



Farmington Community
Seed Library

Growing Instructions

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farmlib.org/seed-library

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Crego Mix China Aster - Organic

Crego Mix China Aster

~450 seeds/g.

Annual. Callistephus is from Greek kallos meaning 'beautiful' and stephos, 'crown.' The common name of aster comes from the Greek astron, meaning 'star,' a reference to their shape and bright colors. The China Aster began its journey west around 1730 when a Jesuit missionary noticed it growing in a field near Beijing. Wildly popular by 1883 when Burpee listed 19 different classes of them compared to two each of marigold and zinnia. Good bedding plants or cutflowers.

Culture: Sow indoors at 70–72° in late winter, transplant after danger of frost. Cut stems when 2–4 flowers have opened. Vase life is 5–7 days, longer if you use a floral preservative. Aster Yellows is a serious disease problem. Use floating row covers to keep out leafhoppers, the vector.

Flowers

All flowers are open-pollinated except where noted.

Days in parentheses after a variety indicate days to first bloom.

Jubilee Gem Organic Bachelor's Button

Centaurea cyanus

(60 days) Annual. Early frilly 2" periwinkle-blue blooms on semi-dwarf 2' plants. A popular favorite with a long bloom period. 1937 AAS silver medal winner.

Bachelor's Button

~180 seeds/g.

Annual. Named for the centaurs of Greek mythology. Easy to grow, great for cutflowers and beds. Common name may refer to the tight unopened buds' resemblance to buttons or to their popularity as boutonnieres. Also known as **Cornflower** and, formerly, **Hurt-Sickle** because its wiry stems dulled many a sickle during mowing time.

Culture: Start indoors at 60–65° 2 months before setting out, or direct seed in May in a sunny location. Deadhead for persistent blooms, or make a succession planting in mid-late June if you desire late-summer flowering. Will self-sow. Lasts longer than most flowers after frost. Excellent drought resistance. Cut when flowers are just beginning to open—they'll open more in the vase and last 6–10 days. 3'. Cannot ship to Alaska.

Flowers

All flowers are open-pollinated except where noted.

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Kablouna Mix Organic Calendula

Calendula officinalis

(60 days) Annual. Distinct refined form features striking crested mostly yellow blooms with dark contrasting centers. One of the loveliest of the calendulas. Kablouna, our seed room goddess who looks after the good fortune of seed packers, is currently at large. Especially attractive to pollinators.

Calendula

~115 seeds/g.

Annual. Old kitchen garden flower, 18–20" tall, also known as **Pot Marigold**. Beautiful daisy-like flowers feed pollinators, are good for informal bouquets, and are also edible. Blossoms can be snipped from their stems, dried and added to soups, salads and stews. They are also used in homeopathic remedies and herbal tinctures and ointments for their antiseptic and soothing qualities.

Culture: Calendulas bloom over an extremely long period, thriving in cool weather and persisting through autumn's first frosts. Can be direct seeded in May or started indoors in cool place for early blooms. Readily self-sows. Don't crowd, give them full sun. Deadhead to keep blooms coming and the patch attractive, or try succession plantings.

Flowers

All flowers are open-pollinated except where noted.

Days in parentheses after a variety indicate days to first bloom.

Solar Flashback Organic Calendula

Calendula officinalis

(55 days) Annual. A hot release from Frank Morton's calendula program. Morton describes it as "a distinctive new family of flash, selected to highlight contrast between bright light yellows, pinks, and solid red or maroon." Some feature yellow petals, some pinkish-blond, some yellow with light tips, all with contrasting red backs. Take a vacation from calendula orange. 2007 Fedco introduction. OSSI. Independent Breeder. Especially attractive to pollinators.

Calendula

~115 seeds/g.

Annual. Old kitchen garden flower, 18–20" tall, also known as **Pot Marigold**. Beautiful daisy-like flowers feed pollinators, are good for informal bouquets, and are also edible. Blossoms can be snipped from their stems, dried and added to soups, salads and stews. They are also used in homeopathic remedies and herbal tinctures and ointments for their antiseptic and soothing qualities.

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Sensation Mix Cosmos

DAYS TO GERMINATION: 7-10 days at 68-72°F (20-22°C)

SOWING: Transplant – Sow into 50-cell plug flats, or preferred seedling container, 5-7 weeks before last frost, covering seeds lightly. Harden off and transplant outdoors after last frost. Direct seed – Sow after last frost, once soil temperature is above 60°F (16°C), covering seeds lightly. Pinching encourages branching.

LIGHT PREFERENCE: Sun.

PLANT HEIGHT: Varies. Tall varieties may benefit from some wind protection, such as Hortonova, used as horizontal support.

PLANT SPACING: 9-12". Wider spacing creates stronger, thicker stems.

HARDINESS ZONES: Annual.

HARVEST: Petals just opening, but not yet flattened. Deadheading is required to have blooms all summer.

SOIL REQUIREMENTS: Any soil.

Knioles Purple Morning Glory

Morning Glory

~25 seeds/g.

Annual. Easily grown climber with trumpet-shaped flowers provides color and shade, decorates fence or post.

Culture: Plant with eastern exposure for best results. Nick the seeds with a file and soak overnight to speed germination. Germinates in 2 weeks at 75–80°. Sow outdoors after danger of frost or indoors in peat pots as they resent transplanting. Overly rich soil will yield excess foliage and sparse blooms.

Flowers

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Drama Queen Organic Poppy

Papaver

Annual. Just another example of the hyperbole of those shameless variety-namers? Not this time. It's everything its name suggests, including having its photograph all over the internet. Petals are shaded with deep purple and violet near the center which morphs to vivid raspberry toward the edges, then deeply cut with irregular pointy fringes. Yellow-green centers with prominent creamy-yellow anthers accentuate the 4–5" flower. Either gorgeous or hideous, depending on your point of view, but undeniably dramatic. 3' tall.

Poppy

~1,400 to 4,500 seeds/g.

Annual. Sensuous luxurious flowers, about 2½–3' tall. We offer two heirloom breadseed varieties especially suitable for baking. Poppies make wondrous cutflowers: choose buds that have straightened up but not quite opened. Immediately sear the cut stem with a flame and put in water. Poppies open after several hours—an austere bouquet in the evening can become a riot of colors the next morning.

Culture: Need light to germinate. Sow outside in spring after frost or sow in fall for early blooms the following summer. Thin to 9–12". Like full sun. Will self sow.

Flowers

All flowers are open-pollinated except where noted.

Days in parentheses after a variety indicate days to first bloom.

Large Lavender Poppy

Poppy

~1,400 to 4,500 seeds/g.

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Flowers

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Autumn Beauty Mix Organic Sunflower

Helianthus annuus

(70-90 days) This 6-8' multi-branching beauty is always a top seller. Produces a lovely mixture of earthen shades, petal colors ranging from bright yellow to bronze and purples. Most have a characteristic red ring enclosing a black center. Blossoms 4-6" across are perfect as the center of giant flower arrangements. Annual. 35-40 seeds/g. Especially attractive to pollinators.

Sunflower

Annual. Sunflower remains have been found in the Tabasco region of Mexico dating back more than 6000 years. Prized for their seeds by humans and birds, and for cutflowers by market growers, sunflowers also add a lighthearted touch to gardens. Sales soared in the spring of 2020. As our facilitator Ann says, "In hard times sunflowers make people happy."

Culture: Easy to grow. Start indoors 3-4 weeks before last frost at temperatures of 65-75° or direct sow after frost, 3 to a pocket. Thin to best plant, 1' or more apart. Rich friable soil yields tallest plants; drought stunts growth. Will readily self-sow; for some fun leave a few volunteers in strategic locations.

Pollen or pollen-free? Although flower arrangers often eschew sunnies with pollen, Eliza Lindsay of Portland, Ore., speaks for our pollinators: "Sunflowers that produce pollen are my favorite. They feed the bees first and later the birds." She says to grow sunflowers for cutting and to feed your pollinators, too, you must allow some of the flowers to remain uncut to complete their life cycle. Branching varieties are tops for this purpose since taking cuts encourages branching.

She offers tips for handling harvest and post-harvest for varieties with pollen. "The trick to sell them is to harvest prior to pollination. Once pollinated, flowers begin to senesce. Harvest when the petals are fully colored, clearly visible, but unexpanded and wrapped around the flower head. Harvest with long stems set in clean water in a cool dark place. Change water daily and recut stems as necessary. They will fully open in a few days, produce pollen in the vase, but have a long vase life."

All varieties have pollen unless noted otherwise.

