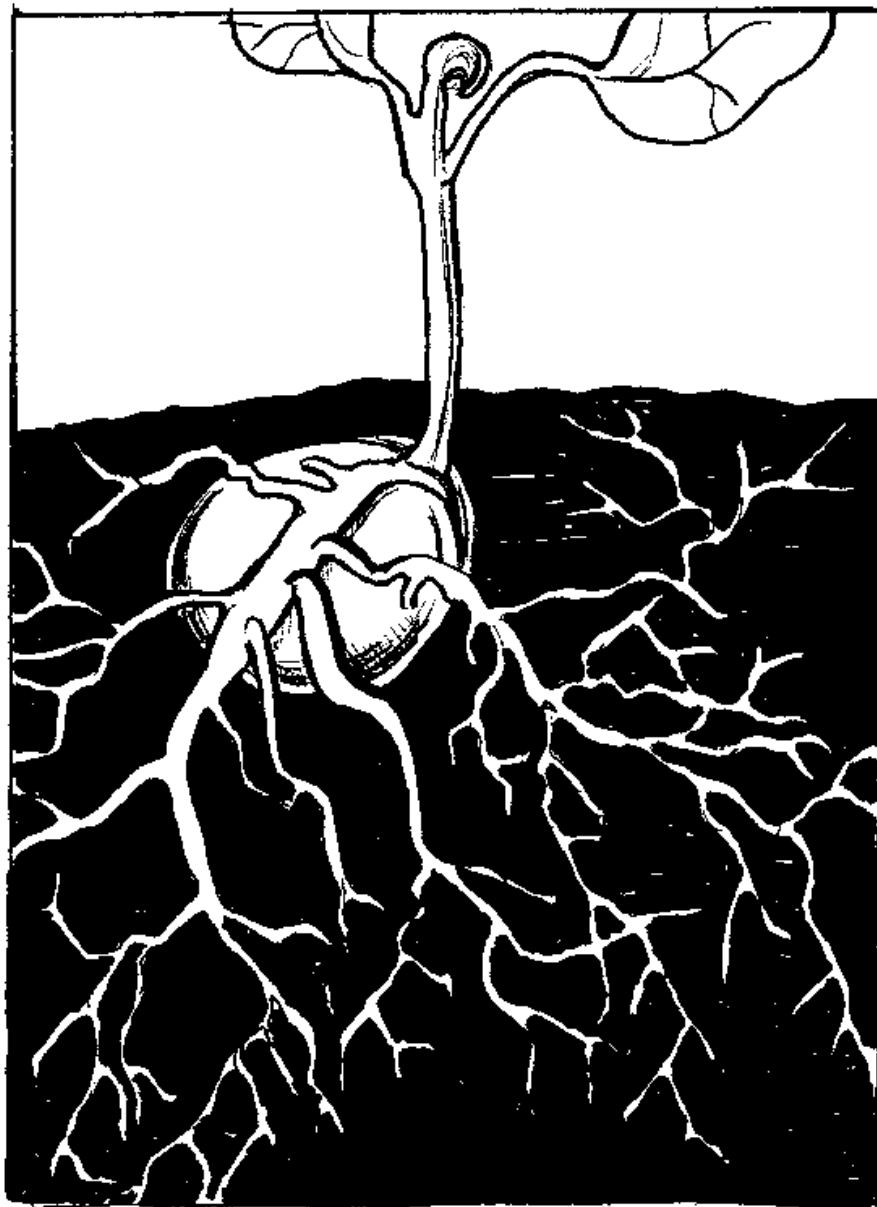




Plant Resource Guide

A Publication of the Regional Environmental Council



Created in collaboration by

Julius Jones

Dominic Pascarelli

Jeffrey Desmarais

Amber Huffstickler

Erin Callison

Hello Gardeners of Worcester!

The Regional Environmental Council has been leading collaborative efforts to address environmental and food justice concerns in Worcester for over 40 years. We at the Food Justice program are proud to present a plant resource guide to support you in your growing endeavors.

