



L'Dor V'Dor: From Generation to Generation

Two Seed Saving Workshops

*for more Rainbow Day programs and ideas go to: jewcology.com/resource/Rainbow-Day
for more seed saving resources and a vocabulary list see the end of this packet*

And the earth brought forth vegetation: herbage yielding seed after its kind, fruit trees yielding fruit, each containing its seed after its kind. Genesis 1:12

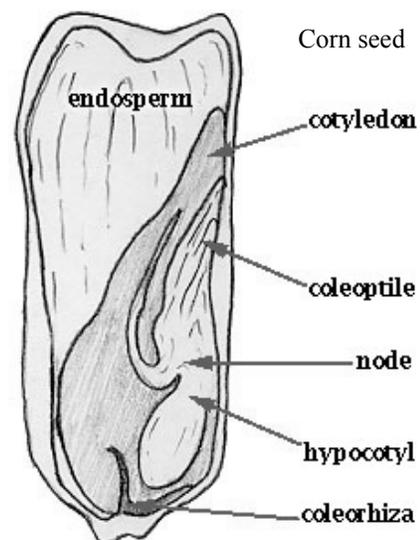
G-d said, "Behold, I have given you all herbage yielding seed that is on the surface of the entire earth, and every tree that has seed-yielding fruit; it shall be yours for food." Genesis 1:29

From all the living beings from all flesh, two from all will you bring into the ark to live with you. They will be male and female...And you, take for you from everything edible that is eaten. You will gather it unto you, and it will be for you and for them for eating. Genesis 6:19-21

*Now seeds are just dimes to the man in the store
And the dimes are the things that he needs,
And I've been to buy them in seasons before
But have thought of them merely as seeds;
But it flashed through my mind as I took them this time,
"You purchased a miracle here for a dime."*

Part I: The Science of Seeds (ages 10 and up)

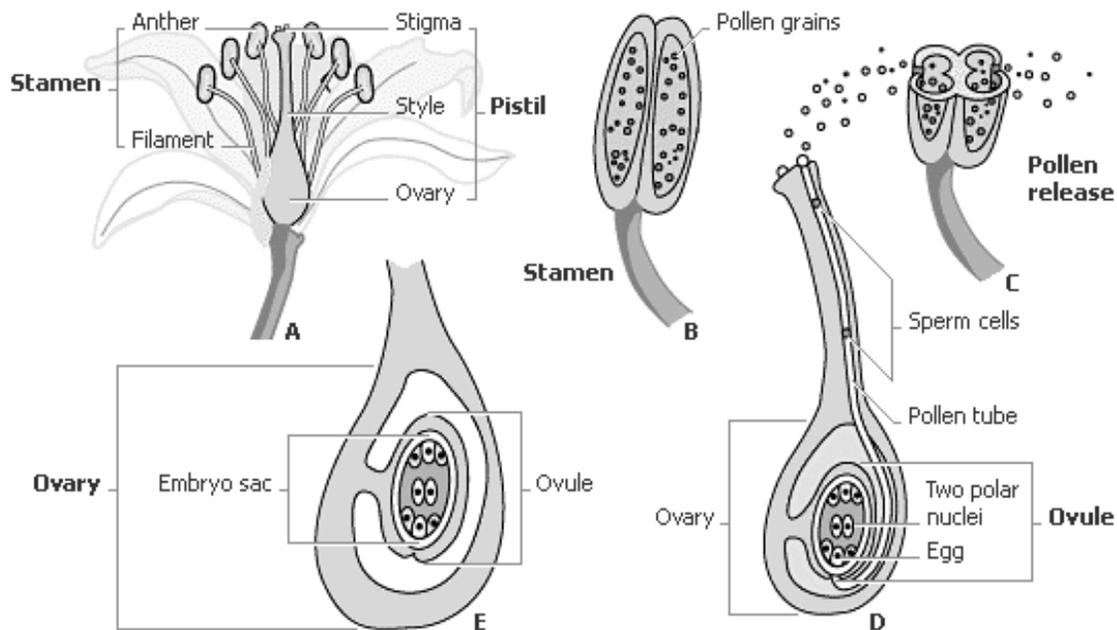
Seeds are a link between the past, the present and the future. The seeds planted by humans have extensive ecological, cultural, and political histories and implications. Farmers and gardeners around the globe plant seeds that are the descendants of wild floral ancestors collected by our own ancestors for the purpose of replanting and sustaining. Humans in Asia, Africa, and the Americas independently developed agricultural systems based on crops derived from local wild food plants. Through the ages, these peoples and crops have intermingled to help shape the beautiful diversity of societies and diets found today. The existence of these societies and diets has depended on the simple act of saving seed to ensure another crop and thus ensure survival.





