

# SEED SAVING: SUPER EASY

Feed Denver

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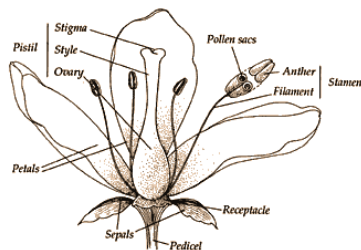
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## Pollination

Pollination is the process of sexual fertilization in plants. The method by which a flower is pollinated (wind, insect, self) will dictate the spacing or isolation necessary for plants to produce **true-to-type** seeds.

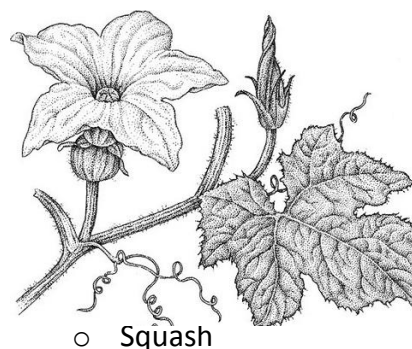
### PERFECT FLOWERS

- contain male and female parts
- some tend to self-pollinate = easier to save seeds
- ex. beans, peas, tomatoes



### IMPERFECT FLOWERS

- contain either male or female parts
- readily cross-pollinate = difficult to save true-to-type seeds
- ex. squash, melons, cucumbers



### SELF-POLLINATION

- Pollination takes place within a single flower, usually before it opens. Self-pollinating flowers are called **perfect flowers**.
- Isolation distance to prevent cross-pollination is not necessary unless insects are known to invade flowers before pollination is complete.

### CROSS-POLLINATION

- When pollen is exchanged between different flowers from the same or different plants.
- If pollen comes from a different variety (same species), then a **hybrid** will result. Can be natural or artificially pollinated.

*Understanding how plants pollinate will help you prevent cross-pollination, which leads to unpredictable results.*

# Heirlooms and Hybrids

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**Heirlooms** = plants that have “a face, a place and a story”

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## OPEN-POLLINATED

- produce plants identical to parents
- not hybrid
- open-pollinated seeds that have special significance to a family/community are often referred to as heirloom varieties
- all individuals within a population are allowed to inter-mate via wind or insects

## HYBRID

- a cross between two genetically distinct parent plants; these distinct parent populations are each known as an “inbred line”
- also called Filial 1, F1, or F – these are the first progeny of the inbred lines
- First generation (F1) plants usually show more “vigor” than either parent
- Second generation (F2) plants will not be uniform
- Don’t save seeds from hybrids for the library

# Biology 101

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Plants in the same family have similar characteristics, such as flower and leaf structure, and are often saved in similar ways:

**Family - Genus (plural Genera)- Species - Variety – Cultivar**

The scientific/botanical name is written in italics with the genus capitalized. (Note: **Botanical name = Genus + species:** *Daucus carota.*) Example:

### **Carrot**

Apiaceae - *Daucus carota* var. *sativus* ‘Scarlet Nantes’

Family: Apiaceae

Genus: *Daucus*

Species: *carota*

Variety: *sativus*

Cultivar: Scarlet Nantes

# Saving the Seed

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## General Guidelines

1. Keep good garden records or put out a label with the variety, source and year of seeds.
2. Always choose from the healthiest plants that are true-to-type.
3. Remove plants that are not true-to-type plants (rouging) or tag the plants you intend to save from. Remove plants you don't intend to save seeds from before they flower.
4. Plan your garden to reduce cross-pollination:
  - a. plant one variety per species, or only allow one variety to go to seed
  - b. separate varieties by planting something tall in between (ex. corn or sunflowers) or plant on different sides of your house
  - c. have a friend plant another variety and share produce
  - d. stagger the planting of two varieties within a species so that pollination time does not overlap; pollination occurs during flowering so note when flowers of different varieties are open
5. Keep up with the Joneses. Know what varieties your neighbors are planting.
6. Never plant all of your seeds in one year.

## Selection Traits

- |   |   |                              |
|---|---|------------------------------|
| • Vigor   | • Early- or late-bearing fruit (whichever is desired) | • Cold hardiness             |
| • Taste   | • Long storage life                                   | • Resistance to insect pests |
| • Ability to tolerate drought, wind or other extreme conditions | • Late to go to seed or bolt                          | • Larger fruit or flowers    |
| • Ability to compete with weeds                                 | • Good fruit texture                                  | • Attractiveness             |
|   | • Disease resistant                                   | • Color                      |
|   | • Productivity  | • Shape                      |

### ***Envelope Recommendation: What to Write on Your Seed Envelopes***

- time to germination and time to maturity
- planting instructions
- include why you saved seeds from a particular plant (See Selection Trait List)

*Remember that when you return seeds the next person has to rely on your notes on the envelope.*

