



Oregon State University
Extension Service

METRO AREA
Master Gardener™ Program



OSU EXTENSION SERVICE metro area
MASTER GARDENER™ VOLUNTEER



Andrea Flint

Extension programming
responds to
community priorities



Oregon State University
Extension Service

OSU Extension provides information and expertise to help meet local challenges and help every Oregonian thrive.

- 4-H Youth Development
- Agriculture and Natural Resources
- Family and Community Health
- Forestry and Natural Resources



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OSU Extension across Oregon

FAST FACTS

- **85,000+** young people involved in 4-H and other youth programming.
- **600+** employees serving Oregon.
- **8,000+** trained volunteers increasing community capacity.
- **7,200** students and parents served by *Juntos* in 100 schools in 34 communities and 20 counties.
- **35,488** students across Oregon participate in Outdoor School and spend more than 150,000 days learning outdoors.
- **157,213** hours were contributed by OSU Extension Master Gardener™ volunteers.

OSU Master Gardener™ Program



- Helps Oregonians grow healthy gardens with information rooted in science.
- More than 3,000 trained volunteers provide 200,000 volunteer hours and 250,000 contacts annually
- Requires annual volunteer recertification

OSU Master Gardener Mission



Cultivating resilient and healthy communities throughout **Oregon** through sustainable horticulture education and **gardening** projects that are rooted in science and that are supported by OSU Extension volunteers.

Collecting, Processing, and Storing Seeds

Why Should We Save Seeds?



- Fun!
- Cost savings
- Improve genetics over time
 - Adapted to your microclimate
- Preserve seed varieties
 - Seed varieties are sometimes discontinued as new hybrids become available.
- Share with friends, family, community

“With the rise of industrial agriculture throughout the 20th century, fewer people needed to be growing their own food which meant fewer farmers were growing fewer varieties. There was a focus on performance rather than flavor or cultural roots of seeds. Between 1903 and 1983, the US lost 93% of its seed diversity. Globally in the same period we saw a 75% decline in seed diversity.”

- From Sow True Seeds

<https://sowtrueseed.com/blogs/gardening/everything-a-gardener-needs-to-know-about-open-pollinated-seeds>

“Increased market concentration by a handful of agrochemical companies has dramatically diminished seed varieties and biodiversity. A 1983 study by the Rural Advancement Foundation International (RAFI) revealed that over the course of eighty years, the U.S. lost 93 percent of its agricultural genetic diversity.”

- From: The Center for Food Safety
- Gwen Sharp, “Loss Of Genetic Diversity In U.S. Food Crops,” *The Society Pages*, July 19, 2011, accessed August 7, 2012,
<http://thesocietypages.org/socimages/2011/07/19/loss-of-genetic-diversity-in-u-s-food-crops>

Svalbard Global Seed Vault



Photograph: NordGen

<https://www.theguardian.com/environment/2023/mar/03/global-seed-vault-svalbard-virtual-to-ur-aoe>

- Secure seed bank on Spitsbergen Island in Norway's Svalbard archipelago.
 - 120 meters inside rock under permafrost
- Global safety net to preserve agricultural and crop diversity.
- Contains national, regional, and international seeds.
- Protects humanity's food supply against catastrophic events.

What Seeds Can We Save?



Image: Instagram, homemaking.com



Photo: Andrea Flint



- Native plants, fruits, vegetables, flowers, grasses, etc.
- If it makes a seed then it can be saved!
- But.....

Many seeds you save will not grow to be 100% the same as the parent plants.