Flowers

All flowers are open-pollinated except where noted.

Days in parentheses after a variety indicate days to first bloom.

Evening Sun Organic Sunflower

Helianthus annuus

(60–80 days) Large 3–5" blooms in sunset hues of burgundy, russet-bronze, vivid gold and red, with many bicolor blends. Some say the 6–8' multi-branching plants have even more blooms than popular favorite Autumn Beauty. Especially attractive to pollinators.

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Flowers

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Benary's Giants Mix Organic Zinnia

Zinnia elegans

(85 days) Yellow, white, rose-pink, coral, lilac and purple. Annual. ~110 seeds/g.

Benary's Giants

(85 days) The most elegant giant dahlia-flowered zinnia. The densely petaled double flowers regularly exceed 4" across, showy yet extremely refined, borne on long stems perfect for cutting. Highlighted by the uniform petal patterns, colors are particularly bright. Holds better than most even under the stress of high heat and rainfall. Absolutely breathtaking in ideal conditions. 3–3½' plants. The zinnia of choice for market growers; on a par with State Fair Mix for home gardeners. Benary's are film-coated with an industrial food-grade non-toxic coloring that does not contain any fungicides or pesticides. ~120 seeds/g.

Zinnia

~110 seeds/g. except where noted.

Annual. Known as **Youth and Old Age** in the 1800s, this showy genus was named for German botany professor Johann Gottfried Zinn (1727–1759). Easy to grow from seed and a favorite for bright color in Maine summers. Zinnia flower essence is used to bring out playfulness and lightheartedness.

Culture: Sow in a sunny spot after last frost, or start indoors for earlier blooms. Germinates 3–5 days at 80–85°, more slowly at cooler temperatures. Grow on at 70° days, 60–65° at night. Temperatures below 60° delay flowering and may induce chlorosis. Space at 9–12".

They need good drainage and like heat. Market grower Jason Kafka says zinnias perform better in tunnels than in the field. With the extra heat they get so big that "they think they are in New Jersey." Cut when flowers are almost fully mature, just before pollen starts to form. Deadhead to continue production.

Flowers

All flowers are open-pollinated except where noted.

Days in parentheses after a variety indicate days to first bloom.

California Giant Mix Zinnia

~110 seeds/g. except where noted.

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Astro Arugula

When to Plant Arugula

- Arugula seeds will germinate in soil temperatures as low as 40°F (4°C), so sow them outdoors as soon as the soil can be worked in spring. See local frost dates.
- Sow in late summer or early fall for a fall or winter harvest.

How to Plant Arugula

- Sow seeds ¼-inch deep and about 1 inch apart in rows 10 inches apart. Alternatively, broadcast arugula seeds alone or mix with other salad greens.
- Seeds germinate in about a week (or slightly longer in cold soil). Speed up germination by soaking seeds in water for a few hours prior to planting.
- Sow new seeds every 2 to 3 weeks for a continuous harvest later on!

GROWING

- Keep soil evenly moist, especially in warmer weather when bolting may occur. (Bolting is when the plant skips right to producing flowers and seeds without developing much foliage first.)
- Thin seedlings to about 6 inches apart, using the thinnings for salads.
- To reduce heat stress and prevent bolting, provide some shade for warm-season plantings.

HARVESTING

- The leaves taste best when young. Older leaves can be tougher and will have more of a bite!
- Harvest leaves when they are about 2-3 inches long.
- Pull up the whole plants or cut individual leaves as needed.
- The white flowers are also edible.

Northeaster Pole Bean

Pole Beans

- Avg 30 seeds/half oz packet. 775–1500 seeds/lb. Half oz packet sows 7–10'.
- Days to maturity are from emergence after direct sowing.

Culture: Though it can be fun to grow “climbing” beans on tripods or sunflowers, many folks grow them on 6–8' fencing. Plant 3–4" apart along the fence. Many pole bean varieties have strings that won't annoy you if they're picked early and often. Frequent and thorough picking keeps your vines vigorous and productive. Pick and compost the overgrown pods that got away, or cut them coarsely and add them to minestrone as suggested by Crystal Nichols of Greene, ME. If you don't pick them, your plants will stop producing, satisfied they've fulfilled their reproductive mission.

One customer says, “Many people—even gardeners and cooks—have no idea how much better tasting pole beans are. Most bush beans are cardboard by comparison.”

Poles for Pole Beans

Nikos grows hers on tripods of long lashed poles. Gloria Seigars of New Sweden, ME, employs tall limber ash saplings that can be bent double without breaking. “Wired together, several of them make a nifty arbor and grand entrance to the vegetable garden.” Will Bonsall suggests letting them climb sunflower stalks. Give the sunflowers a two-week head start.

Plant about 5 seeds to a tripod, or 2 seeds to a sunflower.

Beans

- All beans are open-pollinated.
- Days to maturity are from emergence after direct sowing.

Culture: Tender, will not survive frost. Inoculate with a legume inoculant, then plant seeds 3–4" apart in rows 24–30" apart after all danger of frost has passed and soil has warmed. Minimum germination soil temperature 60°; optimal range 70–80°. White-seeded beans are generally more sensitive to cold soil temps than dark-seeded varieties. Legumes have moderate fertility needs and can fix their own nitrogen. Excessive nitrogen may induce some bush varieties to develop vines in moist hot weather.

Saving Seed: Saving bean seed is easy! Leave pods on the plants to dry. Hand shell, or stomp pods on a tarp. To ensure true-to-type seed, separate varieties by 30 feet.

Diseases:

- ANTH: Anthracnose
- BBS: Bacterial Brown Spot
- CBMV: Common Bean Mosaic Virus
- CTV: Curly Top Virus
- DM: Downy Mildew
- HB: Halo Blight
- NY 15: NY 15 Mosaic Virus
- PM: Powdery Mildew
- PMV: Pod Mottle Virus
- R: Rust
- SC: Sclerotinia

Provider Organic Bush Green Bean

Phaseolus vulgaris

(50 days) Open-pollinated. For highest early yields—even under adverse conditions—and rich beany taste, nothing provides like Provider. Noted for its concentrated sets of round 5–5½" pods.

"There is no substitute for Provider beans," says Chris Carlin of Hyde Park, Vt. Also excellent for canning and "my choice for freezing and dilly beans," says Elaine Carlson of Cape Porpoise, Maine. Anne Elder of Community Farm of Ann Arbor, Mich., praises its amazing resilience: it and Royal Burgundy re-flower repeatedly after heavy pickings followed by rains. Came in one day ahead of Contender for earliest in our observation plot.

Bush Beans

About 120 seeds/2 oz packet. 2 oz packet sows 25 ft; 1 lb, 200 ft.

Seed sizes vary. Pick frequently for maximum and steady yields, but avoid harvesting or disturbing foliage in wet conditions to prevent spread of fungal diseases. Successive plantings can be made every 2 or 3 weeks until midsummer.

- **All beans are open-pollinated.**
- **Days to maturity are from emergence after direct sowing.**

Culture: Tender, will not survive frost. Inoculate with a legume inoculant, then plant seeds 3–4" apart in rows 24–30" apart after all danger of frost has passed and soil has warmed.

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White mold, *Sclerotinia sclerotiorum*, affects more than 300 plant species. In beans, low humidity, good air circulation and wider spacing, both between plants and between rows, reduce the likelihood of this soil-borne infection.

Fiesta Organic Broccoli

Brassica oleracea (botrytis group)

(86 days) F-1 hybrid. Party time! Our first organic hybrid broccoli, good for midseason.

Compact plants set uniform bright green tightly domed heads that stand both cold weather and heat with considerable aplomb. We were amazed by its unprecedented production of side shoots. One day in early October 2007 CR harvested ten from one healthy plant, the largest as big as a main head at 6–7", several others nearly as hefty, enough to comprise 3–4 supermarket bunches. White or yellow certified-organic coating. Tested negative for BR and BL.

Broccoli

- **About 100–300 seeds/g. Average varies by cultivar.**
- **Days to maturity are from seedling emergence (subtract 20 days for transplants)**

Culture: Start broccoli indoors March–May for setting out May–July, or direct-seed in May or June for fall crop. Easier as a fall crop because many varieties perform poorly in hot summers. For better stands in dry conditions sow in trenches and keep irrigated. Broccoli dislikes the extreme temperature and moisture fluctuations we have endured in recent seasons. Climate change is making it a challenge to grow even the more heat-tolerant varieties in the summer, while at the same time broadening opportunities in our longer more temperate falls.

