

Heirloom Seed Library 2020 And Seed Saving Instruction Guide



Welcome to the Heirloom Seed Lending Library

The Heirloom Garden broke ground in 2014, when Master Gardeners and the North Yakima Conservation District partnered to provide land, water, and start-up funds for a vegetable garden of open pollinated and heirloom varieties, many of which are rare and endangered. The garden creates a hands-on learning experience, using low-cost, sustainable, organic methods. The main goal is to create and maintain a seed lending library, provide free gardening education; and donate all remaining produce to local meals programs. Every year we donate nearly a ton of fresh produce to our community.

The Heirloom Seed Lending Library loans seed to gardeners who plant the seed and then return new seeds that they grew from the borrowed ones. We understand that not all the borrowed seeds will grow to maturity and not all the seeds saved will be viable. Things happen! Learning to save seed is a process, and our free seed saving classes may help. By joining with other seed savers we improve health and nutrition; grow varieties with the flavor and qualities of our choosing (rather than those of large commercial growers); adapt varieties to our unique climate and soils; and increase plant diversity throughout our community. The Heirloom Seed Lending Library is a new project that is open to the public on a limited basis due to the size of our seed inventory.

Master Gardeners Free Classes on topics specific to vegetable gardening are offered on the third Saturday of each month from May to September at 10:00 AM in the Heirloom Garden, located at 1522 South 18th Avenue, Yakima (the same location as our Plant Sale). The Heirloom Garden is open to the public by invitation or upon request. For more information contact Master Gardeners at: gardener@co.yakima.wa.us or 509-574-1604

The Demonstration Garden is an ornamental garden located in Ahtanum Youth Park, at 1000 Ahtanum, Union Gap. Free classes are offered on a wide range of garden related topics on the second and fourth Saturday of each month from April to October at 10:00 AM. The Demonstration Garden is open to the public during park hours. Parking is free while visiting the garden.



Children take a tour the garden.



How to Prune Tomatoes

Legumes

Beans

All beans require consistently warm weather to germinate. Sow 1 inch deep, 3-6 inches apart, when soil temps remain consistently above 60-65°. Vining varieties need strong trellising. Beans do not need insects for pollination and rarely cross pollinate.

Runner beans will cross pollinate easily with other runner beans.

Asian Long Beans

(*Vigna Unguiculata*) are a warm weather staple crop of East Asia where they have been grown for centuries. The tender pods are crisp and without many strings. Very heat tolerant, will continue to set pods when common beans drop their flowers. High yielding. The aggressive vining habit requires trellising. Harvest while pods are very slender, before beans inside begin to swell or pods will become fibrous.



Asparagus Long Bean

Vigorous climbing vines are easy to grow. Heavy yields. Needs warm soil to germinate and sturdy trellising. Pick when long green pods are 12-18 inches long. Best when sautéed, stir fried or pickled. 70 days. Seed donated by Diana Pieti.



Chinese Red Noodle Long Bean

Vigorous climbing vines are easy to grow. Heavy yields. Needs warm soil to germinate and sturdy trellising. Pick when long burgundy pods are 12-18 inches long. Beautiful burgundy beans are easy to see at harvest. Some of the red color is retained when cooked. Especially attractive when mixed with green long beans and sautéed together. 70 days.



Thai Soldier Long Bean

Vigorous climbing vines are easy to grow. Heavy yields. Needs warm soil to germinate and sturdy trellising. An Asian half-long bean, harvest at about 12 inches. Attractive green with purple striations that turns darker when cooked, but still retains most of their bi-color. 70 days. Seed donated by Phyllis Pugnetti.



Cowpeas AKA Black Eyed Peas

See cover crops.

Common Pole and Bush Beans

(*Phaseolus vulgaris*) are a warm weather staple crop of North and South America where they have been grown for over 2000 years. The immature pods are tender and crunchy, and should be eaten before the seeds fill out. In shelling beans the seeds are filled out but still green and tender, the pods are not eaten. For dried beans, leave pods on the plants until mature and pods dry on the vine. Strings develop in all varieties as pods mature.

Beefy Resilient Grex Pole

A new variety from Carol Depp developed in WA. A rare cross between different bean species. Bred for wide diversity rather than uniformity. High yields, drought and disease resistance. Small beans of black, tan, red, and gold. Short vines, about 6' tall. A dry bean that cooks quickly. 75 days.



Blue Lake Bush Blue Lake Pole

The most common bean in the US, and with good reason. Green 6" pods take a long time for strings to develop. Heavy yields. A snap bean used fresh or for canning. 60 days for bush beans. 70 days for pole beans.



Borlotti Lamon Bush Borlotti Lamon Pole

In 1530 Pope Clement VII received New World bean seeds as a gift from the Spanish Court. He gave some seeds to a monk traveling to a village in Northern Italy. These beans eventually replaced peas and broad beans in that region. Records show this bean has been grown on the Lamon Plateau, continuously since then. A vigorous grower and heavy producer. Use as shelling or dried beans. Unfortunately they lose their bright color when cooked. 75 days.



Cherokee Trail of Tears Pole

The Cherokee people carried this bean seed from Tennessee to Oklahoma on a forced march in the 1830s. So many people died that it is still called the Trail of Tears. This variety has green pods that gradually turn purple with shiny black seeds. Use as a snap or dry bean. 65 days. Seed donated by Gini Obert.





Cherokee Wax Bush

All-American Selections winner in 1948. A yellow wax bean with shiny black seeds at maturity. Can be eaten as a snap or dried bean. Very heavy yields. Resistant to pests and tolerant of poor weather conditions. Bush beans tend to produce all at once. For higher yields, stagger planting every 2 weeks until mid July. 45-55 days.



Dragon's Tongue Bush

A wax bean originally from Holland in the 1700's. The 6-7 inch pods are yellow with purple streaks. Early, compact plants. Can be used as snap or shelling bean, are especially good in stir fries. Very attractive, compact plants. Good in containers. High yields. 60-90 days.



Good Mother Stallard Pole

This beautiful bean is plump and round with purple and white color. These are grown for their very creamy texture especially good in baked beans and soup. Color fades to tan during storage. Average yields. 85 days.



Kentucky Wonder Pole

One of the most popular beans of all times. Grown very widely in the South before the Civil War. Vigorous, very high yields of 7-9" meaty flat green pods. Usually eaten as a snap bean, but can be used as a dried bean too. 67 days to green. Seeds donated by Sarah Judd.



Pellegrini Pole AKA Monachine

A Mondavi (wine) family heirloom from Italy in the early 1900s. Given to Angelo Pelligrini, a UW professor, to save from extinction. He grew and selected plants adapted to the PNW. Grown for decades on the Pellegrini family farm on Whidbey Island where it became a local favorite. Long vines. A yellow Romano with tan and cream seeds. Excellent, very creamy dried bean. Very high yields. Seed donated by Farrah King.



Red Swan Bush

A very beautiful bush bean with abundant pink and white blossoms and very high yields of bean pods in stunning colors of magenta to burgundy that turn green when cooked. The red pods are very easy to see for harvesting. Can be used as a snap or dried bean. Excellent buttery flavor and creamy texture. 55 days. Seeds donated by Gloria Wright.

Rockwell Bush

A very rare heirloom brought to Whidbey Island in the late 1800 by Elisha Rockwell. Almost impossible to buy as there are only 4 suppliers, all descendants of Whidbey Island families. Very creamy beans that hold their shape in cooking, usually for baked beans. Tolerant of cold, rainy weather but also grows well in Yakima. 60-70 days. Seed donated by Farrah King.



Ruth Anne's Sulfur Bush

Brought from Bavaria to the Dakotas by Ruth Anne Tygg in the early 1900s. When Ruth Ann died the beans were lost to the family. Forty years later a few beans were found and donated to the Seed Library by grandchildren, James and Naomi Wenzel. Very creamy dried beans. High yields. 75 days.



Trionfo Violetto AKA Purple Triumph Pole

Lavender flowers with green foliage and deep purple pods. Grows to about 8 feet. Vigorous. Good yields. Pods turn green when cooked. Very good flavor. 75 days.



Runner Beans

(*Phaseolus coccineus*) are usually grown ornamentally but all parts are edible. Flowers are very attractive to humming birds. Pods do not develop until cool fall weather, growing long, wide, and flat. The bean pod texture is firm and meaty, growing slightly sweet after the first light frost. Very aggressive, long vines up to 20 feet need very sturdy support.

Will cross pollinate all other runner beans

Scarlet Runner

Grown primarily for its red flowers but every part of this plant is edible. Vigorous vines grow up to 20 feet. Bean pods develop late in the cool fall weather. Survives light frost. Flat pods are 6-8" long with very good flavor, firm, meaty texture. Good for dill beans, steamed or sautéed. Very attractive to hummingbirds and bees.



Peas

(*Pisum sativum*) Peas are one of the oldest cultivated staple crops. They originated in the Near East and were originally grown for the dried seeds. Types of peas are—shelling, snow, and sugar snap. All are all grown the same way. They require light soil as the roots are not deep or vigorous. Plant seeds 1" deep and 3" apart in early spring when soil temp is around 50-55°. Pole peas need strong support. Bush peas may support each other when planted closely together in a wide row. Peas very rarely cross pollinate; no isolation distance is necessary. For seed saving, let pods remain on the plant until the pods fill out with fully mature seeds, and the plants start to yellow and die back.

Dwarf Grey Sugar (Snow Pea)

Old heirloom introduced in the 1856. Sweeter than most snow peas. Often grown for the beautiful edible lavender-red flowers and tender shoots. Average yields. Pick light green pods when very small, 2"-3" long, flat and not filled out. Very short vines, only 24" tall, don't need staking. More heat tolerant than other varieties. 65 days.

Early Perfection (Shelling Pea)

Heirloom dates to the 1950s. A sweet pea that holds up well for canning or freezing. Each 3 pod has 7-10 peas. Grows well in poor soil, drought tolerant and mildly disease resistant. 30" tall. 63 days

Oregon Sugar Pod II (Snow Pea)

Used for fresh, stir fry, and holds up well for freezing. Pods are 3-4". Harvest before seeds fill out. Vines grow to 3-5' needs trellising. 55 days.

Progress #9 (Shelling Pea)

Very prolific shelling pea with 7-9 plump peas per pod. Holds well on the vine so picking time isn't as critical. Compact vines 16-20" tall. 58 days.

Purple Podded (Shelling Pea)

Beautiful purple and magenta flowers are followed by deep-purple pods filled with green peas. Pretty enough to be grown as an ornamental. Used as a shelling pea. Strong, climbing vines 4'-5' tall. 60-65 days. Original seed donated by Sandra Westford.

Snowbird (Snow Pea)

Sweet tender pods used for salad and stir fry. Harvest before seeds fill out. Mild disease resistance. Dwarf plants 18" tall. 58 days.

Sugar Ann (Snap Pea)

All American Selections winner 1984. Almost 2 weeks earlier than other pea varieties. Very short, compact vines, grows well in containers. Good yields for such a small plant. 24" tall. 52 days. **Very Limited Stock.**

Sugar Daddy (Snap Pea)

Tender 3" pods are truly stringless. Harvest when pods are plump, but not yet completely filled out. Disease resistant. 24-30" vines benefit from trellising. 65 days.

Sugar Magnolia (Snap Pea)

The first purple podded sugar snap pea, grows on 6'-7' vines, beautiful purple flowers, sets pods over a long period of time. Sweetest before pods get too plump. Not as sweet as other sugar snap varieties. Very attractive in spring salads. 70 days.

Sugar Snap (Snap Pea)

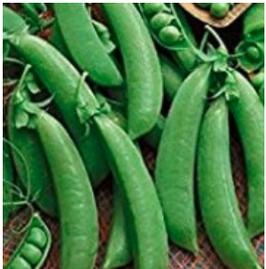
A snap pea with unusually thick-walled pods that are at their peak around 3 inches long. All American Selections winner 1979. Very sweet. This is a bush variety that has some mild disease resistance. Grows to 30" tall. 60 days.

Super Snappy (Snap Pea)

Produces some of the largest of sugar snap pods. Pods can be eaten as a snap pea or let seeds fill out and use as a sweet shelling pea. Short vines 24" tall. 65 days.

Taichung (Snow Pea)

Snow peas are grown for the edible pods and harvested before seeds develop. Usually eaten raw or in stir fries. Height of vines is inconsistent, growing 3'-6' tall. Some mild heat tolerance. 60-65 days.



Lettuce

(Lactuca sativa) A cultivated crop since ancient times, originating 4,000 years ago in the Mediterranean area. Lettuce is easy to grow but needs cool weather, bolting quickly in the heat. Direct sow in spring when soil is 50-65°. Seeds sprout and grow quickly in mild weather. Thin to 4" apart for leaf lettuce and 8-12" apart for head lettuce. Succession plant for a continuous crop. Harvest outer leaves of loose leaf varieties leaving the small center leaves to harvest again a few days later. For fall crop, sow 8 weeks before hard frost, when soil is no warmer than 72°. Lettuce varieties do not easily cross pollinate; an 8-10 feet isolation distance between varieties is necessary. For seed saving, you may harvest a few outer leaves before lettuce bolts. Seeds are ready 21 days after bloom.



Bibb

A very popular All American Selections winner. Loose heads have buttery texture. Can harvest outer leaves or wait for heads to form. Dark green leaves with lighter yellow centers. Quick to bolt in heat making it a good variety for fall. 50-60 days.



Little Gem

A small Romaine type lettuce, compact size, upright growing habit. Better when allowed to mature into a head. Very mild flavor. Not heat tolerant. 50 days



Merlot

A rare, loose leaf variety with beautiful glossy, curly leaves. The deepest red of all red varieties. Doesn't turn bronze. High in antioxidants. Some heat and cold tolerance. 50-60 days. Seed donated by Phyllis Pugnetti



Parris Island Cos

Bred by the USDA on Parris Island, SC in 1952. Crisp romaine with 10" leaves. Tolerates heat and cold better than most varieties. Harvest individual leaves or wait until heads form. 40-50 days.