Open Pollinated Seeds

Different types of Pollinators

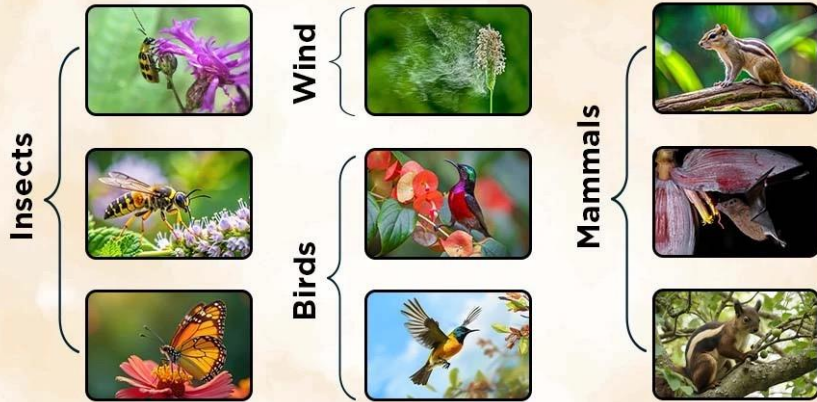
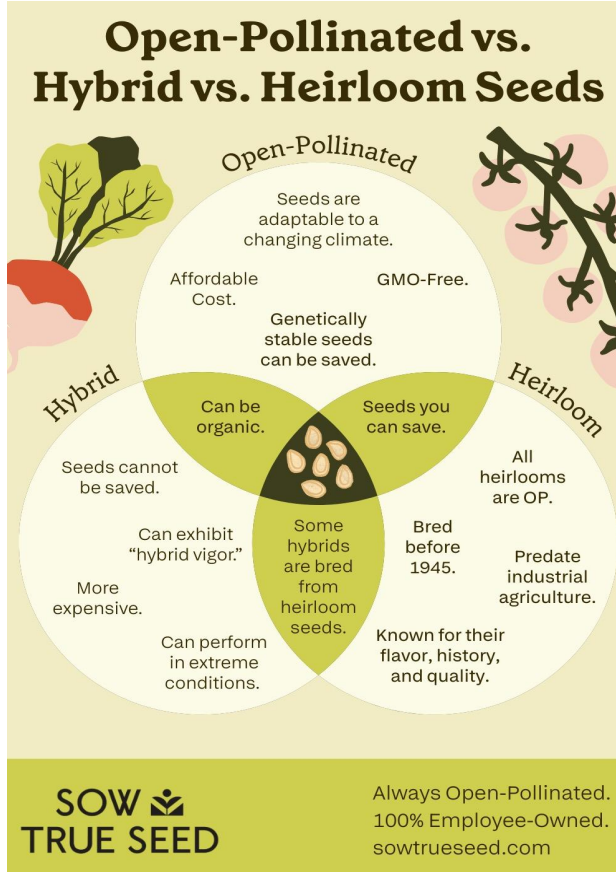


Image: <https://tractorkarvan.com/blog/what-is-pollination>

- **Open-pollinated seeds**: Stable, non-hybrid varieties of plants that result from pollination of the same or genetically similar parents.
<https://sowtrueseed.com/blogs/gardening/everything-a-gardener-needs-to-know-about-open-pollinated-seeds>
 - Not: heirloom, hybrid, GMO
 - Genetically stable
 - Pollinated via natural methods: birds, wind, animals, self-pollination
 - Variation allows you to select seeds.
- **Heirloom**: Created before WWII
- **Hybrid (F1)**: Created from two genetically related but dissimilar plants through biotechnology.

Which Seeds Can I Save?



Which Seeds Should I Not Save?



Figure 1. A diverse range of symptoms observed from *Cercospora soja* (frogeye leaf spot) infection on seed. (Photo Credit: Gail Ruhl, PPDL).

https://extension.entm.purdue.edu/newsletters/pestandcrop/article/fungal-diseases-that-can-impact-soybean-pod-and-seed-quality/?TSPD_101_R0=08993c5290ab2000277e8cf840d387af6c5577d0a3eb5b6654570803851b54bc7b1d71f339ecdfcf0879d8b24c1430000bc652b92288d64_08c9ca7a2f9d43616381a3495867fe3d61fd5eaa7b797a99c7c716bc1461e3a843613137cc54f5d30



Figure 1. Granary weevil infestation. Authors: Ahmed, R., Hassan, S., Ahmad, S., Nighat, S., Devi, Y.K., Javed, B., Usmani, S., Hussain, M., Erum, S., Ali, M., and Hussain, B., 2021. Stored Grain Pests and Current Advances for their Management. Postharvest Technology-Recent Advances, New Perspectives and Applications.

