroy the genetic integrity of the cultivar being saved.

The situation with vine crops such as pumpkins and squash is more complicated. Zucchini will freely cross with pumpkin, for example. In general, such problems are best avoided by maintaining relatively large distances (up to a mile) between cross-compatible crops. Unless you want to grow zucchini-pumpkins or squash-gourds the following year, consult your county Extension agent or a book such as "Growing and Saving Vegetable Seeds" before collecting seeds from cross-pollinated crops (see Table 1).

**Plant Disease** — Plant disease can interfere with seed-saving activities in two ways. First, the seeds may be damaged or killed either by infection or premature death of the plant. Secondly, some diseases are transmitted in or on the seed. The disease is introduced into the garden the following year with the contaminated seeds. Many diseases are made worse when plants are crowded close together, causing a humid environment. Plants for seed production should be given plenty of room to grow. If possible, when watering the garden, irrigate areas for seed production by watering the ground under the plants instead of wetting the foliage. Remove plants that look sick (stunted, crinkled, blotchy). Do



not collect seed from pods or fruits with spots, discolored areas or sunken lesions. If plant disease is a severe problem in your area, your county Extension agent may be able to recommend a pesticide which will help control the disease.

## Storing Seeds

Kinds of seed differ in the length of time they may be stored under typical home conditions. Table 1 shows the number of years you can expect various kinds of seed to survive under favorable conditions in the home.

Storage conditions are important to seed survival. For a long lifespan, seeds must be stored dry and cool. Dry conditions in particular are important. In areas with cold winters, artificial heat creates a very low humidity environment. Unless you use a humidifier, small quantities of seed collected in the late fall will dry naturally in paper envelopes and easily survive until spring. In midwinter when the seed is very dry, place it in jars with tight sealing lids. This will prevent absorption of moisture as the house air becomes more humid in the spring.

When you collect seed in the summer, especially if you have harvested a large amount, dry it well before storage. Drying can be done by spreading the seeds out in the sun from morning until mid-afternoon. Seeds that are hard and crunchy when you bite them are dry enough to store. If drying takes more than one day, cover the seeds with a moisture-proof covering well before dusk and remove it the next morning.

You can also use your oven (not a microwave) if you are careful. Leave the door open a little and never let the temperature get higher than about 100°F. If you can hold your hand on the interior metal side of the oven for several seconds without discomfort, that temperature probably won't damage the seeds. Again, once the seeds are dry, store them in a jar with a good seal. If seeds are dried well and the sealed jars placed in a deep freeze, many kinds will keep much longer than shown in Table 1.

Two problems you may encounter with bean seed especially are storage insects and damage from planting very dry seed. Unless the seed is stored outside in the winter or in a refrigerator or freezer, insects may multiply and consume the stored seeds. Insects may be combated by placing the seed in a deep freeze for 4 days, by adding a few moth crystals to the jar of seeds or by mixing the seeds with a very small amount of vegetable oil. About 10 drops per pound will do for beans.

Large legume seeds such as peas and beans can be damaged when very dry seeds from storage are planted into wet soil or watered soon after planting. Rapid hydration is especially harmful to lima beans. The problem can be solved by mixing an equal weight of carrot chunks with the beans and keeping them in a warm place

for a few days before planting to replace moisture gradually. Another good practice is to water the seedbed a day or two before rather than immediately after planting seeds subject to this problem.

## Testing Seeds

If you plan to store seeds for several years, you should test them for ability to germinate each spring before planting. To germinate large seeds (radish size or larger):

1. Moisten (**not** dripping wet) a cloth towel (2 to 3 layers of paper towel can be used, but occasionally growth inhibitors in the towels may interfere).
2. Spread 25 to 50 seeds on the towels and roll them loosely. Place the roll(s) in a plastic bag and punch a few small holes in the bag.
3. Wet the bag in a warm (70 to 80°F) location. Add small amounts of water if the towels become dry.

For germinating small seeds, the following procedure may work better:

1. Cut a layer or two of blotter paper or 5 to 6 layers of paper towel to fit in the bottom of a jar.
2. Add water to moisten (not dripping wet) and spread 25 to 50 seeds out on the paper surface.
3. Place the lid on the jar but leave it loose, and set the jar in a warm (70 to 80°F) place where it will receive light for at least 8 hours per day. Add water as necessary. Some seeds such as radish will germinate in 2 or 3 days. Others, such as peppers, may require 2 weeks. After about 2 weeks make a final count. The fraction of seeds which germinate will be similar to the fraction you can expect in your garden under favorable conditions. If the germination percentage falls below about 50 percent, the seed is probably weak and may fail completely if germinated under stress in the garden. Note, however, that certain kinds of seeds, especially small seeds, may be difficult to test. They may not germinate in towels even though they perform satisfactorily in the garden or pot.

## Suggested Supplemental Reading

- Copeland, L. O., ed. 1978. Rules for testing seeds. Association of Official Seed Analysts.
- Jobs, Carolyn. 1984. The heirloom gardener. Sierra Club Books, San Francisco.
- Justice, O. L., and L. N. Bass. 1978. Principles and practices of seed storage. U.S. Dept. of Agr. Handbook 506.
- Rogers, Marc. 1978. Growing and saving vegetable seeds. Garden Way Publishing, Pownal, Vermont.
- Whealy, Kent. 1985. The garden seed inventory. Seed Saver Publications, Decorah, Iowa.



University of Idaho, Washington State University and Oregon State University Extension and research specialists produced a series of publications in 1985 dealing with commercial vegetable seed production in the Pacific Northwest. The publications, PNW Bulletins 265 through 274, cover seed production of turnip and rutabaga; cucurbit; spinach; cabbage, brussel sprouts, cauliflower and kohlrabi; kale and collard; mustard and chinese cabbage; table beet and swiss chard; carrot, parsnip and parsley; lettuce and radish. Copies may be obtained through county Extension offices.

### **The Authors**

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