

Preserve Genetic Diversity

Lots of great varieties will never see the fame of a commercial seed catalog. Many of these unique plants only exist in the hands of one or two gardeners. Lend a hand and save some of those seeds that are in danger of disappearing!

Flavor

Ever find the best tasting tomato from a seed catalog one year only to discover you can't buy it anywhere the following year? Seed savers don't have this problem!

Connect With Your Garden

Every seed holds a connection to the future and the past. From 'Grandpa Ott's Morning Glory' that was passed down from Grandpa Ott to our co-founder, Diane, to the rogue tomato plant that you've saved seeds from and will pass on to your children, the stories of seeds connect us to our history, our culture, our family, and our sense of who we are.

Help #SaveTheBees

Insect pollinators perform a \$24 billion service each year in the United States alone. And many of these species are in decline. While you wait around for your flowers to produce seeds, they are providing invaluable food for bees, butterflies, and beetles.

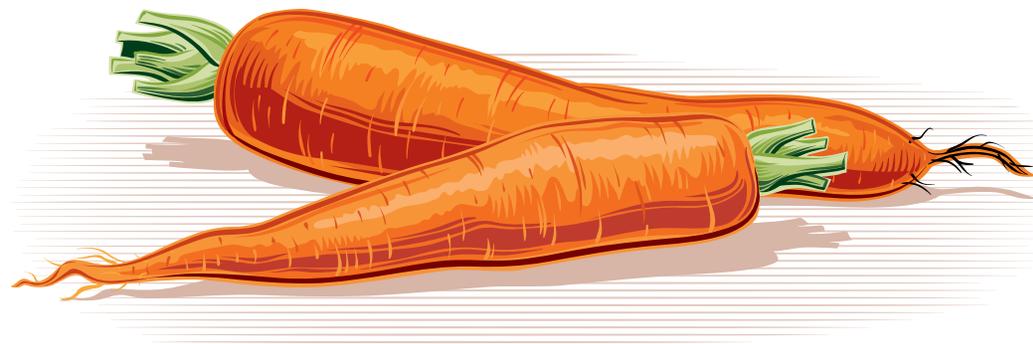
Build Community

Seed saving and seed sharing go hand-in-hand. Share with a neighbor, help a community garden become more self-sufficient, or take a new gardener under your wing and teach them how to save their own seeds.

Seed Saving

Introduction to basic seed saving and growing your own veggies, herbs and flowers.

Compiled by Sue B. Balcom
Seed Saving - BSC Enrichment Program 2017



Information from Seed Savers Exchange, New Entry Sustainable Farming Project, The World Vegetable Center, the Seed Ambassadors and more....

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According to the United Nations Food and Agricultural Organization, crop genetic resources are disappearing at the rate of 1 to 2 percent a year. About 75 percent of agricultural crop diversity is estimated to have been lost since the beginning of the last century.

Saving seeds

is a powerful way to counteract this problem and have a profound effect on our future resilience and sustainability.

- **Beet Family** (Goosefoot Family, Chenopodiaceae): Beets, spinach, Swiss chard. These are heavy feeders. Follow these crops with legumes.
- **Grass Family** (Graminae): Grains—corn, oats, rye, wheat. Follow these crops with members of the tomato or Solanaceae family.
- **Bean Family** (Legume, Leguminosae): Beans and peas, clover, vetch. These crops enrich the soil, soil builders. Plant these crops before or after any other crop family.
- **Tomato Family** (Nightshade Family, Solanaceae): Eggplant, peppers, tomatoes, potatoes. These crops are heavy feeders. Plant these crops after members of the grass family. Follow these crops with legumes.
- **Squash Family** (Cucurbitaceae): Cucumbers, melons, summer and winter squash, pumpkins, watermelon. These crops are heavy feeders. Plant these crops after members of the grass family. Follow these crops with legumes.
- **Carrot Family** (Umbellifer Family, Umbelliferae): Carrots, celery, anise, coriander, dill, fennel, parsley. These are light to medium feeders. These crops can follow any other group. Follow these crops with legumes, onions, or let the garden sit fallow for a season.

Why Save Seeds?

People save seeds for lots of different reasons and there is no single right reason to get started saving your own garden seeds.