Red Leaf Lettuce

Broad red-bronze leaves are somewhat ruffled forming an open rosette. Harvest outer leaves leaving inner leaves to harvest a few days later. Grows continuously until hot weather arrives. 40-50 days.

Limited stock.

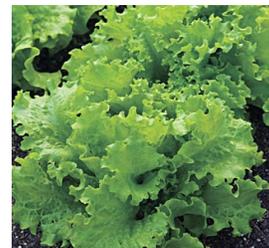
Red Romaine

Big upright heads with bright red crunchy leaves and chartreuse centers. Leaves are brighter red in light shade and more bronze in full sun. Harvest individual outer leaves, or wait until heads form. 50-60 days.



Simpson Black Seeded

One of the most tender and delicately flavored leaf lettuces with large green ruffled leaves. Grows continuously until hot weather arrives. 40-50 days.



Other Leafy Greens

Arugula—Rocket

(Eruca sativa)

Ancient crop grown in Rome. Tender smooth leaves with a peppery flavor. Eat fresh or cooked. Very cold hardy. Flowers are edible too. 50 days. Seed donated by Carol Woolcock.



Burnet

(Sanguisorba minor)

Easy to grow perennial. Mild cucumber flavor used in salads, sandwiches, and flavored water. Best flavor in cool weather. Use baby leaves, mature leaves develop bitter flavor and grainy texture. Reseeds easily. Cut to the ground when in bloom before seeds set.



Cabbage—Golden Acres

(Brassica oleracea) Early with compact heads of 4-5 pound cabbages. Sweet and crisp. Start seeds in early March for cabbages that ripen in early July, before being damaged by cabbage worms and aphids. 55-60 days.



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Collards—Georgia

(Brassica oleracea) Plant transplants mid summer for fall crop. Large flat leaves have a mild cabbage like flavor that is better after light frost. 65 days.



**Cress—Dutch Broad Leaf***(Lepidium sativum)*

A ruffled large leafed cress. Needs consistently moist soil, that is high in organic matter. Prefers full sun, but will survive in light shade. Allow plants to become well established growing to 6-12" tall before harvesting individual leaves. Does not cross with watercress. 40 days

**Cress—Watercress**

(Nasturtium officinale) One of the first plants cultivated by humans. Small mild leaves. Needs consistently moist soil, high in organic matter. Prefers full sun, will survive in light shade. Allow plants to become well established growing 6-12" tall before harvesting individual leaves. 30-40 days. Seed donated by Dee Adams.

**Kale—Blue Scotch Curly**

(Brassica oleracea) Compact plants tough leaves are best used cooked or for freezing. One of the most cold hardy varieties. Cold weather makes kale sweeter. Kale will grow year round when mulched heavily in the fall. Very attractive in ornamental beds. 65 days.

**Kale—Lacinato AKA Black or Dinosaur**

(Brassica oleracea) An Italian heirloom. Deeply savoyed dark colored leaves are tough and are best when used cooked or frozen. Very attractive in ornamental beds. Very cold hardy. 60 days.

**Kale—Red Russian**

(Brassica napus) Blue-green leaves with lavender veins. Very cold tolerant. Very mild flavor. Tender leaves, best used raw in salads. Cold weather makes kale sweeter. Will grow year round when mulched heavily in the fall. Will flower and set seed the following spring. Attractive in ornamental beds. 60 days.

**Mache AKA Corn Salad** (*valerian locusta*)

A true winter green that grows in small 3" rosettes. Very mild flavor, tender leaves. Eat raw, not cooked. Germinates when soil and weather are cool. Grows very, very slowly. Be patient! Expect harvest from Thanksgiving to Valentine's Day.

**Mesclun Spicy**

Mixed species of spicy salad greens of arugula, endive, red leaf lettuce, radicchio and mustard.

Mesclun Sweet

Mixed species of mild salad greens of ruby lettuce, Bull's Blood beat leaves, Bloomsdale spinach, Simpson lettuce, and Tendergreen mustard.

Mustard—Giant Red Leaf

(Brassica juncea) Very ornamental cold weather plant. Often used as filler in empty spring or fall garden beds. Adds a kick to a sandwich or salad, but mellows when sautéed. Plant 12 inches apart. 45 days. Seed donated by Phyllis Pugnetti.

**Mustard—Tendergreen**

(Brassica rapa) Mild flavor, tender leaves. Does not tolerate heat. Grow early spring, and again in late summer to ripen in fall. Use in salads or lightly sautéed. 45 days.

**Orach** (*Atriplex Hortensis*)

Related to spinach and chard. Native to the Alps. A cool weather crop that tolerates warm weather. Grows long after other salad greens are done. Harvest individual leaves. Use in salads or lightly sauté. Bolting plants have ornamental seed bracts up to 8' tall. 40-50 days.

Mixed Green

Mostly light green. May have a few plants in dark green and red shades.

Mixed Red

Mostly shades of red, purple, and bronze. A few plants may be green.

**Pak Choi**

(Brassica rapa subsp. Chinensis) An Asian green common in stir fry and salad. Leaves are sweet with a mild mustard flavor. Can grow spring and fall. Not heat tolerant. 45 days.

**Sorrel—Red Veined**

(Rumex sanguineus) Very attractive perennial that grows in 12' mounds. Leaves have a tart flavor. Pick small, when weather is cool. Good in salad, as a tart pesto for fish, in a cucumber salsa, or used as an herb. Slow to start from seed. Plants should be divided every 2-3 years.

**Spinach Bloomsdale Long Standing**

(spinacea oleracea) A very old heirloom. Has large curled leaves, cold hardy, slow to bolt. Good yields. Prefers sun, tolerates partial shade. 50 days.



Root Crops

Beets and Chard

(*Beta vulgaris*) Beets originated in Egypt and Greece, then spread across Europe by the Roman army. Centuries of selection have created, sugar beets, forage beets, table beets, and chard, but all are botanically the same species. Beets are not particular but prefer to germinate very warm weather and soil to germinate, 75-85°, then mature in gradually cooling weather. Survives light frost. Sow in full sun or light shade in fertile soil 1/2" deep and 2" apart thinning to 4" apart in all directions (8" for chard). Beets are biennials that grow roots and leaves the first season. Will not flower or set seed until the roots have been exposed to 6 weeks of consistently cold weather, between 32-40°. Beets will not tolerate hard frost. Chard is the most cold hardy of all beets. All beets and chard can cross pollinate. Pollen can travel up to 5 miles in the wind. This doesn't create much problem for home gardeners, as so few gardeners let beets go to seed.



Bull's Blood

This beet is grown mostly for its beautiful leaves in colors of iridescent dark purple and magenta. The edible roots and leaves are most tender when small. 40 days for leaves, 60 for roots.



Chioggia AKA Candy Stripe

An Italian heirloom from the early 1800s that arrived in the US around 1860. The red and white rings are attractive in salad. Beets turn pink when cooked. A mild, sweet beet. 55 days.



Cylindra

An old heirloom from Denmark. The long cylindrical roots produce more uniform slices than round beets and double the yields! Tender and sweet with a smooth texture. Great for canning and pickling. Tender leaves. 55 days. Seed donated by Phyllis Pugnetti.



Detroit Dark Red

Old variety introduced in 1892. Still the most popular beet among home gardeners. Good all purpose beet. Very dark red, uniform roots. 60 days.



Early Wonder Tall Top

Grows well in both warm and cool weather. Harvest when beet roots are small and tender. Hot weather makes beets woody. Tall glossy leaves are an especially good choice for beet greens. 50 days.

Fordhook Giant White Chard

Very mild flavor. Large leaves can be used like spinach. White stems can be used like celery. Grows from early spring until hard frost. With a layer of mulch it may winter over and grow again in spring. 50 days.



Ruby Red Chard

So beautiful it works well in ornamental beds too. Leaves can be used like spinach, stems like celery. Grows from early spring to hard frost. With a layer of mulch it may winter over and grow again in spring. 50 days.



Carrots

(*Daucus carota*) Wild carrots date back 10,000 years and are found throughout Asia, the Middle East, and Europe, but probably originated in ancient Persia. Wild carrots are very tiny and bitter. Originally used as medicine, they were domesticated 5000 years ago. Selection for large roots and sweet flavor has made the carrot one of the most widely eaten root crops in the world. Orange carrots were originally selected from yellow and purple carrots in the 1500s in Holland.

Sow carrots in early May for a summer crop or mid July for a fall and winter crop. Carrots need deeply prepared light soil. Sow seed 1/4" deep, thin to 4" apart. Carrots that reach maturity in cool weather are much sweeter than those ripened in summer heat. Carrots will overwinter with 4-5 inches of mulch. Carrots are biennials growing leaves and roots in the first year and flowers that set seed in the second. Flowers are insect pollinated and need at least 8 plants to assure numerous visits by pollinators. Cross pollination occurs between all varieties including wild carrots and Queen Anne's Lace.

Autumn King

A good winter carrot. Grows very large and sweet when allowed to mature in fall and winter. Fully mature carrots weigh a pound or more Plant in late July. 70 days.



Chantenay

Develops very sweet, thick, stocky roots up to 2 pounds each, when allowed to mature in fall and winter. Plant in late July. 65 days.



Danvers

Introduced in 1947, bred for improved heat tolerance. Plant in early spring. Red-orange, 7-8" long, and uniform shape. Not frost tolerant. Does not do well in fall gardens. 70 days.





Little Fingers

Very sweet. Small shallow roots are a better choice for heavy clay soils than longer rooted carrot varieties. Roots are 5" long and 1/2" wide. A Nantes variety. Not frost tolerant. Plant in early spring. 55-65 days.



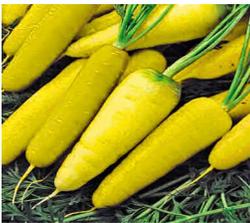
Scarlet Nantes

Good all purpose carrot, adapts to a wide range of soils and climates. Best flavor when grown in early spring or fall. Not frost tolerant. Plant in early spring. 65 days.



Sweet N Short

Very sweet. Small shallow roots are a better choice for heavy clay soils than longer rooted carrot varieties. Cone shaped roots are 4" long and wide at the shoulder. A Chantenay variety. 55-65 days.



Yellowstone

A totally yellow carrot with a mild flavor. Grows very large and sweet when allowed to mature in fall and winter. Fully mature carrots may be a pound or larger. Mulch to prevent green shoulders. Plant in late July. 75 days.

Radish

(Raphanus sativus) Radishes originated the Eastern Mediterranean about 4500 years ago. They were important for both food and medicine. Radishes are a quick growing annual that prefers cool spring or fall weather. Large radishes take longer to grow and do best when planted in July for a fall crop. Small radishes can be planted spring or fall. When ripened in hot weather radishes are pithy, woody, and hot. Fall radishes can be left in the ground until soil temps drop to 35°. Radishes need loose well drained soil that is not overly fertile. Do not add nitrogen. Plant seeds about 1/2" apart and thin to 1-2" apart. To save seed, radishes should be planted in the spring and allowed to flower in summer. Radishes cannot pollinate themselves. Pollen must be carried by insects and need at least 6 plants to assure numerous visits by pollinators. Cross pollination will occur between all radish varieties. For seed saving separate each variety by 1/2 mile.



Cherry Belle

A 1949 All American Selections winner and still the most popular variety in the US. Roots are best when harvested about an inch or smaller. Grows well spring or fall. 30 days.

Cherry Giant

Plant in late July for fall radishes the size of tennis balls! A German winter variety. Can harvest anytime when roots are small or large. 30-50 days



China Rose

Brought to the US from China by Jesuit missionaries in the 1850s. Mild sweet flavor, 6-8" long. Plant in late July for fall radishes. Harvest before the first hard frost. 35-55 days.



Daikon

An edible Asian radish also used to improve soil quality. **See cover crops.**

Sparkler

Similar to Cherry Belle but white on the root end. Roots are best when harvested about an inch or smaller. Grows well spring or fall. 30-45 days.



Watermelon

Grown for its beautiful color. Used for pickling and salads. Roots can get the size of baseballs but are better when picked small. Roots will not bulk up in the summer heat. Plant in late July for a fall crop. Harvest before first hard frost. 40-60 days. Seeds donated by Phyllis Pugnetti.



Turnips

(Brassica rapa) Turnips have been eaten by humans and animals for 10,000 years. They were domesticated independently in Asia, India, and Europe. Turnips can cross pollinate with broccoli raab, Chinese cabbages, and mustards. Flowers cannot pollinate themselves and require insects for pollination, therefore it is necessary to grow at least 5 plants of the same variety to assure good pollination. An isolation distance of half a mile between varieties is necessary for seed purity. Turnips are a biennial that grow leaves and roots the first year, flowers and seeds the second. They must be exposed to at least 6 weeks of cold temps consistently 35-45° in order to set seed. Turnips are undemanding, growing in cool weather 45°-70° turning woody and bitter when weather is above 75°. Sow seeds in full sun or light shade in fertile soil 1/2" deep and 2" apart, then thin to 4" apart in all directions. They come in white, cream, yellow, and bi-color with purple or red tops and white at the bottom. Contrary to popular belief, turnips and rutabagas are different species and do not cross pollinate.

Purple Top Turnip

Smooth round roots are sweet and tender, 3-4 inches. Young leaves are edible in salads or as cooked greens. 50 days.



Cucurbitas

Cucurbitas form a very large plant family made up of many species including: cucumbers, gourds, melons, squash and watermelons. Each species can cross pollinate only within their own species.

