UMass Extension

CENTER FOR AGRICULTURE

Seed Saving

An increasing number of gardeners save seeds from plants that grow well in their garden. This is enjoyable and fascinating. It allows you to continue growing varieties that are difficult to find in catalogs. Swapping seeds with neighbors can, over time, lead to plants that are well adapted to discreet regions, soils and microclimates. To produce successful results for a wide range of crops, the process can become more complex. Procedures will vary among types of plants.

Some helpful references are: *Seed Sowing and Saving* by Carole Turner, published by Storey Books, 210 MASS MoCA Way, North Adams, MA 01247, and *Seed to Seed,* published by Seed Savers Exchange*,* 3076 North Winn Road, Decorah, IA 52101. The basic concepts and steps are covered here.

Open-pollinated versus hybrid varieties
Successful seed saving requires that you work with open pollinated varieties rather than hybrids. Open pollinated plants produce seeds that will, in turn, grow to be like the parent plant. "Open" pollination occurs naturally, in the open environment without human intervention, mainly by insects or the wind. Some plants will self-pollinate: their own pollen will fertilize their own ovules, usually within one flower blossom. Others will cross-pollinate: pollen from their flowers will fertilize the ovules in flowers of nearby plants of the same species. Insects or wind transfers the pollen to a receptive neighboring plant. Open pollinated varieties produce seed that is true to variety if there is no cross-pollination from other varieties of the same vegetable.

Plant breeders under controlled conditions, usually in a greenhouse, create hybrid plants. They breed for desirable characteristics, such as resistance to disease, taste or for growing heavy soils. If you save seeds from a hybrid variety, the resulting plants will *not* be like the parent plant. To reproduce hybrid seed with reliable characteristics, humans carefully ensure cross-pollination using the original parent plants.

What to save
Save seed only from open-pollinated plants that appear to be true to variety and have desirable characteristics. Avoid saving seed from diseased plants. Many viruses and bacterial and some fungal diseases can be present on seed and will be transmitted to future crops. Some seed-borne diseases can be controlled with a hot water seed treatment. This requires very exacting conditions and procedures and is not suggested for the beginner.

Plants to try
Many vegetables are annuals, which produce their seed in one year. Annuals, such as tomatoes, lettuce, beans and peas are good candidates for your first seed-saving project. They are generally self-pollinating, and their seeds will produce plants like the parent plant.

Biennial vegetables, such as beets, carrot, parsnip and parsley, require two growing seasons to produce seed and require a bit more effort. Try leaving some of your late carrots and beets in the ground. Mulch them thickly with straw or cardboard and straw. Many plants will survive the winter and begin to grow the following spring. They should flower and produce seeds during the summer. Cabbage is also a biennial, but it doesn't winter over as readily. Cabbage heads can

be pulled up in the late fall before the ground freezes, stored at cold temperatures and replanted in the spring. Beets and carrots can be handled this way, too. After re-planting the second year, they will produce seeds, which you can harvest and save for the following year. For details on these and other biennials, see one of the references.

Cross-pollination among the squash (and cabbages)
Cross-pollination occurs when pollen from the flower of one plant is transferred to a flower on another plant of the same kind. Keep in mind that closely related vegetables such as squash and pumpkin and many of the brassicas (cabbage family) will cross-pollinate easily. With these, you may want to try your hand at plant breeding and do your own crossing.

Here's a general example to show why you might want to cross-pollinate these closely related vegetables yourself. Kale, collards, cauliflower, broccoli, cabbage and Brussels sprouts for instance, are different cultivars and/or varieties of the same species. Some will cross-pollinate more easily than others. If you save their seed, who knows what the result will be? Additionally, although some plants in this group have the ability to self-pollinate, some have a mechanism to prevent self-pollination; they require insects to carry their pollen to the neighboring plants for successful reproduction. And who knows where that little bee has been? This random cross-pollination can be prevented by physical isolation or by covering the plant or individual flowers. If you cover the flowers, then *you* have to bring the pollen from a plant of your choice and introduce it to the flowers you choose. If this effort leads to successful reproduction, the plant's seeds should produce a plant with qualities like the parent plants… just what you were looking for!

Harvesting seeds
Allow corn and beans to mature on the plant, then dry and store for the winter. Tomato seed and pulp can be scooped from the fruit and placed in a bowl of water for a few days. Pulp and non-viable seeds will rise to the top and can be poured off each day. The viable seeds will sink to the bottom. After the pulp and the good seeds have been separated, spread the seeds to dry for about two weeks, after which they can be stored until next year.

You can allow lettuce seeds to reach maturity in the garden. Check frequently after the first frost to seed if the seeds shake out from the dried flowers. When they do, cut off the flowering stalks and place upside down in a paper bag. Store the paper bag in a dry, cool place and shake out the seeds at your leisure during the winter.

Pumpkin and squash seed can be scooped from the seed cavity when you are preparing for cooking or carving. Seed vigor improves if the fruit is stored a month or two. The pulp should be rinsed off and the seed dried for a few weeks. Cull out flat, thin seeds, which are not viable.

Storing seeds
Seed should be stored in a cool place such as a refrigerator or dark, cool closet. They must be well dried and kept in a dry, sealed, opaque container. The embryos' (future plants) metabolism slows down under dry, cold conditions. This slows the use of the endosperm (the seed's food supply) and thus extends the life of the seed.

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