Save Money

A typical package of 50 pepper seeds costs \$3 or more, while transplants can cost \$5 each! By growing food from seeds you have saved, you can significantly reduce the cost of producing healthy food.

label your seeds with the crop type, variety name, and any useful notes about your seed source, when you harvested the seeds, and how many plants you harvested from.

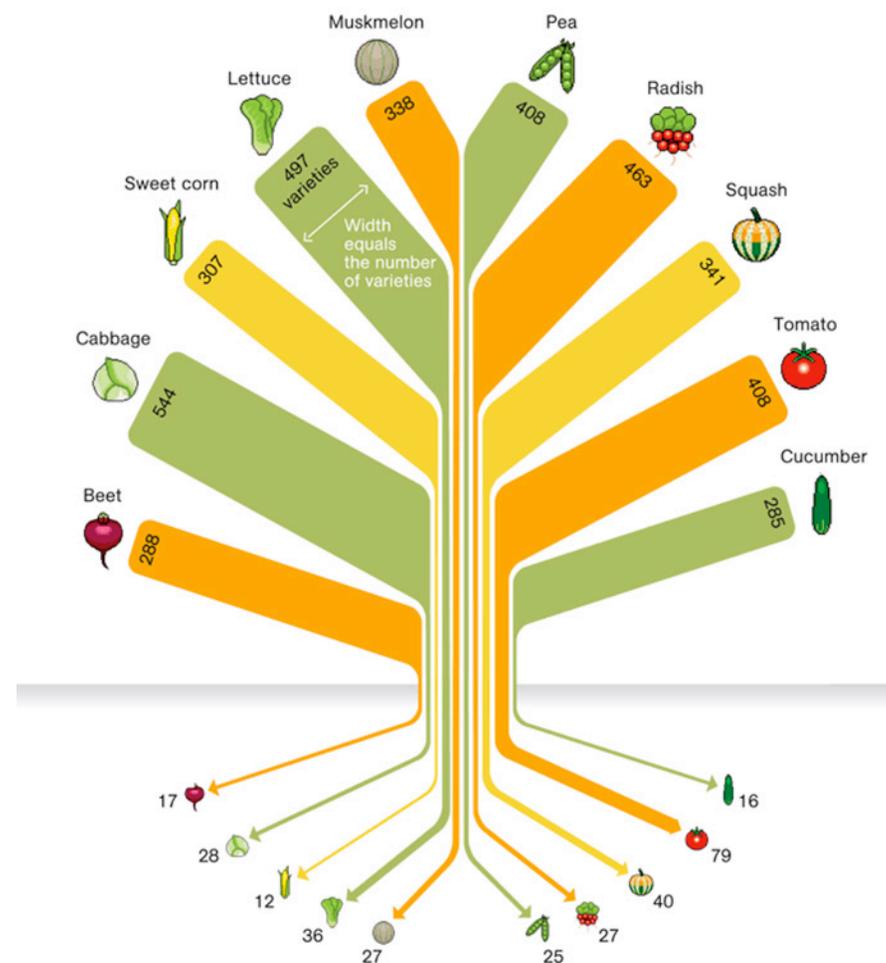
TEST FOR VIABILITY

To find out whether a variety of seed will germinate and grow, try the following test:

1. Place 10 seeds an even distance apart on a damp paper towel. Roll up the towel and place in a plastic bag.
2. Leave the damp, rolled towel in a warm spot in the kitchen for two to five days. The location's lighting doesn't matter.
3. After the two-to-five days, check the paper towel to see which seeds have germinated.

Major plant families and some notes on crop rotation:

- **Onion Family** (Amaryllis Family, Amaryllidaceae): Garlic, onions, leeks, shallots. These are light feeders. Plant these after heavy feeders or after soil enrichers such as beans.
- **Cabbage Family** (Brassica, Cruciferae): Broccoli, Brussels sprouts, cabbage, cauliflower, Chinese cabbage, collards, cress, kale, kohlrabi, radishes, turnips. These are heavy feeders. These crops should follow legumes. After these crops allow the garden to go fallow for a season or plant a cover crop or add plenty of compost and organic matter to the garden.
- **Lettuce Family** (Composite, Daisy Family, Asteraceae): Artichokes, chicory, endive, lettuce. These are heavy feeders. Follow these crops with legumes.