Cucumbers (*C. sativus*)

Cucumbers originated in West Asia and have been cultivated for 3,000 years. They were spread across Europe by the Romans and arrived in the US in the 1600s. Do not plant until soil has warmed to 65°, as cold soil will result in poor germination. Plant in fertile soil with a steady supply of water. Applying mulch after the soil has warmed to 70°-75° will help retain moisture in the soil. Cucumbers set a large flush of fruits and then die back quickly. For higher yields and less problem with powdery mildew, plant a second crop about 4 weeks after the first planting. Trellising also reduces rot, powdery mildew, and some pest problems. Vines grow 5-6 feet. Cucumbers prefer to be direct seeded as they do not like to have their roots disturbed. If you decide to transplant, care should be taken to disturb the roots as little as possible. To save seed, fruits need to be very large, with hard skin, and should undergo a change of color. Cucumbers will cross pollinate with all other cucumbers (*c. sativus*) but not gourds, melons, squash or watermelon.



Bush Champion

This bush variety grows in half the space of other cucumbers, making it a good variety for containers and raised beds. Good yields of 8"-12" fruits. 55 days. **Limited stock.**



Gele Tros

An endangered yellow cucumber from Holland where it is called the 'ancient race'. Originally grown by the wealthy, as green cucumbers were considered low class. Yellow cucumbers are still quite uncommon. Average yields of 8" very attractive fruits. Harvest when pale yellow. Fruits turn bitter and tough as the skin turns gold. 60 days.



Marketmore 76

The most popular cucumber grown in home gardens in the US and with good reason. Very high yields of dark green 8" fruits. Good slicer. Excellent taste, juicy, not bitter even when fruits get quite large. Disease resistant. Long vines benefit from trellising. Grow in fertile, warm soil. 60 days.

Picklebush

Compact 2 foot vines, have 4", white spined fruits. Good yields. Resistant to powdery mildew. Good in containers. 55 days



Straight Eight

All American Selections winner introduced in 1935. Smooth, dark green, straight with blunt ends are perfect for slicing and pickling. Harvest at 8 inches. 60 days. **Out of stock.**



Suyo Long

A Chinese heirloom. Thin skinned, sweet ribbed fruits, 16" long. Harvest at any size. Trellis for straight fruits. Not heat tolerant. Blossoms and fruit set stop in the heat of August, dappled shade helps. 70 days.



Cucumber Melons (*C. melo*)

(*Cucumis melo*) A few cucumbers are actually from the melon species *c. melo*. Sometimes referred to as cucumber melons. They will not cross pollinate with cucumbers but cross readily with all melons in the *c. melo* species which includes cantaloupe and honeydew, but not watermelons.

Armenian Cucumber Melon (*c.melo*)

Light-green, mild-tasting, very long, ribbed fruits grow in coils on the ground, but grow straight when trellised. Best harvested at 12-18 inches, before the skin gets tough. 65 days.



Metki Cucumber Melon (*c. melo*)

A very rare heirloom. Dark green with light stripes. Mild and slightly sweet fruits do not get bitter. Long fruits get 20-30" while still remaining slender with small seed cavities. Harvest with 1" of stem attached. Once fruits are ripe, it takes 4-6 additional weeks to set seed. 65 days.



Puglia Half Long

Similar to the Armenian but is more oval shaped. Skin is slightly fuzzy, but wipes off easily. Best harvested small before skin gets tough. Never bitter. Large fruits look like oval melons, and can be used as a salad bowl. 55 days.



Melons (*C. melo*)

Melons are one of the oldest domesticated crops. They originated in North Africa and the Middle East and spread throughout the Mediterranean countries. The fruits continued to spread through much of Europe with the Roman army. Melons include cantaloupe, honeydew, muskmelon, and many lesser known melons. This species does not include watermelons.

Melons need warm soil to grow, 70° or warmer. Soil needs to be fertile with lots of organic matter and even moisture. May start seeds indoors 4-6 weeks before transplanting. Melons can be frustrating to grow. They rely on insects for pollination, yet after many visits by pollinators, 85% of female blossoms abort. Planting with blooming flowers and larger numbers of melon plants will increase yields. Good leaf canopy is necessary to develop sugars in fruits. Seed should be saved from over ripe fruits.

Melons will cross pollinate only with other melons in the *C. melo* species and cannot cross with watermelons.



Charentais (*C. melo*)

A famous French heirloom bred in the 1920's. A personal 2-3 pound melon with bright orange flesh. Harvest when blue-grey skin begins to turn golden and develops a strong aroma. Sweeter than most cantaloupe. 85 days



Hale's Best Jumbo

(*C. melo*) Developed by a Japanese market gardener in California around 1920. It's flavor and earliness made it very popular. Beautiful 5 pound oval melons with green skin and gold netting. The flesh is salmon color, aromatic and sweet. 85 days.



Honey Rock (*C. melo*)

All American Selections winner 1993. Salmon flesh, delicate sweet taste. Melons are 3-4 pounds, early to ripen, and high yields. 80 days



Ineya (*C. melo*)

Originally from the Soviet Union. A small melon 6-7" with a flavor similar to honeydew. White flesh is a little more firm than most melons. Very sweet. 80 days.

Model Melon

A Polish heirloom. Flavor like very sweet honeydew with hints of cantaloupe. Small 1-2 pound melons with green flesh. Harvest when skin is netted and turning yellow. More tolerance to cold and drought than most other melons. 75 days.



Sakata Sweet Melon

A very popular melon in Japan. Very small, no bigger than a baseball. Smooth rind can be eaten like a cucumber. Pale green flesh, very sweet honeydew flavor. Vines only grow to 6' and not too bushy, plant close together. Plant extra as yields are modest. Harvest when rind has turned white with a blush of yellow. Not cold tolerant!



Watermelon (*C. lantanus*)

(*Citrullus lantanus*) includes watermelon and citron, but no other types of melons. Citron is similar to watermelon, but is not eaten fresh. It is made into preserves, pickles, and candy. Citron and watermelon are both native to South America. Watermelons have the same growing requirements as all other melons (*C. melo*). **All citron and watermelons will cross pollinate with each other, but will not cross with *C. melo* varieties of melons.**

Sugar Baby (*C. lantanus*)

A productive watermelon that is small enough for small families, weighing in at only 6-10 pounds. The flesh is bright red, juicy and sweet. Not cold tolerant! 80 days.



Increase Melon Yields

Plant 30% more seedlings that you think you'll need. Start seeds indoors 4-8 weeks before transplanting. Increase visits by pollinators by planting blooming flowers or flowering cover crops among the vines. Buckwheat and agricultural mustard are particularly good for attracting pollinator insects. Do not plant outside until the weather and soil remain consistently above 70°.

Squash

Squash, pumpkins, and zucchini are all botanically squash. Originating in South America, they are an ancient staple crop that is now found around the world. Squash requires warm weather, and warm fertile soil 65-75°. Varieties that take longer than 90 days to mature should be started indoors 4-6 weeks before planting outdoors. Most are not frost tolerant. All squash are from four *Cucurbita* species: *c. pepo*; *c. maxima*; *c. mixta* (newly named *c. agryosperma*); and *c. mochata*. All squash can cross pollinate only with other varieties from within the same species. To prevent cross pollination plant only one variety from each species in any growing season, or isolate and hand pollinate. All squash needs to be very over ripe for seeds to be mature. Grow several plants to insure enough blossoms for good pollination. Adding blooming cover crops or other flowers to the squash patch will encourage pollinators and increase and fruit set. Summer squash are eaten at immaturity while still small and tender. Winter squash are mature when the skin is hard. Withhold water during the last 2 weeks before harvest to increase storage longevity. Fruits should be stored at least a month before eating to allow sugars to fully develop. Many can be stored for 4-12 months in a dry, cool place 60-65°.

Squash (*C. pepo*)

Includes summer squash, zucchini, small pumpkins, and some small winter squash. Will only cross pollinate with other *c. pepo*.



Acorn Table King (*c. pepo*)
Good variety for the small garden. Glossy, dark green, ribbed 2 pound squash have thick pale orange flesh with excellent flavor. Compact 2' tall plants yield 5 to 8 fruits each. An All American Selections winner in 1974. 85 days. **Inventory Limited.**



Cocozella di Napoli (*c. pepo*)
An Italian heirloom squash that gets very large, very quickly. Harvest while fruits are still small, 4-10". Similar to Costata Romanesca but slightly smaller plants and fruits. 55 days.

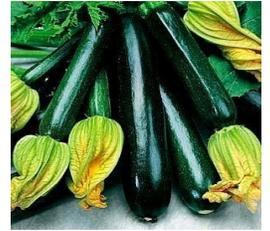


Costata Romanesca (*c. pepo*)
A rare Italian squash considered by many to have the best taste and texture of all zucchini. It is ribbed and green with lighter green stripes. Fruits get very large. Best harvested at about 12" while the blossom is still attached, but the flavor and texture remain very good up to 2'-3'. One of the few varieties that is good when dried. 60 days.

Connecticut Field Pumpkin (*c. pepo*)
A New England heirloom. Possibly the oldest pumpkin in existence. The original Halloween pumpkin. Fruits weigh 15-20 pounds. Deep orange flesh. Excellent pie pumpkin. Good in fall décor. 100 days.



Dark Green Zucchini (*c. pepo*)
Medium sized bushy plants. Productive, high yields. Fruits are very dark green, almost black. For best flavor and texture, harvest at 6-10". 55 days.



Golden Zucchini (*c. pepo*)
There aren't many OP golden zucchini. Medium sized bushy plants. Good yields. Pick at 6-10", gold color is easy to see for harvest. 55 days. Seeds donated by Phyllis Pugnetti.



Honey Boat Delacata (*c. pepo*)
One of the sweetest squash varieties. Fruits weigh 1-3 pounds. Excellent for stuffing and pie. Can be picked very small as zucchini, or 3-4 weeks before maturity it tastes similar to starchy sweet potatoes, fully ripe the flesh is quite dry, creamy and sweet. 100 days.



Long Pie Pumpkin (*c. pepo*)
Grown widely in Maine from the early 1800s. Looks like over grown 3-7 pound zucchini. Harvest after an orange spot appears near the ground. Orange color and flavor improves in storage. Excellent for pie. 95 days.



Spaghetti Squash (*c. pepo*)
This squash was introduced in 1934 in Japan. A very popular 3-5 pound squash with stringy flesh that is used as a vegetable spaghetti. 90 days



Sugar Dumpling (*c. pepo*)
Small 1-2 pound green and cream striped fruits with sweet orange flesh, usually turning gold and cream after harvest. Average yields. Vines are a little brittle, use care if trellising. Good when stuffed and baked. 90 days.



White Scallop Bush (*c. pepo*)
A favorite for centuries among natives of the Americas. Exported to Europe where it had gained widespread popularity by 1591. The most popular vegetable in colonial America. A bush variety that is still quite large. Best flavor when picked at 3" or smaller when fruits are still tender. 45 days.





Yellow Crookneck (*c. pepo*)

A popular variety for its flavor and high yields. Harvest as yellow flesh deepens in color and fruit reaches about 7" to 8" in length. 50 days.

Jarrahdale (*c. maxima*)

This stunning blue-green pumpkin comes from the town of Jarrahdale in New Zealand. Fruits weigh 8-10 pounds with thick, sweet, golden flesh and a small seed cavity. A long keeper, easily stores for a year. 100 days. Seed donated by Diana Pieti.



Squash (*C. maxima*)

Includes mostly large squash like banana, marrow, Hubbard, and buttercup. Most of these squashes will store 6-12 months. Will only cross pollinate with other *c. maxima* squashes.

Oregon Homestead Sweet Meat

(*c. maxima*) Endangered squash originally grown by Willamette Valley pioneers becoming a Pacific NW favorite for a century. Very sweet, thick flesh and small seed cavity. Blue-green fruits turn golden and develop sweetness in storage. Harvest right before frost. Heavy yields of 12-25 pound squash. Easily stores for a year. 100 days. Seed donated by Phyllis Pugnetti.



Boston Marrow (*c. maxima*)

Endangered variety. First documented in 1831 in Buffalo NY when Native Americans distributed seed as they travelled. Its cold tolerance made it one of the most common varieties grown in North America for 150 years. Good for roasting, or pie. The large hollow seed cavity makes it especially good for stuffing. Heavy yields. Will store 6-8 months. 100 days.

Yakima Marblehead (*c. maxima*)

Very rare and endangered. Marblehead squash was introduced in 1857 in Marblehead MA. It came across the country with pioneers, arriving in Yakima in 1896. Only two Marblehead varieties are still known to exist. Grown commercially in the Yakima Valley until the 1950s when for it fell from favor. Sweet, dry flesh is good for stuffing, roasting or pies. Harvest right before frost. Blue-green fruits turn golden and develop sweetness in storage. Easily stores a year. 100 days.



Burgess Buttercup (*c. maxima*)

Buttercup was introduced in 1931. Burgess bush variety was introduced in 1952. Turban shaped fruits with a distinct button on the blossom end are 3-5 pounds with sweet orange flesh. 95 days.

Gete Okosomin (*c. maxima*)

Very rare, endangered variety. Originating in Guatemala, it is not known how it got to Indiana where it was grown for perhaps 1000 years in the tribal gardens of the Myaamia. Very high yields of fruits 24-30" long and 15-25 pounds. Orange flesh, good for stuffing, pies and roasted. 95 days.



Squash (*C. mixta*)

This species consists almost entirely of Cushaw squashes. Will only cross pollinate with other *c. mixta*. This species has recently been renamed *c. agryosperma*.