Food Justice staff, interns, and volunteers have worked diligently to combine the best growing information specific to the area in a reader-friendly format. This guide is fairly straightforward in explaining how to grow many popular plants. We hope that through referencing this booklet, you are able to produce healthy, affordable food in your own garden.

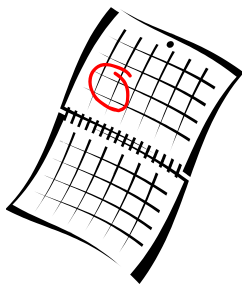
If there is any additional information that you would like to have included in future editions of the guide, please contact us at (508) 799-9139 or via email to UGROW@recworchester.org. Any feedback is greatly appreciated and we look forward to hearing from you.

Check out the REC website often for updates: www.recworchester.org/UGROW. We wish you many prosperous harvests in the years to come. Thank you for all your support!

Happy Growing!

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The season's average last frost date is April 15th

Plants have natural schedules for when to emerge from the soil, grow into a mature plant, and reproduce; take care not to plant certain varieties before their time! Although you can start seeds indoors at almost any point in the year, the **last frost date** and the type of plant determine when to transplant them into the garden.

As per the National Climate Data Center (part of the NOAA), there is a 90% chance that the average first frost date is October 29th and the average last frost date is April 15th for Worcester. This is considering a freezing temperature of 32 degrees. If considering a freezing temperature of 36 degrees, the first frost date is October 11th, and the last frost date April 24th. These temperatures were calculated using data collected from 1976 to 2000. Some plants can tolerate light frosts and freezes, while others will be severely compromised with such cold weather. For plant specific growing information, refer to Section 2: Plant Reference Guide.

The season's average first frost date is October 29th

Just as all threat of frost ends in late spring, it returns in early fall. Typically, there is a 10% chance of frost before September 29th; that chance increases to 50% by October 14th. Take time in planning your fall garden to account for early frosts and grow frost-hardy plants.

How to calculate when to plant your seeds:

If your end goal is to transplant at the best time for plants to thrive outdoors, work backward from that date to figure out when to start seeds indoors.

$$\text{Transplant Date} - \text{Indoor Growing Period} = \text{Seed Starting Date}$$

For example, kale, cabbage and collards are frost-hardy and can be transplanted outdoors in April. If you want to transplant your seedlings outdoors on April 15th, start your seedlings indoors 4 to 8 weeks (February 15th to March 15th) before.

$$\text{April 15} - 4 \text{ to } 8 \text{ weeks} = \text{February 15 to March 15}$$

On the other hand, tomatoes, eggplant, peppers, and basil are tropical, warm-weather plants that should be transplanted until all danger of frost has passed. If you want to transplant these varieties on June 1st, start seeds indoors 8 to 11 weeks (March 16th to April 6th) before.

$$\text{June 1st} - 8 \text{ to } 11 \text{ weeks} = \text{March 16 to April 6}$$

Some vegetables flourish when direct seeded into your garden. Peas, turnips and spinach are frost-hardy and can be direct seeded in late March and early April. For plant-specific seeding information, refer to Section 2: Plant Reference Guide.

If starting plants indoors, “harden-off” your plants before transplanting.

To help plants adapt to more stressful growing conditions so they flourish in your garden, gradually expose them to the outdoors in increasingly longer amounts of time. By “hardening-off” your seedlings, you give them a greater chance of surviving strong winds, fluxes in humidity and temperature, and ever-changing weather conditions. Make sure to ease your plants into outdoor growing by transplanting in the evening on cloudy days; intense sun can scorch the already distressed plants. Take care not to handle young plants with wet hands, as they are at greatest risk for disease. We have included plant-specific information about transplanting in Section 2: Plant Reference Guide.