Ecology of Flowers and Seeds

Most cultivated plants are flowering plants. That is, these plants reproduce through flowering, fruiting and setting seed. This mechanism requires the fusion of two independent entities, a pollen grain and an ovule, to form a seed. In each pollen grain and each ovule, there exists a unique set of genetic information. When the two are fused to form a seed, that seed contains the genetic information from two independent sources that will be expressed in the plant grown from that seed. Different species have different reproductive and ecological requirements to produce viable seed. To ensure the expression of traits people desire in the next generation, we can control these reproductive and ecological requirements.



Floral anatomy and pollination

Seed Saving in the Modern World

Due to the rise of commercial centralized agriculture, the possibility exists for the extinction of species and varieties of crops that contribute to the diversity of societies and diets on earth. Many of these varieties have been developed over generations to meet specific climatic or social needs. Increasingly, large agricultural corporations threaten independent cultures and diets by seeking only maximum profit and minimum input. This maligning attitude is expressed through biological copyrights, breeding for export (square tomatoes?), and biotechnology among other things. As a political and social expression, saving seed demonstrates the desire to have access to the right of food and not to lose the diversity of culture, diets and life on Earth.



Part II. How to Save Seed: Some Practical Advice (all ages with help)

some information from the first part is repeated here so that this workshop can be used separately

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What is a Seed?

Technically, a seed is the result of the male pollen from a plant mixing with the female egg. The seed contains the young plant, the offspring of the parent. But seeds are so much more than that. They represent the potential for life, the next generation. Seeds also reflect our values, as the seeds and plants we grow today are the result of thousands of years of choices our ancestors made.

Why Save Seed?

Saving seed is an important part of the process of growing food. By saving seeds from the crops that were the strongest, healthiest and most delicious, we will have a supply of seeds for the coming year that are well suited to our unique piece of land and our tastes. Saving seed can save us money, give us greater food security and maintain genetic diversity in our plants.

How to Save Seeds

When we save seeds we try to copy what happens in nature that allows the plant to reproduce. There are many different ways that people save seeds. The best is to experiment and figure out what works best for you. Here are the basics for three different types of seeds.

General Principles

- Always save seeds from mature, ripe fruit.
- Choose the varieties that do best on your land, that resist pests and blight, and whose flavor you love.
- Drying: Seeds need to be dried properly before storing. This is best done on a wire screen or glass/ceramic plate. Don't use any paper products.
- Storing: Seeds need to be stored in a cool, dry place. Some people like to store seeds in an airtight container in the fridge or freezer. Avoid humid and warm environments.
- Labeling: As you save seeds, be sure to label the container with as much info as possible, such as the variety, season, location and any additional notes.

Tomato

1. Select ripe tomatoes from the healthiest and most delicious plants.
2. Cut the tomatoes into smaller pieces and scoop out seeds and gelatinous membrane into bowl. If saving seeds from cherry tomatoes, simply crush the entire fruit.
3. Once you've collected all of the seeds, pour mixture into glass jar.
4. Add a few tablespoons of water mix jar well.
5. Cover with cheesecloth or paper towel and secure cover with rubber band.
6. Let sit for 3-4 days to allow fermentation to occur-stirring once a day.
7. Once you see a white scum begin to form on top of the mixture, take the jar of fermented seeds to the sink and with a spoon carefully remove the scummy surface. Then pour the container's contents into a fine kitchen colander and rinse the seeds with water several times.
8. Dry the seeds from the bottom of the colander and then spread out seeds and allow



them to dry for up to one week. You will know they are dry when they no longer stick to each other. Seeds must be completely dry before storing.

9. Store in a safe place in a paper bag or glass jar.

Squash

1. Cut squash open lengthwise.
2. Remove seeds from fruit and try to separate the seeds from the pulp as much as possible.
3. Wash seeds off to clean them thoroughly.
4. Add seeds to large vessel of water. The seeds that immediately sink are viable. The ones that float are not viable.
5. Spread seeds out to dry completely.