White Cushaw (*c. mixta*)

A rare squash with white skin and sweet, golden flesh. Easy to grow, good yields of large 15-25 pound fruits. Good pest resistance and cold tolerance. Silvering pattern on leaves is normal and should not be mistaken for powdery mildew. A Southern heirloom introduced in 1891. Will store 3-5 months. 100 days.



Golden Kobocho

AKA Orange Kobacha (*c. maxima*)

A round squash that is flattened on top, weighing 3-8 pounds. Fruits may be green or golden-orange. Sweet creamy flesh is good baked or in pies. 90 days. Seeds donated by John Easterbrooks.

Squash (*C. mochata*)

This species consists mostly of fruits with a neck and seeds in the bulbous end like butternut, and also wheel shaped cheese squashes. Will only cross pollinate with other *C. mochata*.



Butternut (*C. mochata*)

All American Selections winner in 1970. This squash was used for many years in commercially canned pumpkin. Fruits are sweet, 4-5 pounds and have thick flesh with a small seed cavity. Stores 4-6 months. 95 days.



Kogigu (*C. mochata*)

A small round Japanese squash, 1-3 pounds with very dry, sweet flesh that is similar to sweet potatoes. Leaves and fruits have a silvery pattern that is normal and should not be mistaken for mold or powdery mildew. Mild resistance to vine borers, and powdery mildew. Keeps 3-4 months. 95 days.



Tromboncino (*C. mochata*)

This rare Italian heirloom can be used as either summer or winter squash. Harvest like zucchini when it is 4-12", green and immature. For winter squash, wait to harvest until the fruits are 3-4' long, turn tan, and the skin becomes hard. Tastes much like butternut squash. The neck is all edible flesh; the seeds are in the bulb. When allowed to sprawl on the ground the fruits will form loops; on a sturdy trellis fruits will be straight. Vigorous vines up to 15 feet. Resistant to pests and disease. Very high yields of 5-7 pound fruits. Will store 4-6 months. 60-90 days.

Solanace

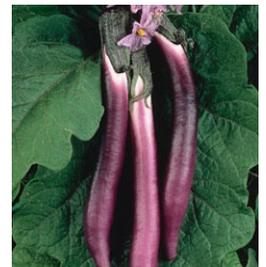
A large plant family made up of many species including: eggplant, peppers, tomatoes, tomatillos, and some *Solanum* berries. Most of these plants are usually self-pollinating, so they don't benefit from visits from insects. Cross pollination happens more frequently with peppers, eggplant, and tomatillos, but rarely with tomatoes.

Eggplant

(*Solanum melongena*) Eggplant originated in India or Asia over 2,500 years ago. The Moors brought it to Spain in the 8th century. Europeans thought it caused insanity and leprosy; so it took nearly 500 years to gradually become accepted as an edible. Today eggplant is eaten widely in Mediterranean cultures and is often eaten as a meat or pasta substitute. It is a warm weather crop that should be started indoors 8 weeks before transplanting in the garden. Plant seedlings about 2 feet apart, in full sun or light shade when the soil and night time temps are above 60°. Fruits are mature when they feel slightly soft. Immature fruits will be rock hard. Eggplant is attractive and works well in ornamental gardens and containers. To save for seed, fruits need to be very over mature. Leave ripe fruits on the plant for 4-5 extra weeks to allow seeds to fully mature. The fruit color should change to tan or brown, and have tough skin that has lost its shine. Eggplant can cross pollinate with all other eggplant varieties, but no other solanace crops. Grow only one variety each year or isolate by 500 feet between each different eggplant variety.

Ping Tung

Beautiful purple, 12"-18" long, slender, mild flavored fruits that are not bitter. White flesh. Very high yields. 70 days.



Rosita

This beautiful eggplant came to the US from Puerto Rico in 1979 and is gaining in popularity. Stunning magenta-lavender color with pear shaped 8" fruits. White flesh. Slightly sweet, mild flavor that won't turn bitter. Average yields. 85 days.



Peppers

(*Capsicum annuum*) Peppers are native to South and Central America. Columbus named the plant 'pepper' because it tasted a little like black pepper which at the time was the same price per ounce as gold. Columbus introduced the plants to Spain where they quickly spread throughout Europe. The most common pepper species is *c. annuum* and includes most sweet and hot peppers. Peppers are frost tender and should be started indoors 8 weeks before transplanting. Peppers prefer warm weather, full sun, and moist, fertile soil that is 65° or warmer. All peppers can cross pollinate with other peppers, but not other Solanaceae crops. Genes for hot flavors are usually dominant. Peppers are self-pollinating but can also be pollinated by insects. For seed saving, grow only one variety of pepper each season or maintain an isolation distance of 500'. Seed should be saved from very mature fruits. The color will change from green to red, orange or yellow and fruits will become dull and slightly soft, but not moldy or rotten. Small hot peppers will dry on the plant. The seeds are ready at that time.

Hot Peppers



Cayenne Long Red

Plants are 2' tall, very vigorous and productive. Mature peppers are long slender, bright red, and very hot! Heavy yields make plants top heavy, may need staking or caging. 75 days.



Habanero

Small, bright orange peppers are very hot! Water only when soil is dry to prevent bitterness. Plants are 2'-3' tall. 75 days.



Jalapeno

Plants are 2' tall, very vigorous and productive. Peppers are often eaten green, but turn red at maturity. Mild heat. Heavy yields make plants top heavy, may need staking or caging. 75 days.



Red Hot Chili

Fruit ripens from green to yellow, orange, and finally red. Medium hot fruits are 2" long and are held upright above the foliage. Very ornamental. Plants are 18" tall and grow well in containers. 80 days.



Shishito

Usually mildly sweet but 10-20% will be mildly hot. Often used green for frying or pickling (a good substitute for peperoncini) Peppers turn red when mature. Plants are 24" tall with fruits that are 3-4" long. 55 days.

Sweet Peppers

Antohi Romanian

Named for Jan Antohi, a Romanian acrobat, who defected and became a US citizen. His mother sent some of her heirloom pepper seeds with him. He donated seed to Seed Savers Exchange. These are still very hard to find in the US. Large 3-4" cone shaped, sweet peppers with thick walls. 50 days to yellow, 75 days to red.



California Wonder

An old time variety, introduced in 1928 and set the standard for bell peppers for decades. Blocky 4" mild flavored peppers. Good yields. Most commonly used as a green pepper. Turns red when fully mature. 50-75 days.



Chinese Giant Sweet Red

A true American heirloom, introduced by Burpee in 1900 as the first truly giant bell pepper twice as big as any other at the time. High yields of huge, blocky 4"-5", sweet, thick-walled, bright red peppers. A real beauty. Excellent flavor. 80 days. Seed donated by Phyllis Pugnetti.



Etiuda

Rare outside Eastern Europe, originally from Poland. Blocky, thick-walled, very sweet pepper. High yields of beautiful bright orange peppers. 75 days.



King of the North

Introduced in NY in 1934. Short-season blocky fruits are nicely flavored when picked green or red. Similar to California Wonder but more vigorous in northern areas. More tolerant to cool and hot weather than most peppers. 70 days.



Purple Bell

A purple beauty! A large blocky, thick walled pepper that starts out green, then turns a dark purple, gradually fading to brown, orange, and finally red. Sturdy, compact plants. High yields. 75 days.



Sweet Banana

Very productive plants 24" tall. Mild yellow peppers are 6" long and slender turning bright red at maturity. An All American Selections Bronze Medal winner in 1941. Very ornamental. Heavy yields. 75 days.



Solanum Berries

These are not true berries but are related to tomatoes, peppers and eggplant. The plants are attractive and look a bit like large pepper or tomatillo plants with clusters of small blossoms and colorful berries. Some have an upright growing pattern and others grow laterally along the ground. All require growing conditions similar to tomatoes. Seeds can be difficult to start. They are small and need to be sown on the surface or with a light dusting of soil over the seeds. They need warm, moist soil and can take 2-3 weeks to germinate. They grow slowly until the weather remains consistently above 80° Each type of Solanum Berry is a different species, so cross pollination is rarely a problem. **Most varieties need 2 or more plants for good fruit set.**

Aunt Molly's Ground Cherries



(*Physalis pruinosa*) A Polish heirloom that is sweet and tart without the savory flavor of tomatoes. Fruits are the size of small cherries inside papery husks. Plant grows laterally along the ground. Likes full sun with consistent moisture. Fruits in the husks will drop to the ground when ripe. Grows well in containers. Tastes very mild and slightly tropical. Excellent raw and in pie, cobbler, and preserves. 65 days.

Garden Huckleberries



(*Solanum scabrum*) Plants have clusters of 6-8 small white flowers all along the vines that develop into clusters of shiny, dark purple berries. Let berries ripen on the vine until some look powdery, then harvest the whole plant. Cooked berries taste a bit like Concord grapes combined with blueberries. Must be cooked with lemon and sugar to develop flavor. Good in pies and jam. Yields 3-5 pounds per plant. Attractive plants are 30" tall and do well in containers. Raw berries have an unpleasant bitter metallic taste.

Golden Berries AKA Cape Gooseberry



(*Physalis peruviana*) Plant has soft fuzzy foliage and very tall upright growth to about 8' tall and 2'-3' wide. Tastes something like tart green apples and sweet pineapple. Excellent raw, in pie, cobbler, and jam, but dried and eaten as a snack is the most common use for these berries. Seed donated by Naomi Wenzel.

Sweetest Tomatoes

Some of the sweetest and most flavorful tomatoes have green shoulders, a trait where the fruit ripens from the bottom to the top with the shoulders being the last part to change color. About 80% of the sugar in tomatoes is developed in the leaves and later transported to the fruit. Green shoulders on the fruits develop sugar in the same way as the leaves. So even if the fruit is picked before it is fully ripe, the green shoulders continue to develop sugar and flavor within the fruit. Other tomatoes can be picked green and will develop nice color; but they won't develop any more sugar or flavor.

All tomatoes used to have this trait, but a mutation in the 1950's allowed for tomatoes to ripen evenly, a trait most shoppers find more desirable. Today, nearly all hybrid tomatoes have the gene for even ripening. Just one of the many reasons that home grown may taste better.



Tomatoes with green shoulders (above) and those that ripen evenly (below).



Tomatoes

(*Lycopersicon lycopersicum*) An ancient Solanace crop native to South America and introduced into Europe in the 1600s. Tomatoes did not gain widespread popularity until the 1800s with the invention of pizza. Tomatoes are a warm weather crop that will not thrive in cold or hot temperatures. Plant indoors 6-8 weeks before last frost date. Transplant outdoors when soil temps are 60-70°. Plants thrive and set fruit when air temps are between 65-85°. Most tomato plants will not survive when soil is consistently colder than 50°, and will not set fruit when air temp is consistently over 90°. **Determinant, semi-determinant, and indeterminate** refer to the vining and growth habits of the plant foliage, not fruit size. It is not a scientific designation but is used by gardeners and farmers to indicate how much growing space the plant will need.

Tomatoes are self-pollinating and do not need insects for good fruit set. They will only cross pollinate with other tomatoes, but that is uncommon. They cannot cross with other Solanace crops.

Determinant Tomatoes

Determinant (det) is a recessive trait found in only 10% of tomatoes. Small plants with short vines, 2'-4' tall, that do not need to be pruned, except to remove branches that touch the ground to prevent soil borne disease. Often labeled as bush or patio tomatoes, these grow well in containers and small gardens.



Clear Pink Early (det.)

A Russian heirloom with long trusses of 4-6 ounce tomatoes. Fruits are a good combination of sweet and tart. High yields for such a small plant, only 30" tall, grows well in containers. 60 days.



Heintz 9129 (det.)

Average yields on small plants, only 24-30" tall, good in containers. Developed for commercial uses at a Heintz Company breeding station. Taste and texture are similar to a commercial processing tomato. Tough skin and flesh, holds up for canning chunky sauces and salsas. 5-8 ounce fruits. 75 days.



Karen's Orange AKA Orange King (det.)

Rare. Very high yields of 6-8 ounce fruits on a small plant, 24-30" tall. Sweet, juicy, low acid, beautiful orange color. Sets fruit in both hot and cool weather. This variety was bred at Oregon State University under the name, Orange King. Because there are several different varieties named Orange King, we unofficially renamed this one Karen's Orange after a retired Yakima teacher and Master Gardener. 65 days.

Roma Mini

Compact 2' plants, with small 2 ounce paste type fruits, meaty, few seeds. Good for sundried. Yields are only average and plants are small so they don't produce enough for canning large amounts of sauce. 70 days.



Royal Shrouded Mystery (det.)

We named this because it came in a mismarked packet. It may actually be a Blue Green Zebra. Compact 2' plants have 4 ounce green striped fruits with indigo shoulders. Awarded *Most Beautiful Tomato* at Tomatofest in 2018. 75 days.



Silver Fir Tree (det.)

Very early 3-4 ounce tomatoes on 18" bushes. Wispy foliage almost looks like carrot tops. Each plant sets 12-18 fruits. Excellent for small gardens and containers. Average flavor. 54 days. Seeds donated by Phyllis Pugnetti.



Sophie's Choice (det.)

Good flavor for such an early variety. High yields of 4 ounce red fruits on 2' tall plants. Leaves normal habit is to curl in heat, and should not be confused with leaf curl virus. May benefit from afternoon shade. Good in containers. 54 days.



Taxi (det.)

A very early yellow tomato. High yields of very mild flavored 4 ounce fruits on 2' tall plants. Leaves normal habit is to curl in heat, and should not be confused with leaf curl virus. May benefit from afternoon shade. Good in containers. 58 days.



Semi-determinant Tomatoes

Semi-determinant (s-det) are in all respects like determinate except that they grow to 5'-8' tall and need to be staked or trellised or need room to sprawl on the ground. May benefit from judicious pruning to allow better access for harvest.

Ace 55 Bush (s-det.)