- Patented varieties
- Hybrid varieties
- Underdeveloped seeds
- Seeds from diseased parent plants
- Seeds with pest damage
- ***Cucurbit family seeds (squash and cucumber)

Seed Development Problems



Image: Dee Carmichael, 9/11/24 via Facebook



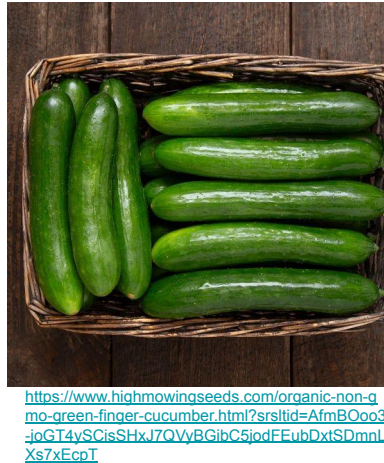
<https://fruitscout.mgcafe.uky.edu/poor-pollination-strawberry>



<https://www.chicagobotanic.org/blog/plant-science-conservation/bloom-times-matter-wildflowers>

- Sometimes seeds do not develop properly.
 - Inadequate pollination
 - Poor plant genetics
 - Disease
 - Immature
- Seeds can look misshapen
 - Small size
 - Squishy feel
 - Dark and light areas
 - Inconsistent “plumpness”
 - Light color, often green or yellow
- Much easier to tell with larger seeds
- Germination test can be helpful

Cucurbit Cross-Pollination aka “Franken- Squash”



- Cucumbers and squash CANNOT cross pollinate
- Squash within the same family CAN cross pollinate
 - ***Cucurbita pepo***: zucchini, crookneck, straightneck, acorn, scallop, spaghetti, delicata, pattypan, sugar (pie) pumpkin, field (jack-o-lantern) pumpkin, ornamental gourd
 - ***Cucurbita moschata***: butternut, calabaza, trombocino, Long Island cheese pumpkin, cinderella pumpkin
 - ***Cucurbita maxima***: hubbard, buttercup, turban, kabocha, giant pumpkin

- ***Cucurbita argyrosperma***: cushaw, kershaw
- ***Cucumis melo***: cantaloupe, honeydew, muskmelon
- ***Cucumis sativus***: cucumber
- ***Citrullus lanatus***: watermelon
- ***Momordica charantia***: bitter melon
- ***Luffa***: loofah gourd
- ***Lagenaria siceraria***: calabash (bottle gourd)

[https://yardandgarden.extension.iastate.edu/how-to/cross-pollination-between-vine-crops#:~:text=Only%20Cucurbits%20of%20the%20Same.Species%20Can%20Cross%2DPollinate&text=squash%2C%20melons%2C%20and%20cucumbers%20\(cucurbits\),however%2C%20this%20is%20not%20true.](https://yardandgarden.extension.iastate.edu/how-to/cross-pollination-between-vine-crops#:~:text=Only%20Cucurbits%20of%20the%20Same.Species%20Can%20Cross%2DPollinate&text=squash%2C%20melons%2C%20and%20cucumbers%20(cucurbits),however%2C%20this%20is%20not%20true.)

Seed Variety Isolation

- Most plants will cross-pollinate if nature is allowed to happen.
 - Bees, bugs, animals
 - Wind
- Plants in own garden, neighbors, nearby farms.
- Wild plants in same family.
- Pollen only transferred during flowering.
- It IS possible to isolate plants
- Isolation techniques
 - Temporal/time
 - One variety flowering at any given time
 - Physical barriers
 - Large or small scale
 - Isolation tent, blossom bag
 - Greenhouse
 - Hand pollination
 - Distance



<https://blog.territorialseed.com/blog/2017/2/15/isolation-cages-for-the-purity-of-seed>