Nutrition and disclaimer: Broccoli contains significant levels of sulforaphane, a substance that helps detoxify carcinogens from the body. Some years back, research indicating that broccoli seed sprouts are higher in sulforaphane than the vegetable itself caused a run on open-pollinated broccoli seeds. **The broccoli seed we offer is seed grade, and it is not fit for human consumption as sprouts.** It is not stored in food-safe sanitary conditions before it reaches us. For sprouting seed, please contact your natural foods supplier.

Disease: Head Rot

Cultural controls: use well-domed varieties, harvest heads when tight, cut stalks at an angle.

Material: copper

Brassicas

Days to maturity are from seedling emergence. Subtract 20 days for transplants.

Culture: Start brassicas indoors March–May for setting out May–July, or direct-seed in May, or in June for fall crop. **Minimum germination soil temperature 40°, optimal range 55–85°.** Easier grown for the fall because many varieties perform poorly in hot summers. For better stands in dry conditions, sow in trenches and keep irrigated. Wire hoops and row cover should be used at early stages to keep out flea beetles and swede midge.

Note: because of a rule issued by Oregon, we cannot ship brassica packets larger than ½ oz. (14 grams) into the Willamette Valley, except those that have tested negative for Black Leg and Black Rot. Check descriptions for information.

Fiesta Organic Broccoli

Diseases:

- BL: Blackleg
- BR: Black Rot
- BS: Bacterial Speck
- DM: Downy Mildew
- FW: Fusarium Wilt
- FY: Fusarium Yellows
- TB: Tipburn
- WR: White Rust

Pest and Disease Remedies for all Brassicas

Major pests: Cabbage Looper, Diamondback Moth, Imported Cabbageworm

Cultural controls: control cabbage-family weeds near crop fields, till under crop debris of early-season brassicas after harvest.

Material controls: Spinosad, Bt.

Pest: Flea Beetle

Cultural controls: floating row covers, mulch with straw, time plantings for fall harvested crops only, crop rotation, perimeter trap cropping.

Material controls: AzaMax, Spinosad, PyGanic.

Pest: Cabbage Root Maggot

Cultural controls: time planting to avoid first hatching, use row covers, control weeds.

Major diseases: Black Rot, Alternaria Leaf Spot, Blackleg, Club Root, Downy Mildew, White Mold

Cultural controls: avoid transplanting plants with yellow leaves or v-shaped lesions, crop rotation, destroy crop debris after harvest, avoid overhead irrigation, control weeds, allow for good air movement.

Material controls: Copper.

Disease: Head Rot

Cultural controls: use well-domed varieties, harvest heads when tight, cut stalks at an angle.

Material control: Copper.

Swede Midge—not as cute as it sounds!

Alert! Heading brassicas in the Northeast are seeing consistent damage from swede midge, a tiny gall midge. Its effects result in a non-heading plant. **Wire hoops and row cover at early stages of heading brassica crops are becoming crucial for success.** Some research also suggests garlic sprays as a possible organic repellent. Consult your Cooperative Extension resources for further information.

Coral Carrot

Open-pollinated, 72 days to maturity

Sow 1/2" deep, 1/2" apart, in rich bed, 16-24" apart, Apr-July. Keep moist. Thin to 1" apart.

Carrots

- **1/8 oz packet sows 35 ft; 1 oz, 280 ft. 1 gram packet has more than 400 seeds and sows about 10 ft.**
- **Carrots average 18,000 seeds/oz with significant variations among varieties.**
- **Days to maturity are from seedling emergence after direct sowing.**

Culture: Very hardy. Early carrots can be sown by late April. For fall crop or winter storage, seed in early summer. Minimal germination temperature 40°, optimal range 75–85°. Can take up to 3 weeks to germinate; keep rows from drying out for faster emergence. Thinning is critical: At 3" high thin to 1/2" apart, at 6" thin again to 1-2" apart.

Diseases:

- ALTS: Alternaria Leaf Spot
- PM: Powdery Mildew
- BR: Black Rot
- TLS: Target Leaf Spot
- LR: Licorice Rot
- P: Pythium

ALTS shows up first on the oldest foliage as brown-black spots edged with yellow. Foliage blackens and shrivels as it develops and spreads. Maintaining a good crop rotation is the best preventive.

Rumba Carrot

Daucus carota

(72 days) Open-pollinated. Who will have this dance? Our long-time Seeds line-stocker Gary Athenian will. He calls Rumba "the best carrot I've ever grown." When he brought it to Nash's Organic Produce in Sequim, WA, they admired its crisp texture and adopted it as their favorite as well, no small distinction as they breed carrots, their most important crop. Last offered by Johnny's in 2005, Rumba has since been hard to find. A straight tapered 6–7" Nantes type that matures slowly and resists oversizing, it is great for fall harvest and winter storage. Its aromatic strong carrot flavor is admittedly not for everyone. Though Roberta also liked it, Gene and CR demurred. But then again, not everyone can rumba.

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Luther Hill Sweet Corn

Corn

- About 85–275 seeds/oz. 1 oz packet sows 25 ft, 1 lb sows 400 ft.
- Seeds per packet vary, open-pollinated selections average 100 seeds/oz, normal sugary varieties 140 seeds/oz, and SE cultivars with shrunken seeds 150–160 seeds/oz.
- Days to maturity are from emergence after direct sowing; for transplants, subtract 20 days.

Culture: Untreated sweet corn seed will not germinate in cold wet soil. Please be patient and wait till soil warms to at least 60° before sowing, or start seedlings indoors and transplant at 3–6" before taproots take off. Minimum soil temperature 55°, optimal temperature range 65–85°. Tender, will not survive frost. Heavy nitrogen requirements.

Marketmore 76 Organic Slicing Cucumber

Cucumis sativus

(63 days) Open-pollinated. Dr. Henry Munger's classic cucumber for the ages, long the leading slicing variety in the Northeast, still sells nearly 5,000 packets per year for us though it is offered by just about every seed purveyor on the planet. Dark green 8–8½" fruits show good uniformity. Vines vigorous throughout the season. Tolerant to CMV, DM, PM, resistant to scab.

Cucumbers

- **About 30 seeds/g; about 900 seeds/oz; variations noted.**
- **Days to maturity are from emergence after direct seeding. From transplant, subtract 20 days.**

Culture: May be started indoors for early production, or direct-seeded when soil has warmed. **Minimum germination soil temperature 65°, optimal range 65–95°.** Very tender, will not survive frost. Direct seed 3" apart thinning to 1' apart in rows 4–6' apart or 6 per mound in hills 4' apart thinning to 3 best plants. For transplants: once seedlings have 1–2 true leaves, about 3 weeks old, plant 1' apart in rows 4–6' apart. Cucumbers require good fertility and regular rain or irrigation for abundant yields. Without adequate water, fruits will be misshapen and bitter. Pick cukes frequently for best production, or else the plants shut down. Make sure to remove blimps to the compost pile.

Combat striped cucumber beetles by handpicking early AM when the dew makes them sluggish, or use floating row covers, removing when cukes flower. Cucumber beetles are the vector for BW.

Using compost in conjunction with row covers (rather than either alone) increased cucumber yields at the University of Michigan.

Parthenocarpic varieties can set fruit without being pollinated, an advantage in cold cloudy summers. Gynoecious varieties produce almost exclusively female flowers for uniformity and high yields.

Saving Seed: Saving cucumber seed is easy! Take that big yellow cuke that got away and save it for seed. Scoop out the guts of overripe fruit and ferment it in an uncovered container for a few days. A moldy gross cap to the slurry means the seeds are ready to rinse and dry. To ensure true-to-type seed, grow only one open-pollinated variety per season.

Marketmore 76 Organic Slicing Cucumber

Diseases:

- ALS: Alternaria Leaf Spot
- ANTH: Anthracnose
- BW: Bacterial Wilt
- CMV: Cucumber Mosaic Virus
- CVYV: Cucumber Vein Yellow Virus
- DM: Downy Mildew
- PM: Powdery Mildew
- PRSV: Papaya Ring Spot Virus
- R: Rust
- WMV: Watermelon Mosaic Virus
- ZYMV: Zucchini Yellows Mosaic Virus

Pest: Striped Cucumber Beetle

Cultural controls: use tolerant or resistant varieties, rotate crops, till under crop debris soon after harvest, use floating row covers until flowers appear, use plastic mulch, perimeter trap cropping (Black Zucchini and Blue Hubbard make particularly good trap crops), use yellow sticky strips, hand-pick early morning when beetles are very sluggish.