Excellent for slicing and salads. A low-acid fruit that produces good yields of 6-10 ounce sweet, mild fruits. Low-acid tomatoes cannot be safely canned in an open water bath. Plants are 4'-6' tall. 75 days.





Beliy Nalive (s-det.)

A Russian heirloom the name means red apple. Early, 3-4 ounce red fruits. Not prone to sunscald. Good flavor for such an early variety. Plants grow 4 feet tall. 55 days.

Wonder (s-det.)

These came in a mismatched packet, leaving us to wonder what it was, inspiring the name, *Wonder*. Plants are 4'-5' tall, with potato leaves, and heavy yields of attractive 8-12 ounce fruits. Some cold tolerance in fall. Traditional red tomato flavor. 75 days



Black Sea Man (s-det.)

Rare Russian heirloom from the Black Sea area. Prefers less water than most varieties. Dense canopy of potato leaves prevents sunscald. Plants are 8' tall, benefits from light pruning and staking. Very high yields of 8-12 ounce fruits. At maturity the color is a deep burgundy color with olive green shoulders. Fruit is very juicy with intense flavors of savory, smoky, sweet, and tart. Awarded *Best Tasting Tomato* at 2016 and 2019 Tomatofest. 75 days.



Indeterminant Tomatoes

Indeterminant (ind.) have long vines, 10-15 feet. They set fruit all season and usually benefit from pruning. Need very sturdy trellising, or allow to sprawl on the ground. About 90% of tomatoes are indeterminate which is a genetically dominant trait.

Italian Heirloom (ind.)

An old heirloom. Very high yields of 10-16 ounce fruits. Some fruits are round, most are slightly pear shaped. Excellent flavor with a good balance of sweet, tart, and savory. Good for slicing, canning, and sauces. Vines 8' tall. Prune judiciously. Does not like heavy pruning. 75 days. Seed donated by Phyllis Pugnetti.



Amana (ind.)

A 1984 heirloom bred by Gary Haley, an employee of Amana Appliance Company located near the historic the German Amana Colonies in Iowa. Sweet, low acid beefsteak tomatoes with few seeds that weigh 1-2 pounds. Very bright orange. Hardy and prolific. Not prone to cracking. Good slicer and in sauces. 80 days.



Mushroom Basket (s-det.)

A rare Russian heirloom. Large 8-14 ounce purple tomatoes with ruffled edges, meaty interior and few seeds. Attractive hollowed out and used as a bowl for salads, also good for sauce. Plants are 6-7' tall, need staking due to weight of fruits. Moderate yields. This variety was awarded *Most Beautiful Tomato* at Tomatofest 2016. 75 days. Original seed donated by Pat Moszeter.



Azoychka (ind.)

Very rare. Bred by a Russian hobby gardener. Beautiful bright lemon yellow, early tomato with 5-8 ounce fruits. High yields. A good balance of sweet and tart especially for a yellow variety. Selected by Tomato Growers Supply as the *2013 Tomato of the Year*. For best flavor, harvest yellow before color turns golden. 65 days.



Sioux (s-det.)

Bred in Nebraska and introduced in 1944. A vigorously vining plant grows 8 feet tall. Needs some pruning or it is difficult to harvest. Reliably high yields even in hot weather. Somewhat drought tolerant. Red 6 ounce fruits have a balanced flavor of sweet, tart, and savory. 70 days.



Dagma's Perfection (ind.)

Unique for it's bi-color pastel yellow with a pink blush. Most fruits weigh about a pound. Very aggressive, long vines need lots of room or study staking. Mildly sweet with more tang than most yellow tomatoes. Early for such a large tomato. 72 days.



Sweet Israeli (s-det.)

Bred for the hot, dry climate of Israel. A variety bred for commercial uses, has firm skin and flesh. Red 5-8 ounce tomatoes, moderate yields. Performs well during hot weather when others fail. Grows 6'-8' tall with wispy foliage. Not prone to sunscald. 75 days.



Eva Purple Ball (ind.)

A pink tomato from the Black Forest brought to the US by German immigrants in the early 1800s. Fruits are juicy with a mild flavor, neither too sweet or tart. The plants are very vigorous, with average yields of 5-6 ounce fruits. Somewhat disease resistant. 70 days.





Gloria's AKA Glorious (ind.)

A very large plant with one pound golden fruits. Ripens early for such a large tomato and continues to ripen until frost. Very few seeds. Juice is in the flesh so it doesn't leak out when sliced, making it good for sandwiches and sauces. 72 days. Seeds donated by Gloria Wright.



Jubilee (ind.)

First introduced in 1943 as an All-America Selection winner. The fruits are 6-10 ounces with very meaty, thick-walled interiors, mild flavor and few seeds. High yields. 75 days.



Large Red Oxheart (ind.)

A Russian large red heart-shaped tomato, 8-16 ounce fruits. Plants are slow to germinate and grow. But once they get going they are very vigorous! Fruit continues to ripen very well even in cool fall weather. Tolerates light fall frost. The largest and latest tomato in our 2015 garden. A good variety to extend the season. Heavy fall yields. 85 days.



Opalka (ind.)

A rare Polish heirloom brought to NY by the Opalka family in the early 1900s. Average yields of 5" long horn shaped, red paste tomatoes that look more like red peppers than tomatoes. Meaty fruits have few seeds. Sweeter than most paste tomatoes. Good in sauces and sun dried. 80 days.



Prudens Purple (ind.)

A stunning purple-red tomato with great flavor similar to Brandywine, sets fruit earlier, with much higher yields. Disease resistant. Very sturdy, aggressive, long vines of 15 feet or more with beautiful fruits that weigh 1-2 pounds. Not prone to cracking or catfacing. If you have room for very large plants these are worth bragging about. 72 days.

Solar Flair (ind.)

Consistently a very beautiful and productive 5-8 ounce tomato. The outside has yellow, green, orange and red striations that look like the Aurora Borealis. Inside is solid red, juicy with a balance of sweet and slightly tart flavors. Has dense leaf canopy and sturdy branches. Good yields. 75 days.



Stump of the World (ind.)

Originally bred by Ben Quisenberry a hobby gardener from Ohio. His friends named it Big Ben, but he re-named it Stump of the World after a biblical passage. Basically a smaller version of Prudens Purple, but with shorter vines, smaller fruits, and somewhat lower yields. 78 days.



Sungella (ind.)

Orange fruits grow like cherry tomatoes in long clusters of 8-10 fruits that are golf ball size, about 3 ounces, which makes them larger than most cherry tomatoes, but a perfect salad tomato. Especially good in dry, low-water conditions. Fruits will crack when over watered. Very high yields! 70 days.



Wagner Blue Green (ind.)

A new variety by hobby gardener, Tom Wagner in Everett WA. Fruits are about 4 ounces. Color is green with deep indigo shoulders, gradually ripening to golden-yellow with a blush of indigo remaining. The flesh is a surprising blue-green color. Fruits are tart if picked while the color is still chartreuse, and sweet when color has turned golden-yellow. 80 days.



Return Seeds to the Library

You can drop off or mail to WSU Extension office, Monday-Friday 9:00-12:00 and 1:00-4:00 or drop off Thursday mornings 8:00-9:30 Heirloom Garden, 1522 South 18th Avenue, Yakima (no mail delivery)

Mail: Master Gardeners, WSU Ext
2403 S 18th #100, Union Gap
Email: gardener@co.yakima.wa.us
Phone: 509-574-1604

Cherry Tomatoes



Black Cherry (ind.)
The dark purple color and complex flavors make this one of the most popular cherry varieties. Big clusters of large fruits of high yields right up to frost. Resistant to cracking and holds on the vine well. Plant is a vigorous grower that benefits from pruning and can be topped. 70 days.



Black Vernissage (ind.)
A new variety with beautiful burgundy and olive green striated, large cherry tomatoes, about 2 ounces. The skin is firm and less prone to cracking as long as you don't over water. Has the complex flavor so common in dark colored tomatoes. 72 days.



Brown Berry (ind.)
A red cherry tomato with a slightly mahogany color. Big clusters of large of fruit. Rich flavor or semi-sweet, slightly acid fruits . High yields. Resist to cracking and hold on the vine well. Plant is a vigorous grower that benefits from pruning and can be topped. 72days.



Dark Orange Muscat (ind.)
A variety bred by hobby gardener, Tom Wagner in Everett WA, and came to us by way of Ireland! A pretty orange cherry tomato with slightly olive-green shoulders. Fruits grow in very long clusters of 10-12 tomatoes and have a good tomato flavor without being overly sweet or tart. 75 days.



Gardener's Delight AKA Sugar Lump (ind.) German heirloom of large red cherry tomatoes with clusters of 6-10 ounce sweet fruits. Crack resistant. High yields. 65 days.



Green Tiger (ind.)
A new variety with green and yellow striated, 2 ounce, bullet shaped fruits that are very sweet and juicy. Firm skin makes it resistant to cracking as long as you don't overwater. Very high yields. 70 days.

Jackie (ind.)
A red cherry with indigo shoulders. There is some variation in size and shape of individual fruits. Fruits that get the most sun have the darkest indigo shoulders. 68 days



Juicy Red Plum (ind.)
Roma shaped fruits that are too juicy to be a paste tomato. This is a big 'two-bite' size which is slightly larger than most cherry tomatoes. Heavy yields of red fruits with green shoulders. Perfect size for drying. 70 days.



Large Red Cherry (ind.)
Introduced in the 1980s by hobby gardener Ben Quisinberry. A one bite cherry tomato that is larger than most at 1 ½ ounces. Plants are large, with dark foliage, and prolific clusters of fruits. 72 days.



Yellow Pear (ind.)
An old variety, dates to 1700's, originally from Europe. Fruits are bright yellow with a narrow neck, mildly sweet and low acid. Fruits are 1-2 ounces. Very large vigorous plants, benefit from pruning and trellising. High yields. 75 days.



Yellow Plum (ind.)
A bright yellow 1½-2 ounce plum shaped fruit with a good balance of flavor that is slightly sweeter and more tart than Yellow Pear. High yields. 70 days.



Need a Paste Tomato?

Paste tomatoes come in all shapes and colors. If you want sauce tomatoes try: **Italian Heirloom, Gloria, Amana, Olpaka, or Mushroom Basket.**

Tomatillos

(*Physalis philadelphica*) are green tomatillos, purple tomatillos are (*Physalis ixocarpa*). The two species do not cross pollinate. Tomatillo plants look like large peppers and the fruits look like tomatoes in a husk. Small seeds are slow to germinate and need consistently warm moist soil. Plants need warm soil and weather to grow well, 70° or warmer. Some varieties are out breeding which is unusual for Solanace crops. For good fruit set grow at least 2 plants and assure adequate visits from pollinator insects.

Tomatillos are native to Central America and Mexico. They were introduced into the US in 1863. By the mid-1900s they had spread throughout much of the world. They are a very ancient plant. In 2017 a fossilized wild tomatillo was found in Argentina and dated to 52 million years.



Green Giant AKA Gigante Verde

(*Physalis philadelphica*) One of the largest tomatillos. Good yields of 4 ounce fruits on 2-3' plants. Sweeter than most tomatillos. Thick papery husk is easy to remove from the fruits. Start 8-10 weeks before transplanting. 100 days. Seeds donated by Phyllis Pugnetti.

Okra

(*Hibiscus esculentus* renamed *Abelmoschus esculentus*) Okra is related to hibiscus, has beautiful flowers and pods, and is often grown ornamentally. It probably originated in Ethiopia and spread to Europe with the Moors, then came to the Americas with African slaves. Okra seeds are often pressed into oil or dried and ground into a coffee substitute. Okra is a tropical plant and should be started indoors about 8-10 weeks before planting into the garden. Okra grows very slowly and suffers insect damage when the soil and weather are cool, but grows rapidly in the heat and thrives when the temps soar into the 90s. In Yakima, plant into the garden around the first to the middle of June. Plant 1" deep and 12" apart in very fertile, well drained soil, in full sun. Pods should be harvested at about 3-4" before they become tough and fibrous. To save seed, pods should be fully mature 7"-10" long, dry, and brittle.



Clear Clemson Superb

Green pods and foliage. One of the most popular varieties. Seed donated by Ferry-Morse. No additional information is available.



Red Burgundy

Deep red stems and pods, with large showy blooms of creamy white or pale yellow. A beautiful plant. Grows very quickly once the weather remains consistently above 85°. Harvest small pods often to keep productivity high. Needs 55 days of hot weather. Original seed

Herbs

Some of the easiest plants to grow are herbs. They are very undemanding, and attractive. Herbs all have optimal growing conditions, but most grow well, even in less than desirable conditions. Most herbs are lovely in bloom, but can be aggressive re-seeders. When the plants start to bloom, you should either cut the flowers and foliage way back or cover the blooms with a seed bag to catch the seeds before they spread throughout your yard and garden.

When you use fresh herbs regularly for cooking, you will be in your herb garden more often, so you can keep a close eye on their aggressive traits. Planting herbs near your kitchen makes them convenient to use and easy to control any aggressive traits.



A small herb garden with oregano, rosemary, thyme, chives, curly parsley, and basil.

Some herbs like mint should be grown with great caution! They can spread from seed, from the roots, and will also sprout roots from small bits of the stems. Mint is best grown in containers that sit on concrete or other hardscape and are well away from in-ground soil. Planting herbs where you can keep a close eye on them helps to prevent them from accidentally becoming invasive.

Of all plants in the garden, herbs have the highest return on your dollar investment. They cost little, most grow from seed, many are perennial growing for many years before they need to be replaced, and are easy to use fresh, frozen, or dried. Once you use fresh herbs you'll wonder how you ever got along with out growing them in your garden.