# Plant Families

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## Sunflower Family

**Scientific family name:** Asteraceae or Compositae      **Common family name:** Aster, Daisy, or Sunflower Common

**family members:** Artichoke, cardoon, endive, Jerusalem artichoke, lettuce, salsify, shungiku, sunflower.

**Type of flower:** Perfect

**Type of pollination:** Self or insects

**Harvesting:** Let the seeds dry on the plant. Collect.

### **Envelope tips:**

*Lettuce:* color, slow bolting, suitable for winter, type of leaf: looseleaf, crisphead, romaine (cos), butterhead

*Sunflower:* flower color, size of seed, size of plant, branching or central stem, size of head, taste of seeds

### Notes:

- For Jerusalem artichokes, the tuber is planted. For others in this family, allow the plants to flower, collect dry seeds.
- When half the lettuce flowers are fluffy white, you can cut off the stock and place it upside down in a paper bag in a dry place. Let them mature and dry in the bag then clean.
- Most sunflowers are partially **self-incompatible**, which means the flowers on one plant must be pollinated by pollen from flowers on another plant. Plant multiple plants of one variety to ensure best seed set.
- Cross-pollination in lettuce is very low. Multiple varieties can be grown in one garden.

## Bean and Pea Family

**Scientific family name:** Fabaceae or Leguminosae      **Common name:** Pea, Bean, Legume or Pulse

**Common family members:** bean, lentil, pea, peanut, soybean

**Type of flower:** Perfect

**Type of pollination:** Self

**Harvesting:** Allow beans and peas to dry in their pods on plants before collecting and storing.

### **Envelope tips:**

*Peas:* type (sugar snap, snow, green/shelling)

*Beans:* bush (determinant) or pole (indeterminant), use (green, dried)

**Know your beans?** If you know the scientific name of your bean, then you can plant one of each species and not have to worry about cross-pollination. Here are a few of the major species:

SCIENTIFIC NAME	COMMON NAME	EXAMPLES
<i>Phaseolus vulgaris</i>	Common bean	Anasazi, black beans, borlotti types, pink beans, pinto, shell, white and yellow beans
<i>Vicia faba</i>	Fava or broad bean	Negreta, Windsor, Tarma
<i>Phaseolus coccineus</i>	Runner beans	Scarlet runner, sunset runner
<i>Phaseolus lunatus</i>	Lima or Butter beans	Christmas, Henderson

### Notes:

- Beans and peas have a low cross-pollination rate.

- To reduce cross-pollination between different varieties of beans or peas isolate the plants by spacing them apart. Plant different pea varieties 50 ft apart and beans 100 ft apart.
- To eliminate cross-pollination, grow different species of beans. Ex. Runner beans (*Phaseolus coccineus*) will not cross with a common bean (*Phaseolus vulgaris*) such as Kentucky Wonder.

## Nightshade Family

**Scientific family name:** Solanaceae

**Common family members:** Cape gooseberry, eggplant, ground cherry, pepper, potato, tomatillo, tomato.

**Type of flower:** Perfect

**Type of pollination:** Self

**Harvesting:** Allow fruits to fully ripen. Then seeds should be rinsed and pulp removed. Dry them thoroughly before being stored. For tomatoes squeeze seeds and some pulp into a jar. Letting tomato pulp ferment in water for a few days before cleaning kills harmful microorganisms

### **Envelope tips:**

*Tomatoes:* determinant (bush)/indeterminant; color; use (paste, slicing); shape; size; disease-resistance; suitable for containers; good in cool; early, mid or late-season; length of harvest season

*Peppers:* heat (sweet/hot), size, use (spice, drying, stuffing, frying)

*Eggplant:* color, size, type (Asian, Italian)

### Notes:

- Potatoes are grown from tubers not seeds.
- Different varieties of peppers may cross if grown together.
- To avoid hot peppers from crossing with sweet, don't plant them near each other

## Parsley Family

**Scientific family name:** Umbelliferae or Apiaceae

**Common family members:** Carrot, celery, caraway, chervil, cilantro (coriander), dill, fennel, parsley, parsnip

**Type of flower:** Perfect

**Type of pollination:** Insect

**Harvesting:** Let the seeds dry on the plant. Collect.

**Population minimums:** carrots/parsnips – 50 plants allowed to flower; keep flowering carrots 1 ft apart in rows 3 ft wide by 17 feet long); celery, caraway, chervil, cilantro, dill, fennel, parsley – 25 plants

**Isolation distances:** ¼ miles

**Inbreeding depression (=loss of vigor):** carrots – severe; others in family exhibit moderate to limited

### **Envelope tips:**

*Carrots:* color, size, shape, whether container appropriate

*Fennel:* bulbing or foliage

*Parsley:* curly, flat

### Notes:

- Many plants in this family are biennial, so flowering may not occur until the second year.
- Don't save carrots if Queen Anne's Lace is nearby. It will cross. Yucky and bitter!

# Storage

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- Store in a cool, dry location.
- Seeds can be kept in paper or glass. Do not store in plastic.
- Seed Limit: Temperature (°F) + relative humidity (%) less than 100
- Refer to Seed Chart on website for viability ([www.RichmondGrows.org](http://www.RichmondGrows.org)).

**SEED  
LIMIT  
100**