Materials: Surround, Pyrethrum (PyGanic).

Early Mizuna Japanese Mustard

Mustards

About 8,750–22,000 seeds per oz, with wide variability among varieties.

Versatile for tasty microgreens. Mustards are potent soil fumigants. Incorporating the residues of mustard crops into your soil can reduce fungal diseases in your succession crop. See [Mustard](#) from Organic Growers Supply for a cover crop, and [Yellow \(White\) Mustard](#) for culinary mustard.

Saving Seed: Saving mustard green seed is easy! Let your spring sowing of mustards bolt. The flowers develop into narrow seed pods. Once pods dry on the stems, they can be easily broken open for seed. To ensure true-to-type seed, grow only one open-pollinated variety per season (or let only one flower!)

Asian Greens

- All open-pollinated except where noted.
- Days to maturity are from emergence after sowing; from transplant, subtract 20 days.

Culture: [Wire hoops](#) and [row cover](#) keep out flea beetles and are a must for pristine salad or braising mixes!

Diseases:

- ALTS: Alternaria Leaf Spot
- BL: Black Leg
- Black Rot
- BSR: Bacterial Soft Rot
- DM: Downy Mildew

Major pests: Cabbage Looper, Diamondback Moth, Imported Cabbageworm

Cultural controls: control cabbage-family weeds near crop fields, till under crop debris of early-season brassicas after harvest.

Material controls: [Spinosad](#), [Bt](#).

Pest: Flea Beetle

Cultural controls: [floating row covers](#), mulch with straw, time plantings for fall harvested crops only, crop rotation, perimeter trap cropping.

Material controls: [Spinosad](#), [Pyganic](#).

Pest: Cabbage Root Maggot

Cultural controls: time planting to avoid first hatching, use row covers, control weeds.

Major diseases: Black Rot, Alternaria Leaf Spot, Blackleg, Club Root, Downy Milldew, White Mold

Cultural controls: avoid transplanting plants with yellow leaves or v-shaped lesions, crop rotation, destroy crop debris after harvest, avoid overhead irrigation, control weeds, allow for good air movement.

Material controls: [Copper](#).

Note: because of a rule issued by Oregon, we cannot ship brassica packets larger than ½ oz. (14 grams) into the Willamette Valley, except those that have tested negative for Black Leg and Black Rot. Check descriptions for information.

Madeley Rounded Leaf Kale - Organic

Kale

- Days to maturity are from emergence after direct sowing. For transplants, subtract 20 days.
- About 175–280 seeds/g and 4,200–9,800 seeds/oz.

Scientists say kale descends from wild cabbage, a plant found primarily on the lime cliffs of coastal Europe. Originating in Greece, kale was enjoyed for thousands of years throughout Europe where it was the most common green vegetable until the Middle Ages when cabbage became more popular.

One cup provides more Vitamin C than a glass of orange juice, more calcium than a cup of milk, more potassium than a banana and, per calorie, more iron than beef. Kale may be used in textured salads, steamed or braised as a side dish, mixed in omelettes, lasagna and stews, and made into chips.

Culture: Start indoors March–May for setting out May–July, or direct-seed in May. Minimum germination soil temperature 40°, optimal range 45–85°. To enjoy it at its best and to avoid the worst of the flea beetle season, direct seed in July or August for late-season maturity. Use wire hoops and row cover to keep flea beetles out at early stages. Important crop in colder climates owing to its natural resistance to frost, kale is sweeter after exposure to cold. Excellent for microgreens.

Diseases:

- BL=Blackleg
- BR=Black Rot

Note: We cannot ship packets greater than ½ oz. (14 grams) of radishes into the Willamette Valley. The State of Oregon prohibits shipping any commercial quantity of untreated Brassica, Raphanus or Sinapis due to quarantine

Australian Yellow Looseleaf Lettuce - Organic

Lettuce

- All lettuce is open-pollinated.
- 700–1100 seeds/1g pkt.
- 1 gram packet sows 25 ft; 2 grams, 50 ft; 1 oz, 500–700 ft.
- Days to maturity are from emergence after direct sowing; for transplants, subtract 20 days.

Culture: Direct seed outdoors as soon as ground can be worked and repeat every 2 weeks for continuous supply. Or start indoors in March and at regular intervals thereafter for early transplanted successions. Optimal germination temperature range 40–70° though many varieties won't germinate in soil temps above 75° and most shut down above 80°. Thin sowings frequently and ruthlessly to a final distance of 1' for full heads. Heavy nitrogen feeders. Hardy. All save icebergs tolerate heavy frost. Fall and overwintered harvests are becoming standard practice. For summer harvest, select varieties carefully: bolting, bottom rot and tipburn are problems if a variety can't take the heat! Using shade cloth can keep lettuce tender and sweet longer into summer. Sesquiterpene lactones produced in the latex render lettuce bitter when it bolts.

Saving Seed: Saving lettuce seed is easy! Leave spring-planted lettuce heads to bolt. Flowers will become white tufted seeds. Once dry on stalk, rub seeds off the plant into a paper bag. To ensure true-to-type seed, separate lettuce varieties by 10 feet.

Diseases:

- BOR: Bottom Rot
- DM: Downy Mildew
- LMV: Lettuce Mosaic Virus
- PM: Powdery Mildew
- SC: Sclerotinia
- TB: Tipburn
- X: Xanthomonas

Pest: Aster Leafhopper (vector for Aster Yellows disease)

Cultural controls: control perennial broadleaf weeds near lettuce plantings, plow lettuce fields immediately after harvest.

Pest: Slug

Cultural controls: avoid mulch or nearby grassy areas.

Material: Sluggo

Disease: Bottom Rot

Cultural controls: rotate with grass-family green manures, plant in well-drained soil or on raised beds, more upright varieties escape infection.

Major Diseases: Downy Mildew, Grey Mold, White Mold

Cultural controls: rotation, reduce duration of leaf wetness, plant parallel to prevailing winds, use wide spacing, control weeds, use well-drained fields in spring and fall.

Plato II Lettuce Romaine Lettuce - Organic

Lettuce

- All lettuce is open-pollinated.
- 700–1100 seeds/1g pkt.
- 1 gram packet sows 25 ft; 2 grams, 50 ft; 1 oz, 500–700 ft.
- Days to maturity are from emergence after direct sowing; for transplants, subtract 20 days.

Culture: Direct seed outdoors as soon as ground can be worked and repeat every 2 weeks for continuous supply. Or start indoors in March and at regular intervals thereafter for early transplanted successions. Optimal germination temperature range 40–70° though many varieties won't germinate in soil temps above 75° and most shut down above 80°. Thin sowings frequently and ruthlessly to a final distance of 1' for full heads. Heavy nitrogen feeders. Hardy. All save icebergs tolerate heavy frost. Fall and overwintered harvests are becoming standard practice. For summer harvest, select varieties carefully: bolting, bottom rot and tipburn are problems if a variety can't take the heat! Using shade cloth can keep lettuce tender and sweet longer into summer. Sesquiterpene lactones produced in the latex render lettuce bitter when it bolts.

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Disease: Bottom Rot

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Major Diseases: Downy Mildew, Grey Mold, White Mold

Cultural controls: rotation, reduce duration of leaf wetness, plant parallel to prevailing winds, use wide spacing, control weeds, use well-drained fields in spring and fall.

Talon Yellow Storage Onion - Organic

Onions

- Days to maturity are from date of transplanting.
- About 200-250 seeds/g, 5,700-7,000 seeds/oz.

Culture: Set seedlings out 1-2" deep and 6-8" apart in shallow trenches, 1-2' between rows. Onions survive light frosts. After half the onion tops fall, push over the remainder and harvest within a week. Field-cure in the sun about 10 days until dry, covering with a tarp in wet weather. In the event of extreme heat or prolonged damp conditions, we recommend sheltered curing in a well-ventilated barn or greenhouse. Curing is essential for long storage. Store cured onions in mesh sacks in a cool dry well-ventilated place, periodically removing sprouting or rotting bulbs. In spring, put your remaining onions in the fridge to extend storage until your new crop is ready.

Onions are triggered to form bulbs in response to day length. Day length differs depending on latitude, so different onion varieties were developed to have different day-length needs. In the north, the earlier onions are set out, the more chance they have to make top growth while the days are lengthening. High fertility and steady water is crucial for large onions. Side dressing is recommended. After summer solstice they begin bulbing.

All the varieties we list are suitable for northern growers. If you live farther south, note our latitude specifications at the end of each description.