A CENTURY AGO

In 1903 commercial seed houses offered hundreds of varieties as shown in this sampling of 10 crops.

80 YEARS LATER

By 1983 few of those varieties were found in the National Seed Storage Laboratory. (The name was changed in 2001) to the National Center for Genetic Resources Preservation.

John Tomanio, NGM staff. Food icons: Quick Honey.
SOURCE: Rural Advancement Foundation International.

OPEN-POLLINATED SEED

Open-pollinated seed produce plants just like the parent plant, which resemble their grandparents and great-grandparents, and great-great-grandparents. Open-pollinated crops have been developed from wild edible plants through generations of selection by nature and farmers.

- You can save these seeds (if done appropriately) and get the same variety next year
- These tend to be very old varieties of plants
- Many vegetables that we grow are heirlooms, but your customers tend to only know about heirloom tomatoes
- Fedco catalogue has mostly heirloom varieties of all vegetables
- Other sources are Baker Creek Heirloom Seeds, Seed Savers Exchange, Eden Brothers and Sand Hill Preservation Center.

HYBRID SEED

Hybrids are seeds from two varieties of parent-plants that are genetically different, but of the same species.

They do not produce plants like themselves, instead, they produce new combinations. If you save the seeds, the new plants will not look like their parents.

Sometimes, the seed will be sterile, similar to when a horse mates with a donkey. The next-generation mules are sterile.

intervention is needed to prevent unwanted cross pollination between different varieties of the same species. For some crops like lettuce and peas, all that is needed is a little extra space between varieties. For others, more advanced methods can be used, including larger isolation distances, pollination barriers, or hand pollination.

3. COLLECT YOUR BOUNTY

Know When Your Seeds Are Mature

For crops that produce wet fruits, the seeds are not always mature when the fruits are ready to eat. Eggplant, cucumber, and summer squash fruit are eaten when the fruits are immature and still edible, but before the seeds are actually mature. This means that seed savers need to leave a few fruits to fully mature in the garden when they want to save seeds. Dry fruited crops, like grains, lettuce, and beans, can be removed from the plant once seeds are dry and hard.

Know How To Harvest Seeds

Garden crops can be classified as either dry fruited or wet fruited. Collecting seeds from dry fruited crops, can be as simple as going out to the garden, handpicking a few mature seedpods, and bringing them into the house for further drying and cleaning. Fruits from wet fruited crops must be picked when their seeds are mature. The harvested fruits are either crushed or cut open, and the seeds are extracted from the flesh and pulp before the seeds are dried.

Store Seeds

Seeds are happiest when they are stored in a cool, dark, and dry place. A dark closet in a cooler part of the house or a dry, cool basement are both good spaces to store seeds for a year or two. Once properly dried, seeds can also be sealed in airtight containers and stored in the refrigerator or freezer for several years. The seeds of some crops are naturally longer lived. Tomato seeds and beans can be left for many years in adequate storage conditions, while onion and carrot seeds are notoriously short lived. Don't forget to

Annual, Biennial, Perennial

Not all plants flower, set seed, and die in a single growing season. Those that do, like lettuce, tomatoes, and peppers, are called annuals. Biennials, such as carrots and onions, don't flower until their second growing season, after they have gone through a cold period. Some long lived plants, like apple trees and asparagus, are perennial, surviving and flowering for many years.

Learn About Species

A species is a group of individuals that are able to reproduce together. In the garden, most crops are different species from one another, but not always. There are several species of squash and two distinct species of kale - meaning some varieties of these crops are not able to cross pollinate with each other. On the other hand, Cucumis melo, commonly categorized as a melon, also contains some varieties that are sold as cucumbers like 'Armenian' because fruits of the variety are unsweet and sometimes pickled.

2. PLAN FOR SEED SAVING

Start With Easy Crops

Some crops like peas, beans, lettuce, and tomatoes are great for beginning seed savers. These annual, self pollinating crops require little to no isolation, and only a few plants are needed to reliably produce seeds.

Grow Enough Plants

Some crops have a hard time producing seeds when too few plants are around. Others can reproduce with just a single plant. If the population size of a seed crop is too small, some genetic diversity may be lost and over many generations; in time this can result in a noticeable decrease in plant stature, overall vigor, germination, and yield.

Put A Little Space Between Varieties

In order to produce seeds that are true-to-type, a little garden

People are more like hybrids.