<https://seedsavers.org/learn/isolation-methods/>



Seed Variety Isolation



<https://seedsavers.org/learn/isolation-methods/>

- Wind: spinach, beets, corn
- Self-pollinating: Tomatoes, beans, soybeans, eggplant, lettuce, peas
Easy to save
- Corn - a few miles
- Watermelons- 800 ft - ½ mile
- Ex. Carrots and wild queen anne's lace.
- Ex. Wild sunflowers and cultivated sunflowers
- Ex. cucurbita pepo varieties can have a bitter compound when rare weird crosses happen.
- Resource: Seed Distance Chart
 - University of California, Master Gardeners of Placer County
 - <https://ucanr.edu/site/uc-master-gardeners-placer-county/article/seed-distance-chart>
- Resource: Seed Savers Exchange Seed Saving Guide

How Do You Know When Seeds Are Ready?



<https://sowrightseeds.com/blogs/planters-library/when-to-pick-cucumbers?srsltid=AfmBOoqNFKcpkz9kdvRWUGXpbxpGesZ4zZcfSxVMo6ubdlyUWxAiPSiU>



<https://thefreerangelife.com/how-to-save-lettuce-seeds/>



<https://gardentherapy.ca/preserving-the-ornamental-garden/>

- Leave plants to fully mature, often past the point of being “unsightly.”
- **Fruit:** Slightly Over-Ripe
- **Tomatoes:** Fully ripe/Over-ripe
- **Cucumbers:** Large, fully ripe, and yellow!
- **Lettuce/ Brassicas:** After plants bolt, flower, and seed head develop.
- **Flowers:** Flower heads completely dried out
 - Seed pods develop.
 - Listen for a rattle sound!
- **Grasses:** Dry!

When Should You Harvest Seeds?

Mustard Seed



Image: Flickr, Guinevere



<https://littletechgirl.com/2025/05/21/lets-talk-volunteer-garden-plants/>

- At the end of the growing season
 - Seed development slows plant growth
- Middle of the day after morning dew has dried.
- Before a rain storm.
 - Mold can become a problem.
- If you wait too long...
 - Seeds will drop to the ground
 - Get eaten by animals
 - Sprout while still in their pods
 - Risk in late fall in PNW.

How to Save Seeds!

1. We figured out which seeds we want to save.
2. We feel confident that we'll get seeds that resemble their parents.
3. We're ready to go out in the garden to collect our seeds!

Seed Saving Supplies



Photo credit: Penn State Master Gardener Program



Image: Walmart



Image: homesteadandchill.com

- Shallow containers
 - Tupperware, plastic baggies, small bowls
- Jars
 - Collection, storage, fermenting wet seeds

- Sharpie pens- label, label, label!!

LABEL AGAIN!!!!

- Seed envelopes
 - Paper, plastic, DIY
- Paper towels, napkins
 - For drying and collecting seeds
 - Will end up with seeds everywhere!
- Sharp scissors or floral snips
- Somewhere to store your seeds!

Tomatoes, Cucumbers, Squash aka “Wet Seeds”



1. Remove seeds and gel from fruit.
2. Mix with a little water to make a slurry.
3. Allow to ferment for 2-4 days.
 - a. Will often develop mold and/or yeast on top of liquid
 - b. Stir daily.
 - c. Viable seeds will sink to the bottom



<https://awaytogarden.com/saving-tomato-seed-a-day-at-the-seed-library/>



<https://www.bunnysgarden.com/how-to-save-cucumber-seeds/>

4. Remove seeds from slurry
5. Dry completely on paper towels!
6. Store once seeds completely dry

Flower Seeds



<https://www.gardengatemagazine.com/articles/how-to/start-seeds/how-to-save-marigold-seeds/>



Image: Sugarblossom Floral Co. etsy



<https://www.wildway.info/p/dried-seedheads-for-cutting-wildlife>



Image: Lindsey Sanchez/ Facebook 11/27/23

1. Find your fully developed, dried out flower heads/seed pods.
 - a. Fall is the perfect time.
2. Remove seed heads from plants.
3. Find the seeds!
 - a. Shake, open up seed head, etc.
4. Separate seeds from chaff (non-seed plant matter)
 - a. Process is called winnowing!
5. Store seeds appropriately

Zinnia and Dahlia Seeds

- Huge interest in flower farming and breeding during and after covid.
- Great diversity in zinnia and dahlia seeds resulting in wide variety of plants!