Long-day: Must be north of 36° latitude, though some long-day types perform best north of 40°. These onions need 14-16 hours of sun a day to trigger bulb formation. May not perform well in continually hot soil temps.

Intermediate-day: Also called day-neutral onions, generally need 12-15 hours of daylight to bulb. Some can do well in parts of the upper southern U.S. all the way up through Maine. Others are best for mid-latitudes only (35-40°). All intermediate-day onions in our catalog have performed well repeatedly in our Maine trials.

(Short-day: Suited for the South, below latitude 36°, bulbing when the day length measures between 10-12 hours. We don't offer seed for short-day varieties.)

Onion seed is short-lived. Retest 1-year-old seed before using. Discard anything older.

Green Arrow Organic Shell Pea

Pisum sativum

(65 days) Open-pollinated. The pea preferred by commercial growers, always on target for heavy yields. Sets the standard for midseason varieties. Long pods with up to 10 peas per pod (more typically 7–8) on vines up to 3'. Seems to withstand miserable and extreme weather better than other varieties. Easy-to-pick because pods tend to set in pairs at the top.

Peas

- **2 oz packet sows 25 ft; 1 lb, 200 ft. Avg 160 seeds/2 oz pkt.**
- **All peas are open-pollinated.**
- **Days to maturity are from direct seeding.**

Culture: Sow as early as ground can be worked for best yields. **Minimum soil temperature for pea seed germination: 40°. Optimal range 50–75°.** Peas are legumes with moderate fertility requirements. Avoid excess nitrogen: they can fix their own. Use a legume inoculant at planting. They prefer cool, moist weather and dislike dry heat.

All peas produce more when staked; varieties over 2½' must be supported. Use either Trellis Netting or chicken wire. Install support at planting time to avoid disturbing seedlings. Plant 8–10 seeds/ft on each side of supports in double rows. Set supports for rows 3' apart (5' if very tall varieties).

Young plants are very hardy but frost stops production at the blossom or pod stage. If you love peas as much as we do, try for a second crop in the fall. Timing is crucial, as peas ripen slowly in the cool of September, and frost will halt production. We recommend planting the first two weeks of July for a fall crop in central Maine. Warmer areas try later July. If the summer is hot, cool the soil with a hay mulch in advance of planting, or shade peas with tall crops to hold in soil moisture.

Peas are 25% sucrose by weight and lose nearly half their sugars within 6 hours at room temperature. That's why they taste best grazed right off the vine. Keep cool and shell as soon as possible after picking for freezing.

Not well adapted to southern climates where the spring heats up too quickly. Pam Dawling in Virginia has great success with Sugar Ann but cannot grow the tall longer-season Sugarsnap in her climate. Smooth-seeded peas germinate better in colder soils than wrinkle-seeded peas, but are not as sweet. Dawling suggests that forsythia flowering signals time to sow snap and snow peas.

Saving Seed: Saving pea seed is easy! Leave pods of spring-planted peas on the vine to dry. Hand shell, or stomp pods on a tarp. To ensure true-to-type seed, separate pea varieties by 30 feet.

Green Arrow Organic Shell Pea

Diseases:

- CTV: Curly Top Virus
- PM: Powdery Mildew
- DM: Downy Mildew
- PPR: Pythium Root rot
- F: Fusarium
- PSV: Pea Streak Virus
- PEMV: Pea Enation Mosaic Virus
- W: Common Wilt race 1

Powdery mildew looks like someone sprinkled talcum powder over the vines. It spreads rapidly when picking occurs in hot dry weather. Pick in early morning while the dew is still on the foliage to slow its spread and ensure best flavor. Fusarium causes vines to dry out, yellow, then brown and die. As a preventive, always sow peas on well-drained soil. Fusarium-infested soils are said to be pea sick. Do not save seed from plants afflicted with fusarium, which can be seed-borne. Rotate out of legumes for at least 4 years. Brassicas, especially mustards, are good disease-suppressant successions.

Off-types in peas continue to be a problem across the industry. Over the past several years we have eliminated some old favorites that got beyond the bounds of what is acceptable and added several more reliable varieties. We'll keep working at it!

SS141 Snap Pea

- Plant peas during the mild weather of early spring, once soil temperatures reach 45° F.
- Space young pea plants 5 inches apart in an area with an abundance of sunshine and fertile, well-drained soil.
- Improve your native soil by mixing in several inches of aged compost or other rich organic matter.
- Before planting, stake a tomato cage or trellis in the ground to make harvesting pods easier.
- Lay down a 2-inch layer of straw or dried grass clippings to help retain soil moisture and prevent weeds.
- Ensure your pea plants grow to be strong and vigorous by feeding them regularly with a continuous-release plant food.
- For snap-style peas, harvest when pods begin to flatten.

Peas thrive in cool, damp weather, making them an ideal candidate for early spring planting. In mild climates, you can also plant for a fall harvest, but spring plantings generally yield more. Get peas in the ground as soon as possible in early spring, once the soil temperature reaches at least 45 degrees. Space plants 5 inches apart.

Young pea plants can take a light frost, so tuck plants into the garden before the last average frost date for your region. However, be prepared to protect flowering plants from a late frost; it will hurt flowers and sometimes causes tiny developing pods to be deformed.

Green peas don't need a trellis, but pods will be easier to pick when vines are held upright. If you're using a trellis, insert it prior to planting. Use netting, stakes, and string, a wood frame trellis covered with chicken wire, metal fencing, or a collection of twiggy branches stuck into the ground among the plants. Peas attach by tendrils, tiny stems that curl and encircle supports. Tendrils quickly wrap around slender supports to hoist vines skyward.

Withhold water slightly during the early growing phase to encourage deeper rooting (peas tend to be shallowly rooted). Watering is critical from the appearance of the first flower until harvest. Peas need consistent moisture to develop full, flavorful pods.

Sugar Ann Snap Pea

Pisum sativum

CULTURE: Peas are a cool-weather crop. Midsummer pickings are not as prolific as earlier harvests. For best yields ensure adequate fertility and a pH of 6.5–6.8. Adjust pH with ground limestone or wood ashes, ideally in the fall prior to spring planting. Inoculate peas to encourage formation of nitrogen-producing nodules on the plant roots. This enriches the soil, results in larger plants, and increases yield.

DAYS TO MATURITY: From direct seeding.

DIRECT SEEDING: In early spring as soon as the soil can be worked, sow 1 1/2–2" apart in rows 18–36" apart, 1/2–1" deep. Do not thin. Varieties under 3' tall can be sown without support in rows 12–18" apart. For taller varieties, use crop supports such as a trellis net or chicken wire to keep vines upright, easy to pick and off the ground where they are less likely to rot if rainy weather coincides with harvest. Suspend the bottom of the trellis or chicken wire just above the young plants. The best time to install a trellis is at planting time. Normal row spacing is 4–6' for trellised peas. Harvest when peas enlarge in the pods.

FALL CROP: Variety selection is key: Choose powdery mildew-resistant varieties and early maturing varieties that will still flower in diminishing daylight. Sow about 2 months before frost. Keep seeds well-watered to encourage good germination.

AVG. DIRECT SEEDING RATE: 1 lb. per 80', 13 lb./1,000', 272 lb./acre at 25 seeds/ft., in rows 24" apart.

DISEASE: A common disease is pea root rot (*Fusarium* sp. or *Aphanomyces euteiches*) which causes yellowing and die-back of foliage from the ground up. The best control is to ensure well-drained soil and to rotate crops out of legumes for at least three years. Powdery mildew causes white, powdery mold on the leaves, stems, and pods in hot weather. Choose resistant varieties.

Banana Elongated Sweet Pepper - Organic

Elongated Picklers, Fryers & Roasters

About 110–210 seeds/g.

Peppers

Days to full-color maturity are from transplanting date.

Capsicum comes from the Greek kapto which means 'bite.'

Culture: Start indoors in March or April. Minimum germination soil temperature 60°, optimal range 68–95°. Set out in June. Very tender, will not tolerate frost, dislike wind, will not set fruit in cold or extremely hot temperatures or in drought conditions. Black plastic highly recommended. Row cover improves fruit set in windy spots. Pick first green peppers when they reach full size to increase total yield significantly. Green peppers, though edible, are not ripe. Peppers ripen to red, yellow, orange, etc.