Herbs



Basil—Genovese (*Ocimum basilicum*)

A classic basil, mildly spicy with a sweet fragrance that is easily recognized by cooks and gardeners alike. To keep plants bushy and growing all season, harvest near the bottom of a stem by cutting immediately above a leaf node. Warm weather, full sun or dappled shade.



Basil—Lemon (*Ocimum basilicum*)

An aromatic herb used mostly for its sweet lemony fragrance, especially good in potpourri. Also used for cooking in curry, chicken, and fish. To keep plants bushy and growing all season, harvest near the bottom of a stem by cutting immediately above a leaf node. Warm weather, full sun or dappled shade.



Basil—Thai (*Ocimum basilicum*)

Native to Southeast Asia. Has a strong clove scent and anise flavor. Attractive purple stems and edible flowers. 1997 All American Selection winner. To keep plants bushy, and growing all season, harvest near the bottom of a stem, cutting immediately above a leaf node. Warm weather, full sun or dappled shade.



Basil—Opal (*Ocimum basilicum*)

A beautiful basil that looks great planted among flowers. Has an anise flavor similar to a mild Thai basil. A wide range of speckled and striated green and purple colors. Seeds donated by Phyllis Pugnetti.



Cilantro/Coriander (*Coriandrum sativum*)

Biennial. Leaves are cilantro and seeds are coriander. Grows in cool weather. Best when planted in late summer and grown through the fall. When grown in a sheltered area with heavy mulch, cilantro may grow all winter, producing a spring crop of leaves, then bolt and flower, finally setting seed. When the plant bolts, the leaves will appear fernlike and develop an unpleasant soapy flavor.

Dill—Bouquet

(*Anethum graveolens*) Early to flower with large seed heads. Fronds are used by cooks as dill weed, seeds are culinary dill seed, fresh flowers are also edible. Attractive in ornamental beds. Dill is a vigorous re-seeder. Full sun.



Dill—Vivian's Huge

(*Anethum graveolens*) This unknown dill variety came up as a volunteer growing over 5 feet tall. Grow like Bouquet Dill, listed above. Seed donated by Vivian Hunt.

Lemon Balm

(*Melissa officinalis*) Native to Europe and Asia. Leaves have a fresh citrus aroma. A non-invasive mint that spreads only by seeds. Cut back often to prevent flowering and to keep the plant bushy and healthy. Needs well drained soil, dappled or afternoon shade.



Lovage

(*Levisticum officinalis*) A perennial plant that can grow to 6' tall and 4' across. Plant in a large container to maintain a 2'x2' size. Prefers afternoon shade, but tolerates full sun, and full shade. An aggressive re-seeder. Harvest before bloom. Leaves and seeds have a strong celery flavor. Stalks are too fibrous to eat. Use fresh or dried. Original plant donated by Fred Staloch.



Oregano—Greek

(*Origanum vulgare*) Native to the Mediterranean, prefers hot, dry climates. Grows well in pots. Harvest before bloom. Strong flavor is preferred by many cooks. Aggressive re-seeder. Perennial. Full sun. **Limited Stock.**



Parsley—Italian

(*Petroselinum crispum*) Biennial. A flat leaf parsley preferred for cooking. A biennial that grows leaves and roots the first year, flowers and seeds the second. Leaves, flowers and roots are edible. Becomes bitter after bloom. Re-seeds easily in the second year. Full sun, tolerates part shade.



Flowers



Cardoon

An attractive warm weather thistle like plant grows to 5' tall with large purple blooms. Start inside 6 weeks before transplanting. Plant outside 3-4 weeks after the last frost when soil and night temps are warm. Cardoon is edible but is more often grown as an ornamental. Full sun.



Columbine—Rose

Full sun or part shade. Compact mounding foliage with blooms above foliage. Tolerates poor soil. Attracts hummingbirds. 12"-18" tall. Seeds need sunlight to sprout, do not cover with soil. Takes 15-30 days to sprout.

Seeds need 3-4 week vernalization.



Coneflower—Purple

Large full-headed flowers topped with golden-tipped cones. Slow growth the first year. Drought tolerant. Divide every 3-4 years. Hardy, full sun. 18"-24" tall. Seeds need sunlight to sprout, cover with 1/8" soil after germination. **Seeds need 10-12 weeks of moist vernalization. Easiest to plant seeds in late fall and let winter over.**



Coreopsis—Early Sunrise

Easy to grow. Compact mounding growth habit. Prefers unamended soil, heat, and full sun. Deadhead to keep plants blooming and reduce aggressive re-seeding. 12"-18" tall.



Cosmos—Orange

Free flowering, open lacy foliage gives an airy touch to the garden from mid-summer to frost. Good filler in the back of the garden or plant among zucchini and squash to bring in pollinators. Grows best in full sun. Tolerates poor soil, heat, and humidity. 30-36" tall.



Hollyhock—Mars Magic

A biennial that grows a small rosette of leaves in the first year, sending up a 4'-6' flower stalk the second year. Blooms are single blossom, trumpet shaped, bright cherry red. Readily re-seeds.

Love in a Puff

Also known as Balloon Vine Plant. A warm weather tropical vine grows 3-6 feet. Vines are not aggressive; looks good on a mailbox or fence post. Has small white flowers followed by papery lantern like pods with small round black seeds each having a white spot in the shape of a heart. Great for gifts.



Marigold—French

One of the most common marigolds. Multi-colored bushy plants, about 12" tall. Plant in full sun, 12 inches apart. Plants are often wider than they are tall. Pest resistant. 12" tall.



Salvia—Purple

A perennial with a 12-16" mounding habit with upright stems that develop purple flower spikes. Often mistaken for lavender. Dies to the ground each winter. Re-seeds easily. Drought tolerant, pest resistant. Attracts hummingbirds, butterflies, and pollinators. **An occasional plant may bloom white or magenta.**



Snapdragons—Crimson

Sturdy spiky flower stalks, 18-24" tall, don't usually need staking. Long blooming. Easy care. Dead head for continuous blooms. Will re-seed and grow back each year, but not aggressively. Sprinkle seeds over soil in late fall or early spring. Seeds will germinate when soil warms. **Seeds need sunlight to germinate. Do not cover with soil.**



Zinnia—Thumbelina Mix

Compact, bushy plants are supposed to be 6-8" tall, but often grow much taller. The plants that produced this seed were 18" tall. Loaded with small button-like, multi-colored blooms that persist for a long time. Good in borders and containers. A good choice for new beds while you wait for perennials to fill in. Thrive in hot weather. Easy to grow from seed. Sow after all danger of frost.



Cover Crops

Cover crops are good for the soil. They loosen and lighten heavy soils; prevent erosion; increase water holding capacity; moderate soil temperature; and also bring in pollinators, predators, and decomposers. It requires discipline to give up 10-25% of your garden's growing space in order to grow cover crops; but taking care of the soil always pays off in the long run with higher yields, fewer pests, and reduces other garden problems. Each package will seed approximately 100 square feet.



Agricultural Mustard (*Sinapis alba*)

Easy to grow. Rapid, dense growth chokes out weeds and shades soil. Wispy upright stems that hold edible blooms above foliage. Sow seed over the surface of the soil and gently tamp in to make good contact with soil. Full sun or part shade. Rapid germination at 65-85°. Tolerates poor soil. Somewhat drought tolerant. Will not tolerate waterlogged soil. Flowers appear in 4-6 weeks, seeds form about 4 weeks later. Mustard re-seeds easily. Cut or pull plants after blossom but before seed set. Top growth may be used as mulch or turned into the soil. Excellent cover crop for cucurbits to attract pollinator and predator insects which may improve yields, may have some mild beneficial effect on soil pests. Very shallow roots. 18-24" tall. Leaves and blooms are also edible.



Buckwheat (*Fagopyrum esculentum*)

A warm season grain crop often used to attract pollinator and beneficial insects. Rapid, dense growth chokes out weeds and shades soil. Grows in a wide range of conditions, but prefers daytime temperatures around 60-75° and slightly cooler nights. Seeds sprout in 3-5 days, blooms at 6 weeks, seeds begin to set at 8 weeks. Will re-seed but not aggressively. Plants should be cut or pulled after blossom but before seed set. Very shallow root system. Does not grow well in heavy soils. Use top growth as mulch or turn into the soil. Excellent companion crop for cucurbits and brassicas to attract pollinator and predator insects which may improve yields. For a grain crop, sow 12-14 weeks before fall frost. Not cold hardy! 12-18" tall.



Cowpeas AKA Black Eyed Peas (*Vigna unguiculata*)

This legume is an Asian long beans. Requires warm days when soil temps are consistently above 65°. Very heat tolerant. Avoid water logged soil. Plant 1" deep and 4" apart. When grown as a cover crop to increase nitrogen in the soil, harvest when plants are in bloom but before pods develop. Nitrogen nodules develop along the roots. Leave roots in the soil as nodules decompose they release nitrogen. Use top mass as mulch or compost. Do not grow in the same soil more often than every 4 years. Pods and dried beans are edible.



Daikon Radish (*Raphanus sativus*)

This edible Asian radish is tender but hot, used for pickling and stir fry. Planting in early spring will produce hot woody unpalatable roots. Should be planted in mid July for culinary uses and cover crops. Often used as a 'bio drill' to loosen clay and break up compacted soils. Roots grow 1'-3' deep, drilling holes and filling them with nitrogen rich roots that decompose quickly, feeding the soil microbes. Leaves grow to 2 feet long. Leaves and roots make excellent fall and winter mulch and should be left in the garden through the winter. Temps of 20° will winter kill. Plant 1/2" deep, 6" apart, in July for cover crop. For seed saving, plant in spring.



Sunn Hemp (*Crotalaria juncea* L.)

A tall, fast growing tropical legume that requires very warm weather. Grown for its abundant biomass both above and below the ground. Used to loosen heavy soil and add organic matter. A legume that converts air-borne nitrogen into nodules along the plant roots. Leave roots in the soil to release nitrogen slowly into the soil as roots decompose. Plant 1" deep in full sun when soil temps are consistently 70° or warmer. When plants begin to flower, cut stalks at the ground, before they become woody. Will not set seed outside the tropics. Makes excellent mulch and compost. Will not set seed in North America. Grows to 6' tall.



Winter Mix —Rye, Vetch, and Tiller Radish

Rye grows large amounts of biomass both above and below the soil, breaking up heavy soil and providing carbon to the soil. Vetch is a legume that adds substantial nitrogen to the soil. Fodder radishes grow up to 3' deep and act as a bio-drill to break up heavy soil, scavenge nutrients from deep in the soil, provide soil cover to reduce winter erosion, and release nitrogen as the radishes decompose. Plant in late July and leave all winter. Will winter kill during very cold winters. In mild winters, this crop will over winter and grow again in spring. Cut through the crown of plants to kill or wait for hot summer weather to kill this cool weather cover crop. Even when the leaf canopy is only 12" the root mass will be substantial to a depth of 2 feet. A good cover crop for heavy or unproductive soil, in new garden beds.

Air and Soil Temperature Chart

Vegetable Crop		Air Temperatures Degrees F		Soil Temperature Degrees F	
<i>Plant</i>	<i>Season</i>	<i>Range</i>	<i>Optimum</i>	<i>Optimum</i>	<i>Range</i>
Beet	Cool	40 - 75	60 - 65	85	
Beans	Warm	50 - 80	60 - 70	80	60 - 85
Broccoli	Cool	40 - 75	60 - 65		
Brussels Sprouts	Cool	40 - 75	60 - 65	75	40 - 80
Cabbage	Cool	40 - 75	60 - 65	85	45 - 95
Cabbage Chinese	Cool	45 - 75	60 - 65	80	45 - 85
Carrot	Cool	45 - 75	60 - 65	80	45 - 85
Cauliflower	Cool	45 - 75	60 - 65	80	45 - 85
Celeriac	Cool	45 - 75	60 - 65	70	60 - 70
Celery	Cool	45 - 75	60 - 65	70	60 - 70
Chard	Cool	40 - 75	60 - 65	85	50 - 85
Chive	Cool	45 - 85	55 - 75		
Collard	Cool	40 - 75	60 - 65	85	45 - 95
Corn	Warm	50 - 95	60 - 75	95	60 - 95
Cucumber	Warm	60 - 90	65 - 75	95	60 - 95
Eggplant	Hot	65 - 95	70 - 85	85	75 - 95
Endive	Cool	45 - 75	60 - 65	75	40 - 85
Fennel	Cool	45 - 75	60 - 65		
Garlic	Cool	45 - 85	55 - 75		
Kale	Cool	40 - 75	60 - 65	65	55 - 65
Kohlrabi	Cool	40 - 75	60 - 65	60	55 - 75
Leek	Cool	45 - 85	55 - 75		
Lettuce	Cool	45 - 75	60 - 65	75	40 - 85
Melons	Warm	60 - 90	65 - 75	90	75 - 95
Mustard	Cool	45 - 75	60 - 65		
Okra	Hot	70 - 95	70 - 85	95	70 - 95
Onion	Cool	45 - 85	55 - 75	75	50 - 95
Parsnip	Cool	40 - 75	60 - 65	65	50 - 70
Peas	Cool	45 - 75	60 - 65	75	40 - 75
Peppers Hot	Hot	65 - 95	70 - 85	85	60 - 95
Peppers Sweet	Hot	65 - 85	70 - 75	85	60 - 95
Potato	Cool	45 - 75	60 - 65		
Potato Sweet	Hot	65 - 95	70 - 85		
Pumpkin	Warm	50 - 90	65 - 75	95	70 - 95
Radish	Cool	40 - 75	60 - 65	85	45 - 90
Rutabaga	Cool	40 - 75	60 - 65	85	60 - 105
Salsify	Cool	45 - 85	55 - 75		
Shallot	Cool	45 - 85	55 - 75	75	50 - 95
Spinach	Cool	40 - 75	60 - 65	70	45 - 75
Squash (Summer & Winter)	Warm	50 - 90	65 - 75	95	70 - 95
Tomato	Hot	65 - 85	70 - 75	85	60 - 85
Turnip	Cool	40 - 75	60 - 65	85	60 - 105

Helpful Tips:

Most vegetable seeds prefer soil temps around 72-77° for germination. The most notable is mache (corn salad) that likes it closer to 55°, while most root crops, beets, carrots, parsnips, rutabagas and turnips aren't picky but prefer it warm, closer to 80-85° to germinate with cooling weather to mature.