- When two people have a baby, the baby looks a little bit like both parents, but not exactly like either of them.
- When that baby grows up and has a baby, that baby will look a little bit like all four grandparents, and like his/her parents, but not exactly like any of them.

Hybrids are literally owned by the companies or breeders who made them. There is a HUGE industry around plant breeding. Scientists are paid a lot of money and spend many years doing experiments to make the perfect purple carrot or the roundest/reddest tomato that is exactly the size of an egg, or the brightest colored rainbow chard. That is why hybrid seeds cost more.

Example: sungold tomatoes

- Two very different looking tomatoes can be crossed to get something quite different.
- If you save those seeds and plant them, who knows what crazy combinations you will get
- If you want the same tomato every time, you have to cross the same parents every single time.

Some hybrids have less obvious differences if you save seeds.

Example: cilantro or parsley

Some have huge differences

Example: squash

FLOWER PHYSIOLOGY

Petals are a fancy dress to attract pollinators and protect the reproductive parts of the plant

Pistil is the female part of the plant – it take pollen from the male part and takes the pollen down into the ovule where it produces seed.

Stamen is the male part of the plant and it produces pollen

- Some plants have male and female parts in same flower. These are self-pollinating. **Example:** lily
- Other plants have flowers that are either male or female – these are cross-pollinated.

Cross-pollinated plants need help to reproduce

- Insects and wind are most common methods
- Bees
- Wind
- Can be hard to save seeds successfully. **Example:** squash and cucumbers.

Annuals

- One season
- Easiest to save seeds

Biennial

- Need two seasons before setting seed
- Need a lot of land and complicated field management
- Don't really make sense for us to save.
- Huge seed saving farms do the work for us

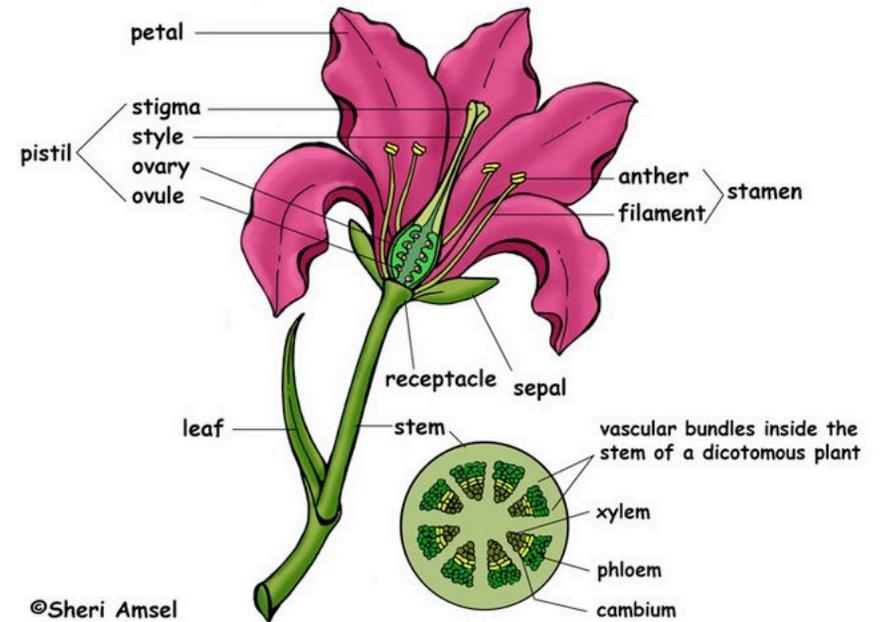
Perennial

- Often very easy seeds to save, but don't need to because these plants come back year after year.

THINGS TO REMEMBER:

1. What to think about when seed saving?
2. Difference between annual/biennial/perennial?
3. Difference between heirloom/hybrid?
4. Are plants self- or cross-pollinated?

The Parts of the Flower



LET'S GET GROWING

1. KNOW WHAT TO GROW

Start With Open-Pollinated Seeds

Open pollinated varieties, aka OPs, are like dog breeds; they will retain their distinct characteristics as long as they are mated with an individual of the same breed. This means, with a little care and planning, the seeds you produce will be true-to-type, keeping their distinct traits generation after generation as long as they do not cross-pollinate with other varieties of the same species.