An Example for Hardening-Off Cabbage:

<i>Monday</i>	<i>Set outside for 1 hour</i>
<i>Tuesday</i>	<i>Set outside for 2 1/2 hours</i>
<i>Wednesday</i>	<i>Set outside for 4 hours</i>
<i>Thursday</i>	<i>Set outside for 5 1/2 hours</i>
<i>Friday</i>	<i>Set outside for 7 hours</i>
<i>Saturday</i>	<i>Transplant into the ground</i>

How to determine plant spacing:

Many gardening resources refer to planting in “beds” or “rows”. In general, beds can be irregularly shaped, with plants spaced evenly and grid-like with one another. Rows are typically long and rectangular, and may be more efficient for larger-scale gardening and farming because they lend themselves to large-tool use.

No matter how you organize your garden, please note the space that each plant wants and needs to grow effectively. Crowding plants can cause negative effects by compromising its natural growth processes. Limited air flow between plants creates an ideal breeding ground for moisture-loving molds and mildews. Crowded roots force plants to compete for available nutrients and can lead to small harvests. However, planting too far apart wastes valuable growing space. For plant-specific spacing information, refer to Section 2: Plant Reference Guide, and to be safe, feel free to space plants further apart than recommended.

*Stay tuned for **One Year in the Garden: A Month-by-Month Growing Guide**, soon to be available on the UGROW webpage and for sale in the REC office.*

Use compost to enable plant growth.

Compost is a mixture of rich organic matter that has been broken down through biological processes. Many gardeners take advantage of the worms, bacteria and microorganisms found in their backyard to transform yard clipping, fallen leaves, old food scraps and plant debris into high-nutrient growing material. Here are 5 steps you can take to start your backyard composting!

Step 1: Decide which compost bin or pile works best for you.

- ◆ Are you living in confined quarters, with a small backyard? If so, you may want a compact, enclosed bin. An easy homemade bin can be made from a plastic or metal garbage can by poking holes on all sides, top and bottom. The City of Worcester also sells 2 styles of compost bins for \$45.00 each. Contact the Department of Public Works (DPW) Customer Service Center at 76 East Worcester Street or (508) 929-1300 to inquire.
- ◆ Do you have a large backyard and create a moderate amount of yard waste and food scraps? Creating a 3-bin system or several temporary holding bins may be more appropriate for your composting needs. Use chicken wire to form a cylinder into which you can deposit your plant waste. It is more complicated to build a 3-bin system, but if you want to create a lot of compost quickly, it may be worth your time.

Step 2: Start filling your bin with organic matter. It is important to alternate wet and dry layers. Materials that work well are:

- ◆ Fallen leaves
- ◆ Grass clippings (do not compost if grass has been sprayed with chemical fertilizer)
- ◆ Weeds (do not compost invasive weeds or weeds with seeds)
- ◆ Garden waste (uprooted plants, over-ripe vegetables, flower stems)
- ◆ Food waste (avoid composting meat, fish, dairy and oily or fatty food scraps)

Step 3: Add water and mix. Make sure to coat all surfaces with water to aid the decomposition process. If you're using a 30+ gallon bin, add 3-5 gallons of water and mix—the more evenly the surfaces are coated with water, the more evenly it will break down, and you won't have large clumps of unfinished compost. In order to get the oxygen decomposers need to break down organic waste, gardeners must aerate their bins.

- ◆ Occasionally check compost bin to make sure it hasn't dried out; water as needed.
- ◆ Every month or so, 'fluff' your compost with a pitchfork or stick the same way you would fluff rice or couscous.

Step 4: Patience. After several months of proper moisture and aeration, your compost will be finished. Finished compost is often referred to as "black gold" due to its rich deep brown color. It should crumble easily and look nothing like what you started with. Test your compost to see if it is finished by putting a handful in a sealed plastic bag for several days: if it smells, it is not done.

Step 5: Use finished compost to serve many gardening purposes: combined with potting soil, it creates a great seed-starting medium; added to garden soil, it becomes a long-lasting fertilizer. Discover some ways that compost is used in Section 2: Plant Reference Guide.

Section 2: Plant Reference Guide

In this section, you will find essential information to know for planning and managing your garden. This is an accumulation of knowledge pulled from several well-respected gardening books and enhanced by tips and tidbits added by our experienced staff of urban growers. By referencing this section, you should have an adequate base of information to plan your garden.