Saving Seed: Saving pepper seed is easy! Remove core of the fully ripe pepper (usually red or orange) and dry on a coffee filter. When dry, rake seeds off the core with a butter knife. To ensure true-to-type seed, grow open-pollinated varieties and separate by 30 feet. Use only the first fruits for seed; allow only 3–4 fruits per plant to grow and remove all others. Fewer fruits = larger seeds = greater seed viability. Later fruits often have germination rates of only 60%.

Diseases:

- BLS: Bacterial Leaf Spot
- CMV: Cucumber Mosaic Virus
- TMV: Tobacco Mosaic Virus

Early Jalapeño Hot Pepper

Hot Peppers

About 110–200/g

Peppers

Days to full-color maturity are from transplanting date.

Capsicum comes from the Greek kapto which means 'bite.'

Culture: Start indoors in March or April. Minimum germination soil temperature 60°, optimal range 68–95°. Set out in June. Very tender, will not tolerate frost, dislike wind, will not set fruit in cold or extremely hot temperatures or in drought conditions. Black plastic highly recommended. Row cover improves fruit set in windy spots. Pick first green peppers when they reach full size to increase total yield significantly. Green peppers, though edible, are not ripe. Peppers ripen to red, yellow, orange, etc.

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Diseases:

- BLS: Bacterial Leaf Spot
- CMV: Cucumber Mosaic Virus
- TMV: Tobacco Mosaic Virus

Gilboa Sweet Bell Pepper - Organic

Sweet Bell Peppers

About 110–175 seeds/g.

Peppers

Days to full-color maturity are from transplanting date.

Capsicum comes from the Greek kapto which means 'bite.'

Culture: Start indoors in March or April. Minimum germination soil temperature 60°, optimal range 68–95°. Set out in June. Very tender, will not tolerate frost, dislike wind, will not set fruit in cold or extremely hot temperatures or in drought conditions. Black plastic highly recommended. Row cover improves fruit set in windy spots. Pick first green peppers when they reach full size to increase total yield significantly. Green peppers, though edible, are not ripe. Peppers ripen to red, yellow, orange, etc.

Saving Seed: Saving pepper seed is easy! Remove core of the fully ripe pepper (usually red or orange) and dry on a coffee filter. When dry, rake seeds off the core with a butter knife. To ensure true-to-type seed, grow open-pollinated varieties and separate by 30 feet. Use only the first fruits for seed; allow only 3–4 fruits per plant to grow and remove all others. Fewer fruits = larger seeds = greater seed viability. Later fruits often have germination rates of only 60%.

Diseases:

- BLS: Bacterial Leaf Spot
- CMV: Cucumber Mosaic Virus
- TMV: Tobacco Mosaic Virus

Winter Luxury Culinary Pumpkin - Organic

Pumpkins

- 100–280 seeds/oz. ⅓ oz packet sows 3–8 hills.
- Days to maturity are from direct seeding.

Botanically, there are no such things as pumpkins. But we know one when we see one. “Pumpkins” listed here are three species; *Cucurbita pepo* (mini pumpkins, small pie and some jack-o’-lanterns), *C. moschata* (cheeses) and *C. maxima* (jack-o’-lanterns, decorative and culinary).

Culture: May be direct-seeded or transplanted. Direct seeding: Sow 4–5 seeds per hill when weather has warmed after danger of frost. Allow 4–6’ between hills. Thin to 3 best plants. Use row covers and low tunnels to hasten maturity and reduce insect damage. Transplanting: Start indoors three weeks before setting out. Do not disturb the roots. Transplant bush varieties 18” apart, vining varieties 30” apart. Tender, not frost hardy. Heavy nitrogen feeders. Excessive heat and/or drought can prevent blossom set, reduce yields. Pumpkins can take one or two light frosts on the vine. To improve flavor and storage, field cure for at least 10 days after harvest, covering if hard frost threatens. Store under proper conditions, at least 50° and 60–70% relative humidity in a place with good air circulation. Do not pile up pumpkins. Inspect periodically and be sure to use damaged, stemless or small fruit first. Minimum germination temperature 60°, optimal temperature range 70–90°.

Saving Seed: Saving pumpkin seed is challenging! We list three species of the genus *Cucurbita*: *C. pepo*, *C. maxima* and *C. moschata*. Varieties of the same species will cross readily, but crossing will not occur between the different species. You must isolate varieties of the same species by half a mile if you want true-to-type seed. This is difficult for most gardeners—you may have to communicate and collaborate with neighboring gardeners, or exclude insects from blossoms and hand-pollinate. If you can pull off the variety isolation, processing the seeds is easy: rinse seeds from the guts of fully ripe and cured pumpkin. Dry and store.

Winter Luxury Culinary Pumpkin - Organic

Diseases: BR: Black Rot, PM: Powdery Mildew

Pest: Striped Cucumber Beetle

Cultural controls: use tolerant or resistant varieties, rotate crops, till under crop debris soon after harvest, use floating row covers until flowers appear, use plastic mulch, perimeter trap cropping (Black Zucchini and Blue Hubbard make particularly good trap crops), use yellow sticky strips, hand-pick early morning when beetles are very sluggish.

Materials: Surround, Pyrethrum (PyGanic).

Pest: Squash Bug

Cultural controls: rotation, till in cucurbit debris before winter and plant a cover crop, boards on soil surface near squash will attract bugs overnight which can be killed, avoid mulching. Squash bugs lay their brown-brick red egg clusters on the underside of the foliage, often next to the central vein—destroy egg clusters on undersides of leaves.

Materials: Pyrethrum on young nymphs, AzaMax.

Pest: Squash Vine Borer

Cultural controls: butternut squash is resistant, maximas & pepos susceptible; rotation, plow in squash vine debris soon after harvest, use floating row covers, watch for wilting plant parts and destroy borer within.

Disease: Powdery Mildew

Controls: Use small plots to slow spread, plant indeterminate (viney) varieties, control weed competition.

Materials: sulfur and whole milk, mineral or other oils in combination with potassium bicarbonate.

Disease: Bacterial Wilt

Cultural control: Striped Cucumber Beetle is vector—control it; choose resistant varieties.

Tundra Spinach - Organic

Spinach

- 1,500–2,800 seeds/oz. ¼ oz packet sows 30–50 ft; 1 oz plants 120–200 ft.
- Days to maturity are from date of direct seeding.

Culture: Very hardy, spinach prefers cool temperatures. Planted as soon as the ground can be worked in spring to avoid early bolting. Minimum germination temperature 35°, optimal range 45–65°. Spinach seed will not germinate in soil temperatures above 85°. For fall crop try late July–Aug. sowing; to overwinter, sow late Aug.–Sept. Heavy nitrogen requirements, but avoid applying high-nitrogen fertilizers shortly before harvest to prevent high nitrate levels in the leaves.

Pick large leaves often for heavier production. Smooth-leaved spinach is easier to wash than the semi-savoyed type and is increasingly preferred. Heat, crowding and long day-length (over 14 hours) trigger premature bolting. To retard bolting, avoid hot-weather planting, use wider spacing and irrigate or use shade cloth.

The use of disease-resistant and hardy varieties, cold frames, row covers and hoophouses has made spinach into a nearly year-round crop. Growers should rely on [Space](#) or [Oceanside](#) for winter production.

See also [New Zealand Spinach](#) and [Caucasian Mountain Spinach](#).

Diseases:

- BM: Blue Mold
- CLS: Cladosporium Leaf Spot
- CMV: Cucumber Mosaic Virus
- DM: Downy Mildew

Gardener's Sweetheart Organic Small-Fruited Tomato

Tomatoes

- **Days to maturity are from date of transplanting**
- **9,000 seeds per oz, 0.1 gram pkt ~30 seeds, 0.2 gram pkt ~60 seeds, 0.5 gram pkt ~150 seeds.**

Culture: Usually started indoors Feb–April. Minimum germination soil temperature 60°, optimal range 75–90°. Transplant after frost danger has passed. Avoid using fresh manure as it causes lush foliage with few ripe fruits. Instead use generous amounts of well-rotted cow or horse manure or compost to boost plant vigor, and crushed eggshells or gypsum at the bottom of each hole for calcium. Heavy phosphorus needs. Responds well to foliar sprays.

- **Determinate (Det.)** bush varieties may be staked, should not be pruned.
- **Indeterminate (Ind.)** climbing varieties are customarily staked and pruned. Tomato experts Carolyn Male and Kokopelli's Dominique Guillet both oppose pruning, arguing more abundant foliage provides more photosynthesis.

Organically and sustainably grown seed was rinsed with a sodium hypochlorite solution to reduce risk of seed-borne disease. This treatment poses no health risks.