Basil

1. Throughout the growing season, pick the flowers on the plant to encourage more leafy growth. Towards the end of the season, allow flowers to grow in order to save seeds.
2. Allow the flowers to mature and turn brown on the plant and dry out.
3. Either collect the dry flowers in your hands or tap the stems and watch the little black seeds fall out onto a plate or bowl.
4. To separate the seeds from the chaff, simply blow gently on the mixture—the heavier seeds will stay put while the chaff blows away.
5. Allow seeds to dry completely before storing.

Resources for Seed Saving

- Suzanne Ashworth's classic *Seed to Seed* is an indispensable resource for the small-scale seed saver. Useful biological and applicable information regarding crops and seed saving techniques are found in this book. Another useful book is *Saving Seeds* by Marc Rogers.
- Eli Rogosa's book *Seed Saving*, is available for free online at: growseed.org/GenerationtoGeneration.pdf (note spelling of title includes a typo—make sure you copy it right!)
- Two websites to go to are: Seed Savers Exchange: <http://www.seedsavers.org> and the International Seed Saving Institute: <http://www.seedsave.org>
- The numerous *seed exchanges* in the U.S. and abroad provide a resource and platform for the preservation of regional and heirloom varieties. Check local seed exchanges in your area.
- Your local community is always an indispensable resource. What are locals growing? Many farmers are happy to share and trade local varieties and information.



Useful Concepts and Techniques for the Seed Saver

- Flowers can be **perfect** or **imperfect**. Imperfect flowers lack stamens or pistils (the sexual organs), but not both. These imperfect flowers can be **monoecious**, on the same plant, or **dioecious**, on different plants.
- Perfect flowers have the ability to **self-pollinate**. Some perfect flowers, however, are not able to self-pollinate. These flowers are termed **self-incompatible**.
- Imperfect flowers require facilitated **pollination**. Most plants have one or more specific modes of pollination with which it has evolved. Abiotic pollinators include the wind and water. Biotic pollinators include insects, birds, and bats.
- Many plants exhibit **open pollination** regardless of self-compatibility or flower perfection. The same individual, variety or a different variety can fertilize these plants.
- Open-pollinated plants require some form of **isolation** to produce true-to-type seeds. This isolation can be physical (i.e. caging and bagging), spatial (i.e. distance), or temporal (i.e. seasons).
- A variety of seed uniquely adapted to a particular region and climate is called a **landrace**.
- The act of seed saving includes harvesting, cleaning, processing, and storing seeds.
- Harvesting seeds requires collection of seeds and also usually their fruits. These seeds and fruits should be mature but not weathered. Small, non fleshy fruits should be dried before cleaning and are often most viable when they reach maximum dry weight on the plant.
- Seeds encapsulated in fruits need to be cleaned. Crops with small seeds and fruits can be cleaned mechanically or by **threshing**. Home seed savers working with small quantities often employ metal screens or mesh for these small seeds. The size of screen or mesh should be slightly larger than the seed. This seed will then have to be **winnowed** to remove any **chaff**.
- Seeds with fleshy fruits often need to be **wet processed** to properly remove the flesh from the seed. In larger fruits, the seeds are scraped out; smaller fruits are often crushed. Some species require a fermentation process by bacteria or yeast to destroy seed-borne pathogens. These wet processed and/or fermented seeds need to be washed to remove any pulp. In a large vessel, add twice as much volume water to volume of seed and pulp and stir vigorously. Mature (and viable) seeds tend to sink while pulp and immature seeds will float. Gently pour off floating seeds and debris until only mature seeds remain. Repeat until only mature seeds remain. Wash under flowing water. Wet seeds should then be spread as thinly as possible over a flat surface (not paper or cloth) to dry quickly to prevent pathogens and rot. This should be done below 96° and with good air circulation. Direct sunlight should also be avoided.
- Processed seeds need proper storage. Proper storage requires cool temperatures and low humidity. Without this seeds may germinate improperly or rot by microorganisms. Seeds are best stored in airtight containers out of direct sunlight. Seeds stored under these conditions should remain viable for several years. To extend the amount of time seeds will be viable they can also be frozen.
- Learn the biology and pollination ecology of the crops from which you intend to save seed.
- Give thanks for the ability to take control of your seed sources and food. Seed saving is a holy and blessed activity. *L'Chaim!!!*