Plants that like warm soil but cool air temps prefer to be planted in the late summer when the soil is still warm but cool fall weather is approaching.

Seed Saving Instructions

Basic



Leguminosae Beans, Peas, Legumes

Legume flowers are perfect, self-pollinating blossoms, meaning that pollination takes place before the flower opens. For this reason, it is uncommon for legumes to cross pollinate naturally. However, if the seed is precious or rare you may want to take extra precaution to grow only one variety from each species to assure that there is no accidental cross pollination. Peas are (*P. sativum*) and common beans are (*P. Vulgaris*) but there are many other species of legumes. **Runner beans (*P. coccineus*) need insects for good pollination. Unlike other beans, they will cross quite easily with other runner beans. To prevent cross pollination, plant only one variety in any year.** Legumes only cross pollinate within their species.

Always save seed from healthy plants that bear heavily. Pods should be allowed to dry on the vine. If possible, plants should be totally dry—stems, leaves, and pods. This will increase the germination rate. If pods are totally dry but plants are still growing, seeds will be viable but some seed may not be fully mature so germination rates may be slightly lower. As the plant matures cull out any plants that do not look true to the parent plant. Plant size, leaf shape, flower color, pod appearance, shape and color of the seeds, should all look like the original parent plants.

To save seed from beans and peas, the dried pods need to be very dry, and brittle. Split pods along the seam to release the seeds. This method may seem somewhat slow, but when done this way, the seed will not need to be winnowed. All legumes are susceptible to bean weevils which can destroy stored seeds in a very short time. Weevils lay eggs inside the pods; when seed is dry and in storage, the weevils hatch and eat the seed. Storing seed in a jar with a tight fitting lid and freezing for 7-10 days will kill the weevils. Seed must be totally dry to prevent damage from the freezing process. To check for dryness place a few seeds on a hard surface and hit with a hammer, if seeds shatter they are ready to be frozen; if seeds mash they need more drying time. Most legume seeds will maintain germination rates of 50% or higher for 4-5 years when stored in a cool, dark, dry place. If seed is stored in a glass jar with a tight fitting lid in a freezer it will remain viable for 10 years. The standard for commercially sold seed is 70% germination rate.



Compositae Lettuce

Lettuce is an annual that sends up a seed stalk when the days grow long and warm weather arrives. Plants that bolt early may result in immature seed. Seed should only be saved from plants that are true to the parent type. Plants that are different in color, size, shape, or leaf style should not be allowed to go to seed. There are six types of lettuce; crisphead, butterhead, cos, leaf, stem, and Latin. All belong to *Lactuca sativa*. All lettuce are inbreeding plants with perfect blossoms. There is less than a 5% chance of naturally occurring cross pollination. If it is necessary to assure absolute purity, an isolation distance of 50 feet is recommended. Lettuce seeds ripen irregularly and are ready to harvest 12-24 days after flowering. To harvest, vigorously shake the seed head into a bag every day during that period. The loose seed will fall into the bottom of the bag. An alternate method is to wait until about 10 days after flower and then cut the whole plant. Place the seed head upside down into a bag. When the seed head is totally dry, vigorously shake while seed head is still in the bag. This will result in fairly clean seed that will need little or no winnowing. More seed can be obtained by rubbing the seed head between your palms. However, approximately half of the volume will be chaff. The seed and chaff are about the same size and weight, so much seed is lost in the winnowing process. To winnow, use a fine mesh strainer just large enough to let the seed pass through, then remove the chaff. Next use a fine mesh that is too small for the seed to pass through and gently rub with your fingers the seed will remain above the mesh and the fine chaff fall through. This is a time consuming process. Lettuce seed will remain viable for 3 years when stored in a cool, dry, dark place. The standard for commercially sold seed is 80% germination rate.



Solanaceae

Tomatoes, Peppers, Eggplant

The Solanaceae family includes 90 genera and 2000 species of plants that includes tomatoes, peppers, tomatillos and eggplant. Most originated in Central and South America. Solanaceae are self-pollinating and are not particularly attractive to bees but many other insects are attracted to the blooms which results in occasional cross pollination. There is disagreement among plant breeders and seed savers as to how often this occurs, but is generally thought to be less than 5% for tomatoes and up to 30% for eggplant and up to 80% for peppers. Seed must be harvested from very mature fruits; basically those that look like they are headed for the compost pile.



Tomatoes (*Lycopersicon lycopersicon*)

All tomatoes are inbreeding and have perfect, self-pollinating blooms, meaning pollination takes place before the blossom opens. Some agitation of the plant, usually by wind, will increase pollination rates. There is much disagreement among plant breeders and seed savers as to how often tomatoes naturally cross pollinate but it seems to happen in up to 5% of blossoms. If the seed is precious or rare you should grow only one variety or may isolate each variety by 50 feet. To maintain genetic variation seed should be saved from a **minimum** of 6 plants, more is better.

To save seed, wash very ripe and fully mature fruits then cut horizontally and squeeze seeds and surrounding gel into a bowl. Each seed is encased in a gel that contains hormones to inhibit seed germination while still inside the fruit. To aid in separating the seed from the pulp add one cup of water for each cup of pulp. Set the bowl aside for 2-4 days out of direct sunlight. Do not leave seeds in water longer as they will start to germinate. Stir once a day. The seeds should start to drop to the bottom of the bowl and the pulp will float to the top. As the pulp ferments it may begin to smell bad and you may see mold on the pulp. This is normal. Seeds that continue to float are immature and will not germinate, so should not be saved. After the seeds have separated from the pulp, carefully pour off the pulp and most of the water leaving the seeds in the bottom of the container. Add water and rinse again and repeat until the water is clear of pulp. Pour seeds into a sieve and rinse well. Dry bottom of sieve and pour seeds into a glass or plastic bowl or plate. Seed will stick to paper plates or paper towels. Put seed in a dry, warm place (not hot) out of direct sunlight. To aid in even drying and prevent clumping stir the seed twice a day until completely dry, about 1-2 weeks. Fully dry seed will break when folded. If seeds bend, additional drying time is needed. Seed stored in a cool, dry, dark place will remain viable for 5-10 years. When stored for 25 years germination rates often remain above 50%. The standard for commercially sold seed is 75% germination rate.



Pepper (*Capsicum annuum*)

There are four species of peppers but most sweet peppers and hot peppers belong to *C. annuum*. Most peppers are green when immature and gradually change colors at maturity. Some agitation of the blossoms may increase pollination and fruit set. Although the blossoms are not particularly attractive to bees, many pepper varieties cross pollinate up to 80% of the time. The hot gene is dominant in peppers. If you are growing more than one variety of pepper an isolation distance of 500 feet is recommended. Plants can be grown in pots or dug at the end of the season and brought indoors where they will often continue to set fruit. To maintain genetic variation seed should be saved from a **minimum** of 6 plants, more is better.

Harvest pepper seeds when fruit is fully ripe, and overly mature. Cut through the shoulder of the fruit and gently scrape the seeds from the fruit. Put seed in a small container with water. Mature seed will drop to the bottom and immature seed and pulp will float to the top. Pour off water and pulp, leaving mature seed. Pour into sieve and rinse well. Dry bottom of sieve and pour seed into a glass or plastic bowl or plate. Seed will stick to paper plates or paper towels. Put seed in a dry, warm place (not hot) out of direct sunlight. To aid in even drying and prevent clumping stir the seed twice a day until completely dry, about 1-2 weeks. Fully dry seed will break when folded. If seeds bend, additional drying time is needed. Small peppers can be processed in a blender with water to separate the seed from the fruit. Then continue to process the same as for large peppers. Seed stored in a cool, dry, dark place will have 50% germination rates for 3 years. The standard for commercially sold seed is 55% germination rate.



Solanaceae Tomatoes, Peppers, Eggplant



Eggplant (*Solanum melongena*)

Eggplant originated in India from very bitter small fruited spiny plants. Centuries of human selection have resulted in large fruits that often lack the bitterness of the original plants. Eggplant are annuals in northern climates because they will not tolerate frost. Plants can be grown in pots or dug at the end of the season and brought indoors where they will often continue to set fruit. Eggplant fruits can be green, white, yellow, tan, orange, red, pink, purple, or striped.

Eggplant are inbreeding with perfect flowers and are usually self-pollinating. Eggplant are not particularly attractive to bees but some cross pollination does occur up to 30% of the time. To prevent accidental cross pollination an isolation distance of 50 feet is recommended. To maintain genetic variation seed should be saved from a **minimum** of 6 plants, more is better.

To save seed, let fruits grow very far past edible stage, fully ripe but not moldy. All eggplant will change color, become dull, and have a hard shell. Mature seeds will be near the blossom end of the fruit. Seed should only be saved from the bottom 1/3 of the fruit. Seeds closer to the stem will be immature. To separate seed from the flesh use a box grater. Add the grated flesh and seed to a bowl of water and begin squeezing the pulp to release the seed. Mature seed will sink to the bottom and immature seed and pulp will rise to the top. Pour off water and pulp. Add water and repeat until all pulp is gone and water is clear. Pour seed into a sieve and rinse well. Dry bottom of sieve and pour seed into a glass or plastic bowl or plate. Seed will stick to paper plates or paper towels. Put seed in a dry, warm place (not hot) out of direct sunlight. To aid in even drying and prevent clumping stir the seed twice a day until completely dry, about 1-2 weeks. Seed will maintain 50% germination for 7 years when stored in a cool, dry, dark location. The standard for commercially sold seed is 60% germination rate.

Seed Saving Instructions

Intermediate



Cucurbitaceae Cucumbers, Melons, Squash

Cucurbitas can be found in every country and culture on the earth. They are some of the first plants used humans. Most cucurbitas are heat loving annuals and are not frost tolerant. All cucurbitas rely on insects for pollination. Each plant produces both male and female flowers that are very attractive to insects. Plants must have both male and female flowers in bloom at the same time for good pollination rates and high fruit set. Adding flowering plants near cucurbitas will increase visits by pollinators. There are many species of cucurbitas and all plants will readily cross pollinate within their own species. A minimum isolation distance of ½ mile is required to prevent unwanted crosses of cucurbitas within the same species. Cross pollination outside their species is unusual but does happen very rarely. There are many methods to assure that cross-pollination does not occur; but all are labor intensive. However, you can plant one variety from each species without concern about accidental cross pollination. Be sure to check with nearby neighbors so your cucurbitas do not cross with theirs. To assure genetic variation save seed from as many different plants of the same species as possible.

To save seed: The following is a guideline about species of cucurbitas. You may plant one variety from each species without worry of cross pollinating.

To avoid cross pollination, you must identify the species of each squash, melon, and cucumber.



Cucurbitaceae

Cucumbers, Melons, Squash

Cucumbers (*Cucumis sativus*)

Cucumbers should be very large, well past the edible stage. The skin should be hard and change color. Save seed from half the cucumber near the blossom end. Seed near the stem are usually immature. Gently scrape seed out of fruit (with as little pulp as possible) into a bowl of water. Set aside in a warm location out of direct sunlight to ferment for 12-24 hours. Stir twice a day. When fermentation is complete most seeds will drop to the bottom while the pulp, seed cases, and immature hollow seeds will float. (The float-sink method doesn't always work with cucumbers. If all the seeds float, you can sprout a few seed to check for viability.) Pour off water and pulp. Add water and repeat until all pulp is gone and water is clear. Pour seed into a sieve and rinse well. Dry bottom of sieve and pour seed into a glass or plastic bowl or plate. Seed will stick to paper plates or paper towels. Put seed in a dry, warm place (not hot) out of direct sunlight. To aid in even drying and prevent clumping stir the seed twice a day until completely dry, about 1-2 weeks. Seed will remain viable for 10 years when stored in a cool, dark, dry location. The standard for commercially sold seed is 80% germination rate.

Melons & Cucumber Melons (*Cucumis melo*)

Many melons are frustrating to grow because they require insect pollination but only 10-20% of female flowers will set fruit. Planting with blooming flowers will encourage more visits by insects and may increase fruit set. Hand pollination doesn't usually increase yields. Seeds are mature when fruits are over ripe. (Cucumbers Melons are also *c. melo* and must be very large with hard skin before seeds are viable. Only save seed from the bottom half of the fruit near the blossom end.) Scoop seeds into a bowl of water and work between your fingers to release from the pulp. Pour off water, pulp, and floating immature seeds. Add water and repeat until water is clear. Pour seed into a sieve and rinse well. Dry bottom of sieve and pour seed into a glass or plastic bowl or plate. Seed will stick to paper plates or paper towels. Put seed in a dry, warm place (not hot) out of direct sunlight. To aid in even drying and prevent clumping stir the seed twice a day until completely dry, about 1-2 weeks. Seed will remain viable for 5 years when stored in a cool, dark, dry location. The standard for commercially sold seed is 70% germination rate.