Saving Seed: Saving tomato seed is easy! Remove stem-end and crush the fully ripe fruit into a container. Ferment uncovered for a few days until the slurry forms a moldy cap. Rinse in a fine strainer and dry seeds on a coffee filter. To ensure true-to-type seed, grow open-pollinated varieties and separate by 50 feet.

Diseases:

- ASC: Alternaria Stem Canker
- EB: Early Blight
- F: Fusarium
- GLS: Grey Leaf Spot
- LB: Late Blight
- N: Nematodes
- SEPT: Septoria Leaf Spot
- TSWV: Tomato Spotted Wilt Virus
- TMV: Tobacco Mosaic Virus
- V: Verticillium

Gardener's Sweetheart Organic Small-Fruited Tomato

Lycopersicon esculentum

(62 days) Open-pollinated. Indeterminate. These Sweethearts, borne on trusses, each with 6–8 bright red miniature heart-shaped fruits with a nipple on the end, came from a chance cross in master-seed-saver Will Bonsall's greenhouse. We used to think that a tough-skinned tomato couldn't harbor a deep rich flavor inside. Because they will keep seemingly forever on the vine, the trick is to wait to harvest until they are deep red—they'll keep getting sweeter and reach full flavor. Only then are they truly satisfying. This mating of juicy, flavorful but crack-prone Gardener's Delight with determinate paste tomato Royal Chico (good solids, dry pulpy flesh, tough skin and indifferent flavor) combines most of Delight's richness with some of Chico's toughness. Firm, hard fruits average 15–16g and don't fall apart or crack under any circumstances. Bring them inside, they will likely keep for weeks. Ideal in shish kabob, they probably would make a superb tomato sauce if one has the patience.

Open-pollinated Cherry, Grape & Salad Tomatoes

300–750 seeds/g unless otherwise noted.

Preventing Late Blight

Dry conditions spare us some years, but late blight is here to stay, especially for field-grown crops. Cool temperatures, moist conditions, still air and lack of sunshine favor sporulation; spores can occur and advance in any condition of high humidity. LB might spread quickly... or not; wind-borne spores can travel hundreds of miles on storm fronts, but also can be baked into submission by the hot sun. Once LB lesions develop on your plants take immediate action to halt the disease in hopes of salvaging a crop. Our recommendations:

- Where possible, use resistant varieties.
- Try to find tolerant cultivars—use anecdotal evidence and experiment.
- Grow your own tomato plants or buy locally grown seedlings. Avoid big-box seedlings. Know your farmer!
- Do not use saved potatoes as seed stock. Purchase only new certified disease-free seed potatoes. Click here for more potato-related late blight info.
- Plant in areas with full sun and few wind blocks. Avoid shade and moist environments. Facilitate air movement. Maintain high soil fertility.
- If you choose to spray, have a plan and materials on hand, so you can make quick and timely application(s) when conditions indicate. Order supplies from Organic Growers Supply
- Most market growers and many home gardeners now grow at least a portion of their tomatoes in high tunnels, which greatly reduces vulnerability though still requires vigilance.

Information Sources

- See vegetablemndonline.ppath.cornell.edu/ for excellent photos and info.
- University of Maine Cooperative Extension: Potato IPM bi-weekly tells where LB infections have been confirmed in Maine or the eastern United States, umaine.edu/potatoes, 1-888-USE-UMCE.
- Or use the forecast model uspest.org/risk/tom_pot_map to assess potential for spore germination and lesion formation in your area.

Pink Brandywine Organic Slicing Tomato

Lycopersicon esculentum

(82 days) Open-pollinated. Indeterminate with potato-leaf foliage. Pink Brandywine is the heirloom that launched a movement, leading many gardeners to be flavor-positive preservation-aware seed-savers. As Brandywine's popularity exploded, so did its production as commercial bulk seed. But like all heirlooms, our favorite old-fashioned OPs with their hand-selected hand-me-down genetics need special care. Fedco Seeds has partnered with Daniel and Corinne at Blackbird Rise of Palermo, Maine, to keep building the Brandywine legacy. Through multiple summers, they've grown hundreds of plants from our classic Sudduth/Quisenberry strain, selecting for that perfect Brandywine color, flavor, bountiful size and shape that says "homegrown comfort." The result is this extra-select strain of large oblate pink meaty beefsteaks, trending away from small-fruited, less-vigorous and late-ripening traits. Of course, that precious balanced deep flavor with perfect hints of tart still rings true! Oblate meaty beefsteak fruits average right around a pound, ripening unevenly throughout the season, often preferring cool early fall to peak heat of August.

Open-pollinated Slicers

250–650 seeds/g unless otherwise noted.

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Pink Brandywine Organic Slicing Tomato

Tomatoes

- **Days to maturity are from date of transplanting**
- **9,000 seeds per oz, 0.1 gram pkt ~30 seeds, 0.2 gram pkt ~60 seeds, 0.5 gram pkt ~150 seeds.**

Culture: Usually started indoors Feb–April. **Minimum germination soil temperature 60°, optimal range 75–90°.** Transplant after frost danger has passed. Avoid using fresh manure as it causes lush foliage with few ripe fruits. Instead use generous amounts of well-rotted cow or horse manure or compost to boost plant vigor, and crushed eggshells or gypsum at the bottom of each hole for calcium. Heavy phosphorus needs. Responds well to foliar sprays.

- **Determinate (Det.)** bush varieties may be staked, should not be pruned.
- **Indeterminate (Ind.)** climbing varieties are customarily staked and pruned. Tomato experts Carolyn Male and Kokopelli's Dominique Guillet both oppose pruning, arguing more abundant foliage provides more photosynthesis.

Organically and sustainably grown seed was rinsed with a sodium hypochlorite solution to reduce risk of seed-borne disease. This treatment poses no health risks.

Saving Seed: Saving tomato seed is easy! Remove stem-end and crush the fully ripe fruit into a container. Ferment uncovered for a few days until the slurry forms a moldy cap. Rinse in a fine strainer and dry seeds on a coffee filter. To ensure true-to-type seed, grow open-pollinated varieties and separate by 50 feet.

Diseases:

- ASC: Alternaria Stem Canker
- EB: Early Blight
- F: Fusarium
- GLS: Grey Leaf Spot
- LB: Late Blight
- N: Nematodes
- SEPT: Septoria Leaf Spot
- TSWV: Tomato Spotted Wilt Virus
- TMV: Tobacco Mosaic Virus
- V: Verticillium

Tiffen Mennonite Slicing Tomato - Organic

Tomatoes

- Days to maturity are from date of transplanting
- 9,000 seeds per oz, 0.1 gram pkt ~30 seeds, 0.2 gram pkt ~60 seeds, 0.5 gram pkt ~150 seeds.

Culture: Usually started indoors Feb–April. Minimum germination soil temperature 60°, optimal range 75–90°. Transplant after frost danger has passed. Avoid using fresh manure as it causes lush foliage with few ripe fruits. Instead use generous amounts of well-rotted cow or horse manure or compost to boost plant vigor, and crushed eggshells or gypsum at the bottom of each hole for calcium. Heavy phosphorus needs. Responds well to foliar sprays.

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Sugar Baby Red & Pink Flesh Watermelon - Organic

Watermelons

1 gram packet about 20 seeds, sows 7 hills; 1/16 oz packet contains about 40 seeds, sows 14 hills. 1 oz contains about 670 seeds.

Culture: Harvesting watermelon at proper ripeness is an art. Thumping should produce a low, hollow sound. Spread thumb and forefinger and press hard on fruit. If you feel any give, watermelon is ripe. Don't heed the traditional advice to wait for the closest tendril to brown—that may be too late. Minimum germination temperature 60°, optimal range 75–95°.

Diseases: ANTH: Anthracnose, F: Fusarium

Modena Organic Zucchini

Cucurbita pepo

(45 days) F-1 hybrid. Glossy dark green Modena was another star of our 2019 trial of more than 20 modern zukes versus standard Raven. Slightly earlier than Raven, it quickly puts the sleek zuke-production pedal to the metal like a Ferrari Modena 360. The very open upright plant habit ensures easy unscratched harvest and no squash dragging in the dirt. Mild nutty flavor and fine-grained texture add to Modena's refinement. Resistant to PRSV, CMV, ZYMV.

Zucchini

130–240 seeds/oz. 1/8 oz packet sows 4–6 hills; 1 oz, 40 hills. The term zucchini, which means 'little squash' in Italian, was not in common parlance until the late '30s. Squash expert Amy Goldman, author of *The Compleat Squash*, traces the first true zucchini to 1901 in Milan, but vegetable marrows and cocozelles, now called zucchini, are considerably older.