Image: Eden Brothers, Queeny Series Zinnia Seeds



These are two types of disk seeds. They are both viable and will germinate.

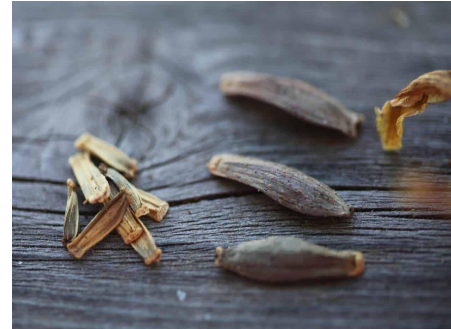
Image: Windfall Flowers Instagram



<https://education.teamflower.org/learn/design/ssl/comprehensive-dahlia-variety-guide-by-color>



<https://farmhouseandblooms.com/how-to-collect-dahlia-seeds-harvest-and-storage/>



Seed Storage

- Option #1: Throw them in bag and leave them until next year as is.
 - Option #2: Storage seeds in containers of your choice in optimal conditions.
- Consistently cool
 - Low humidity: <40%
 - Darkness
 - Well labeled
 - Protect from pests
 - Rodents
 - Birds
 - Weevils, tiny bugs



Image: permies.com



<https://eliandkate.com/the-best-seed-storage-and-organisation-system-ive-ever-had/>

****There are as many seed storage methods as there are people****

Seed Library

- Little Free Pollinator Seed Library
 - Little Garden Library (Foster-Powell)
 - Sumner Seed Library
 - Green Lents Tool Library
 - Clackamas, Lake Oswego, Tigard, Cedar Mill, West Linn libraries.
 - Local resource for free seeds.
 - Can take seeds and bring in saved seeds
- ***I'm looking to start one locally. If anyone wants to partner on this with me let me know!



Lake Oswego Library



West Linn Public Library

OSU Publications

- Good resources:
 - A step-by-step Guide to Saving Seeds
 - <https://extension.oregonstate.edu/catalog/em-9663-step-step-guide-saving-seeds>
 - Collecting and Storing Seeds From Your Garden
 - <https://extension.oregonstate.edu/gardening/techniques/collecting-storing-seeds-your-garden>
 - Save Seeds Now For Next Year's Garden
 - <https://extension.oregonstate.edu/news/save-seeds-now-next-years-garden>
- Free
- Available online

What questions do you have?

Metro area Master Gardener™ Program



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Metro area Master Gardener Program Events Calendar

Find our upcoming events at:

www.metromastergardeners.org

- *-Free events and webinars, all*
- *Register for some in advance*



Upcoming events

Sep 1

Building healthy garden soils for better vegetables webinar*

7:00 pm - 8:00 pm PDT Online

Sep 12

Pitcher plants and waterwise wonders

10:00 am - 12:00 pm Beaverton, OR

Sep 19

Putting the garden to bed*

10:00 am - 12:00 pm Portland, OR

Oct 3

Tree School Field Day 2026

8:00 am - 4:15 pm Oregon City, OR

Oct 3

WCMGA Education Garden Open Garden: Spiders, beneficial insects and wildlife, oh my!

10:00 am - 1:00 pm Portland, OR

Nov 14

Plant propagation by hardwood and softwood stem cuttings*

10:00 am - 12:00 pm Portland, OR

Where you can find us...



- On the web

www.metromastergardeners.org



- Instagram

[@metromastergardeners](https://www.instagram.com/metromastergardeners)



- Facebook

[@MetroMasterGardeners](https://www.facebook.com/MetroMasterGardeners)

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