Watermelons (*Citrullus lanatus*)

Watermelons are insect pollinated. They often set 2 flushes of blooms. Up to 90% of the first blooms will drop off the vine without setting fruit. The second flush of blooms set fruit about 50% of the time. Planting with blooming flowers will encourage more visits by insects and may increase fruit set. Seeds are mature when fruits are over ripe. Scoop seeds into a bowl of water and work between your fingers to release from the pulp. Pour off water, pulp, and floating immature seeds. Add water and repeat until water is clear. Pour seed into a sieve. Use a small amount of dish soap to wash seed then rinse well. Dry bottom of sieve and pour seed into a glass or plastic bowl or plate. Seed will stick to paper plates or paper towels. Put seed in a dry, warm place (not hot) out of direct sunlight. To aid in even drying and prevent clumping stir the seed twice a day until completely dry, about 1-2 weeks. Depending on variety, seed will remain viable for 6 years when stored in a cool, dark, dry location. The standard for commercially sold seed is 70% germination rate.

Banana, Hubbard, Buttercup, Turban Squash, Pumpkins (*Cucurbita maxima*)

Cushaw Squash (*Cucurbita mixta*, new Latin designation: *Cucurbita argyrosperma*)

Butternut and Cheese Squash (*Cucurbita mochata*)

Mini Pumpkins, Zucchini, and Acorn Squash (*Cucurbita pepo*)

All squash (which includes summer and winter squash, zucchini, and pumpkins) are insect pollinated. Planting with blooming flowers will encourage more visits by insects and may increase fruit set. All winter squash must be fully ripe and then allowed to sit at room temperature for 1-2 additional months before saving seed. All zucchini and summer squash must be very over ripe. Fruits should be very large, with hard skin that has changed color. Fruits should be cut from the vine and allowed to sit at room temperature for 3-4 additional weeks. For long shaped squashes, like zucchini and banana squash, save only the half of the seeds that are closest to the blossom end. Seeds near the stem may be immature. In the squash cavity, work seeds between your fingers to release from the pulp. Mature seeds release from pulp easier than immature seeds. Scrape seeds into a bowl. Add water, pulp will rise. Pour off water and pulp. Add water and repeat until water is clear. There is no easy way to tell which seed are immature as all seeds will sink including the immature ones. (Mature seed are plump; immature seeds look flat.) Pour seed into a sieve and rinse well. Dry bottom of sieve and pour seed into a glass or plastic bowl or plate. Seed will stick to paper plates or paper towels. Put seed in a dry, warm place (not hot) out of direct sunlight. To aid in even drying and prevent clumping stir the seed twice a day until completely dry, about 1-2 weeks. Depending on variety, seed will remain viable for 6 years when stored in a cool, dark, dry location. The standard for commercially sold seed varies by variety but is between 60-80% germination rates.

Seed Saving Instructions

Advanced



Allium

Onions, garlic, shallots, chives

Varieties within each onion species will cross with each other. Crosses between species are uncommon but possible.

- Common chives (*Allium schoenoprasum*)**
- Garlic chives (*Allium tuberosum*)**
- Japanese bunching onions (*Allium fistulosum*)**
- Allium cepa*: this species has 3 subspecies that can all cross pollinate with each other.**

Aggregatum: includes shallots, multiplier onions and potato onions;

Cepa: our biennial, common storage and slicing onions;

Proliferum: includes the Egyptian or walking onions.

To grow to seed: Flowering *alliums* of the same species can cross pollinate with edible *alliums*. Grow only one variety in each species or separate all *alliums* within the same species by at least 1000 feet. Harvest in the fall and select the largest bulbs which will produce more seed. Clip tops to 6 inches and store at 35-40° F. in a dry, airy location. In early spring replant bulbs 12 inches apart and cover with 1/2 inch of soil. *Alliums* produce perfect flowers, most of which need cross pollination between plants because the pollen is shed before the stigma is receptive. Individual flowers in an umbel open at different times so pollination can occur between different flowers on the same umbel or on different umbels on different plants.

Onions: Many onions require vernalization (cold, winter-like temperatures for 2-3 weeks). The refrigerator works well for this. Onions display some inbreeding depression. Save seeds from at least 5 different plants. As soon as 50% of blooms show seeds, clip individual flowers and store in an open bag in a cool dry place for an additional 2-3 weeks. Fully dried flowers will drop clean seeds easily. Most seed will release simply by shaking the dried bloom. Alternatively, rub umbel tips to free seeds and winnow to remove debris. Onions remain viable for only 2 years in a cool, dry, dark place. Storing in the freezer in a glass jar will increase viability to about 8 years.

Garlic is easy to grow to mature edible bulbs. Plant individual cloves in September or early October. Cloves will overwinter and grow to maturity by the next July. Dig bulbs when the bottom 4 leaves are turning brown. Let bulbs dry in an airy place out of direct sunlight until tops pull off easily. Store in a cool, dry place. Set aside and save the largest bulbs to use for seed. To replant the following September or October, break apart and plant individual cloves.

Chives are also easy to grow from seed. Simply cut blooms off plant when about half of blooms show seeds and follow instructions for saving onion seeds. **Chives are such aggressive re-seeders that it is recommended to grow from root divisions.**



Brassicaceae

Broccoli, Brussels sprout, Cabbage, Cauliflower, Kale (*Brassica oleracea*)

All vegetables and varieties in this large species will cross with each other. Grow only one variety at a time for seed, or separate different varieties at least 1000 feet or more. *B. oleracea* suffer from inbreeding depression and therefore require seed to be saved from at least 6-8 of the most healthy plants that have desirable traits. Plants chosen for seed production should not be harvested for consumption. Plants should be carefully dug in the fall, trimmed and stored for the winter. Nearly all plants in this species require vernalization (cold winter-like temperatures) for 8-10 weeks at 35-40° F. in an area with high humidity. Replant in the spring. Flowering plants can reach 4 feet high and need at least 2 feet spacing for good seed production. Flowers are perfect, but cannot self-pollinate. Pollinator insects are required to carry pollen from one plant to another. Better pollination is achieved when planted in a bunch rather than a long line. Allow individual pods to dry to a light brown color before picking and opening by hand. There will be far more seed than you will need. Never the less, some seed should be saved from each plant in order to have a viable gene pool. Most brassica seeds remain viable for 5 years when stored in a cool, dry, dark place.



Kale (*B. oleracea*)

Kale being the most cold hardy of the *B. oleracea* and with a thick layer of mulch will usually survive all but the very coldest of Yakima winters. Plant and grow a fall crop of kale. Plants will overwinter and grow again in spring sending up a flower stalk in early summer. Follow all other *B. oleracea* instructions for growing kale to seed.

Brassicaceae



Turnips, broccoli raab, Chinese mustards, Chinese cabbage, spinach mustard (*Brassica campestris* formerly know as *Brassica rapa*)

This species has 5 sub-species and all can cross pollinate with each other.

Rapifera: root turnips

Ruvo: flower-stalk turnips, broccoli raab

Chinensis: nonheading varieties of Chinese mustard

Pekinensis: heading varieties of Chinese cabbage

Perviridis: spinach mustards

Grow only one variety at a time for seed, or separate different varieties at least 1000 feet or more. *B campestris* suffer from inbreeding depression and therefore requires seed to be saved from at least 6-8 plants. Nearly all plants in this species require vernalization (cold winter-like temperatures) for 8-12 weeks at 35-40° F. Then roots should be replanted in the spring. Flowering plants can reach 3 feet in height and need at least 2 feet spacing for good seed production. Flowers are perfect, but cannot self-pollinate. Pollinator insects are required to carry pollen from one plant to another. Better pollination is achieved when planted in a bunch rather than a long row. Allow individual pods to dry to a light brown color before picking and opening by hand. There will be far more seed than you will need. Nevertheless, some seed should be saved from each plant in order to have a viable gene pool. Most brassica seeds remain viable for 5 years when stored in a cool, dry, dark place.

Turnip (*Brassica campestris* subsp. *Rapifera*)

Plants chosen for seed production should not be harvested for consumption. Plants should be carefully dug in the fall. Select the most healthy plants that have desirable traits. Trim leafy tops to 2 inches and taproot to 6 inches. Store for the winter in humid area with temperatures between 35-40° F. Turnips need vernalization (cold winter-like temperatures) for 8-12 weeks. Turnip roots will not survive Yakima winters even in cold frames or with deep mulch. Turnip roots need to be stored in a refrigerator or use the pit method. Green seed pods rarely produce viable seeds and should not be saved. Harvest only seeds from brown seed pods.



Chenopodiaceae Beets and Chard

Beet (*Beta vulgaris*)

Beets and chard have perfect flowers with light pollen that can be carried on the wind for a mile or more. All beets and chard will cross pollinate. Grow seed for only one variety of beet or chard at any one time or separate by 1000 feet or more. Plant beets in mid summer. Mulch heavily in fall and allow to mature. Beets will not overwinter in Yakima. Before hard frost, dig roots. Beets suffer from inbreeding depression and therefore require seed to be saved from at least 6-8 plants. Select large healthy roots with desirable traits. Trim tops to 2 inches and taproots to 6 inches. Beets require vernalization (cold winter-like temperatures) for 8-12 weeks at 35-40° F. in a humid location. This can be accomplished in a refrigerator. Alternatively, in all but the worst Yakima winters, roots can be stored in an outdoor pit. Dig a pit about 2 feet deep, line with 4 inches of dry material, straw, sawdust, or shredded leaves work well. Place roots so they are not touching each other and cover with another 4 inches of dry material, then cover with the soil that originally came out of pit, and cover with a waterproof tarp or cold frame to keep roots from getting water logged. In early spring replant beet roots 18 inches apart with tops just showing above the soil. Better pollination is achieved when planted in a bunch rather than a long row. Beets will grow 4 feet tall and quite bushy. By August, plants will be covered with beet seed. When seeds are tan, cut tops just above the root and store in a cool, dry place for 2-3 additional weeks. Save only brown seeds. Green seeds at the time of harvest will not be viable even after they dry and turn brown. Seeds can be saved by stripping by hand. Seeds are rough, gloves may be required. There will be far more seed than you will need. Nevertheless, some seed should be saved from each plant in order to have a viable gene pool. Beet and chard seeds retain 60% germination rates for 6 years when stored in a cool, dry, dark place.

Chard (*Beta vulgaris*)

Beets and chard are botanically the same. All instructions for beets should be followed to save seed from chard. However, the tough, fibrous, roots of chard are not as easily damaged by frost and will survive under a thick layer of mulch in most Yakima winters. You can also store in winter in a pit or refrigerator. If you decide NOT to bury chard roots in a pit, you may leave the plants in the ground with a 4 inch layer of mulch through light frost. When the leaves wilt and begin to die back, add another 6 inch layer of mulch and cover with a tarp or cold frame to prevent water logged roots. In the very early spring, dig up plants and choose 6-8 of the largest, healthiest roots. Follow all other instructions for beets.



Umbelliferae Carrot (*Daucus carota*)

Carrots (*D. carota*) will cross pollinate with all other carrot varieties and Queen Anne's Lace. For seed, grow only one variety at a time or separate by 1/2 mile. Carrots suffer from severe inbreeding depression. Save seed from as many plants as possible, at least 10 but more is better. Carrot flowers are not self-pollinating and require pollinator insects to move pollen from one plant to another. There are several ways to save carrot roots through the winter. Carrots require vernalization (cold winter-like temperatures) for 8-12 weeks. Carrots need to be stored at 35-40° F with 90% humidity. This can be accomplished in a refrigerator. Alternatively, in all but the worst Yakima winters, roots can be stored in an outdoor pit. Dig a pit about 2 feet deep, line with 4 inches of dry material, straw, sawdust, or shredded leaves work well. Place roots so they are not touching each other and cover with another 4 inches of dry material, then cover with the soil that originally came out of pit, and cover with a waterproof tarp to keep roots from getting water logged. Another option that will work in all but the coldest of Yakima winters is to plant carrots in mid-summer, mulch heavily in late summer. In late fall, cut tops to 2 inches and add several more inches of mulch. Cover with a tarp or cold frame to prevent roots getting water logged. In spring dig up roots choose the largest, healthiest roots with desirable traits and replant 18 inches apart with the soil just covering the shoulders. Blooming carrots grow 4 feet tall. Better pollination is achieved when grown in bunches rather than a long line. When the umbels turn brown and dry, hand pick 1 or 2 of the largest umbels from each plant and allow to dry for an additional 2-3 weeks. Rub the tips of the umbel between your fingers to release seeds. Carrot seeds are naturally hairy (bearded). Commercial seed is de-bearded, but it is not necessary to do so, and does not affect germination. There will be far more seed than you will need. Nevertheless, some seed should be saved from each plant in order to have a viable gene pool. Carrot seeds will store 6 years in a cool, dry, dark, place.



Zea mays Corn

Corn has male and female flowers on the same plant. The male flowers are the tassels at the top of the stalks; the silks are part of the female flowers. Corn rarely self pollinates as the female silks are not receptive when the male pollen is released. The female flowers need to be pollinated by pollen from surrounding plants. Each pollinated individual silk will form one corn kernel. Better pollination is achieved when corn is planted in blocks of 25 plants or more, or in wide rows of with at least 5 plants across. Corn pollen is very light and can be carried great distances. Separate corn varieties by at least 1 mile or grow varieties that are in tassel at different times.

Corn is susceptible to extreme inbreeding depression. If seed is saved from too few plants, subsequent plants may be short, mature late, and produce few ears. Save seed from at least 200 different plants. When harvesting corn leave one ear on each plant to mature an additional 4-6 weeks until it is dry. Pick the dried ears, pull back the husks, and allow to dry for 3 additional weeks in a cool, dry place. Process the seed by twisting the cob and allowing kernels to fall into a container. If there is remaining silk and chaff it can be removed by winnowing. Corn seed has a short life and is normally good for one or two years, when stored in a cool, dry, dark place. Storing dry seed in a glass jar will increase the shelf life by 50%. Storing in a glass jar in a freezer can quadruple the shelf life.