Cucurbita pepo

One of the oldest domesticated species. Pepo derives from the Greek pepon, meaning 'ripened by the sun.' They have hard 5-sided ribbed stems, and fruits are usually ribbed. They also include summer squashes and small gourds, as well as some pumpkins.

Summer Squash

- About 200–320 seeds/oz for yellow, patty pan and Lebanese summer squashes; 1/2 oz packet sows 5–8 hills; 1 oz, 40–60 hills. About 130–240 seeds/ oz for zucchini.
- Days to maturity are from direct seeding; subtract 20 days for transplants.

Culture: Tender, will not survive frost. Minimum germination temperature 60°, optimal temperature range 70–90°. Sow in hills 4' apart, 5 seeds/hill. Thin to 2–3 best plants. Or start indoors, 25 days before transplanting. Immediately install wire hoops and row cover to keep out cucumber beetles. Floating row covers, especially when used in low tunnels, provide extra heat and can hasten maturity by 1 to 2 weeks. Make succession plantings to ensure harvest through the entire frost-free season, insurance against powdery mildew and other diseases of tiring old plants. For best flavor pick summer squash when they are small. Don't leave oversized squash on the vines. It shuts down production.

Squash blossoms are a delicacy. Harvest male blossoms when fully open for salads or stuffing. Male blossoms typically precede females by about a week. Females have a bulge at the base of the blossom, an early stage of the fruit forming.

In early summer, a combination of cool, cloudy weather and declining bee populations may result in poor pollination causing low yields. Mites and colony collapse disorder have wiped out a high percentage of wild and domesticated honeybee colonies in the last 20 years, creating a real crisis for cucurbit growers.

Modena Organic Zucchini

Pests & Diseases: To combat squash bugs without using pyrethrum or neem: Protect young plants with row covers. Striped cucumber beetles and squash bugs overwinter in squash residues so burn or haul these away at season's end rather than cold composting them. By hand-picking them in June and July, I reduced an endemic problem and almost completely eliminated squash bug damage.

- CMV: Cucumber Mosaic Virus
- PM: Powdery Mildew
- PRSV: Papaya Ringspot Virus
- WMV: Watermelon Mosaic Virus
- ZYMV: Zucchini Yellows Mosaic Virus

Pest: Striped Cucumber Beetle

Cultural controls: use tolerant or resistant varieties, rotate crops, till under crop debris soon after harvest, use floating row covers until flowers appear, use plastic mulch, perimeter trap cropping (Black Zucchini and Blue Hubbard make particularly good trap crops), use yellow sticky strips, hand-pick early morning when beetles are very sluggish.

- Materials: Surround, Pyrethrum (PyGanic).

Pest: Squash Bug

Cultural controls: rotation, till in cucurbit debris before winter and plant a cover crop, boards on soil surface near squash will attract bugs overnight which can be killed, avoid mulching. Squash bugs lay their brown-brick red egg clusters on the underside of the foliage, often next to the central vein—destroy egg clusters on undersides of leaves.

- Materials: Pyrethrum on young nymphs, AzaMax.

Pest: Squash Vine Borer

Cultural controls: butternut squash is resistant, maximas & pepos susceptible; rotation, plow in squash vine debris soon after harvest, use floating row covers, watch for wilting plant parts and destroy borer within.

Disease: Powdery Mildew

Controls: Use small plots to slow spread, plant indeterminate (viney) varieties, control weed competition.

- Materials: sulfur and whole milk, mineral or other oils in combination with potassium bicarbonate.

Disease: Bacterial Wilt

Cultural control: Striped Cucumber Beetle is vector—control it; choose resistant varieties.

Genovese Organic Basil

Ocimum basilicum

(70 days) Open-pollinated. The choice of many connoisseurs for making pesto. Also called Perfumed Basil. Leaves are slightly smaller and finer than Sweet Basil with more aroma and potency.

Basil

~600 seeds/g. Indispensable culinary herb, in cultivation for more than 3,000 years. By far our most popular herb.

Culture: Direct seed when soil warms in late spring or transplant after danger of frost in well-drained moderately rich soil. Young seedlings will damp off if heavily watered during cool cloudy weather. Water sparingly at first. Use row covers to enhance early season vigor and speed maturity. Thin to 8–12", top mature plants to induce branching and increase total yield. Harvest before plants blossom. Annual, absolutely intolerant of frost, damaged by temperatures in the mid-30s.

Diseases: Where so indicated our varieties have been sampled and found to be fusarium-free. While not a guarantee that the entire lot is fusarium-free, a negative test improves the odds. No samples were taken for varieties not so indicated.

Herbs

About medicinal herbs: Archeological evidence dates the medicinal use of herbs back 60,000 years to the Neanderthals. 85% of the world's population employ herbs as medicines, and 40% of pharmaceuticals in the U.S. contain plant-derived materials. Fewer than 10% of higher plant species have been investigated for their medicinal components. Interest in traditional herbal remedies continues to grow.

Statements about medicinal use of plants have not been evaluated by the FDA, and should not be used for the diagnosis, treatment, cure or prevention of any ailment. Before using or ingesting any medicinal plant, consult a healthcare practitioner familiar with botanical medicine.

Takinagawa Burdock and Resina Calendula, as well as oats, mammoth red clover and alfalfa in the Farm Seed section, also have medicinal uses. Medicinal herbs such as black cohosh, licorice, and many more are available as plants, and shipped in the spring with orders from our Trees division.

Culture: Some herbs are customarily grown from divisions because they cannot come true from seed, such as scented thymes and flavored mints. Some require fall sowing of fresh seed, such as sweet cicely and angelica.

Using herbs: Drying herbs at home is not difficult. Whole leaves retain their flavor at least a year. To substitute fresh herbs for dried in cooking, use triple the dried quantity called for in a recipe.

Sweet Basil - Organic

Basil

~600 seeds/g. Indispensable culinary herb, in cultivation for more than 3,000 years. By far our most popular herb.

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Leisure Organic Cilantro

Coriandrum sativum

(55 days) Open-pollinated. Kick back! Leisure's excellent bolt resistance allows harvest at your leisure.

Cilantro

About 60 seeds/g.

Used for its fresh green foliage, its edible flowers that attract beneficial insects, and its dried seeds—coriander. Essential flavoring in Indian, Chinese, Southeast Asian, Persian, North African and Latin American cooking. Accentuates soups, salsas and bean dishes like no other herb.

Culture: Annual grows to 2' with whitish blooms. Make succession plantings in average well-drained soil and keep watered for lushest leaf production. Thin early. In warm locations will stand longest as a fall crop. Self-sows.

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Zaatar Oregano Organic

Origanum syriacum

An oregano that carries a bit of zing, and is a necessary ingredient in the condiment za'atar. Mix with sumac, toasted sesame seeds, salt and sometimes a few other herbs to make the sprightly topping so essential to Middle Eastern cuisine. Bushy tender perennial, hardy to Zone 10, grown as an annual in colder climates. For most aromatic flavor, harvest before its small white flowers appear. Start seeds indoors or sow directly in the ground just prior to the last spring frost. ~4,650 seeds/g.

Oregano

The oregano genus has more than 50 species. The ancient Greeks gave it its name, meaning 'joy of the mountains.' These fragrant plants grow on steep rocky alkaline hills, filling Mediterranean mountainsides with their joyful cheer and intense scent. Not only has oregano flavored foods for thousands of years, but it also has medicinal uses, from relieving rheumatism and asthma to decongesting stuffy head colds.

Culture: Start indoors in spring for best results. Likes sun and light well-drained alkaline soil. Will lose potency if soil is overfed. Harvest when it is beginning to flower.

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Gigante D'Italia Parsley

SOWING

Indoor Mar-Apr

Outdoor Apr-May, Aug-Sept

TIMING

Germination 25-30 days

Harvesting 70-90 days

SPACING

When sowing 1-3 cm; Depth 0,5 cm

When thinning 10-20 cm

GROWING

Sunlight Full sun to partial shade

Soil Well-drained, moist and loamy soil

Watering Regular watering, allow to dry out

Feeding Heavy feeder

CARING

Expert tip Parsley seeds do not germinate easily. Soak parsley seeds in warm water for one day prior to planting them and maintain the soil temperature at minimum 20 °C for best results. Don't give up just because they are slow to germinate!

SUPPORTING

Pollinators

Attracts bees and butterflies.

Pests

Repels asparagus beetles.