How It's Organized

The Plant Reference Guide runs alphabetically by plant name. Each plant entry indicates its plant family and includes a small picture of the plant at its mature stage. Additionally, you will find the following information on all plants:

- ✧ **Brief description of plant**
- ✧ **Maintenance & troubleshooting tips**
- ✧ **Recommended ways to eat & use**
- ✧ **Planting & transplanting information**
- ✧ **Harvesting guidelines**

Plant Name (Plant Family)

Matures in: # days

Brief overview of plant, with supplemental information about its origins, subcategories, ways it is often consumed, and unique traits.

Planting Information

- ◆ **Germinates in:** # days it takes to sprout from its seed
- ◆ **Planting Depth:** # inches to submerge seed in soil
- ◆ **Spacing in beds:** # inches between plants when planting in beds
- ◆ **Spacing in rows:** # inches between plants when planting in rows
- ◆ **Spacing b/w rows:** # inches to allow between each row of plantings

Maintenance

Information about mulching, adding fertilizer, and promoting healthy growth.

Pests & Diseases

Identifies common problems associated with each plant. See Section 3: Common Pests & Diseases for more information.

Harvesting Guidelines

Describes indicators of fruit/vegetable ripeness and offers instructions on how to get your produce off the plant.

Savor the taste of _____ in:

- ◆ (Offers 3 meal ideas that feature each plant)

**Plant
Picture**

Basil (Mint family)

Matures in: 30 - 50 days

Sweet basil is a bushy annual plant with fragrant foliage that grows about 1 to 2 feet in height. It has glossy opposite leaves and spikes of white flowers. There are many varieties with nuances in taste, size, and appearance; however, some say the flavor of most basil is predominantly clove-like. Basil can be eaten raw, cooked, or dehydrated.

Planting Information

- ♦ **Germinates in:** 3-9 days
- ♦ **Planting depth:** 1/4 inch
- ♦ **Spacing in beds:** 10-12 inches
- ♦ **Spacing in rows:** 8 inches
- ♦ **Spacing b/w rows:** 18 inches

Although basil is a tropical plant and does not tolerate the cold, it transplants reasonably well and may be started indoors 6 weeks before the last frost date. Plant or transplant basil in warm soil (around 60°F) after any danger of frost.

Maintenance

Basil's greatest need is even, low-volume watering. For best results, avoid planting near snap beans or cucumbers. Additionally, avoid touching plants when wet, disinfect tools between cuts, and improve exposure for all parts of plant.

Pests & Diseases (See Section 3: Common Pests & Diseases for more information)

- ♦ Fungus
- ♦ Japanese Beetle
- ♦ Snails & Slugs

Harvesting Guidelines

When the plants seem large enough to spare some leaves, perhaps 6 inches in height, begin picking sparingly from each one. Pick leaves beginning with those from the tops of the branches, cutting off up to several inches at a time. Constant harvesting will encourage continuous growth of the plant. Be sure to handle basil delicately so as not to bruise and blacken the leaves. Do not wash leaves, as this may remove the aromatic oils that make basil smell good.

Savor the taste of basil in:

- ♦ Pesto (blended with pine nuts, parmesan cheese, garlic & oil)
- ♦ Tomato soups or sauces (finely chopped or whole leaf)
- ♦ Berry popsicles (frozen pureed berries & basil leaves)



Bean (Legume Family)

Matures in: 60 - 100 days

*Although bush beans are said to be the most tolerant of soil types, all bean varieties grow prolifically in comparison to other plants. Regardless of type, beans are a useful crop because they add to – rather than deplete – soil nitrogen. Originating in Central America, farmers grow **shell beans** for their protein-rich seeds and **snap beans** for their pods. These two groups are further classified based on their growth habits:*

- Bush beans (self supporting)
- Pole beans (vines require support)
- Runner beans (similar to poles beans but require cooler temperatures)
- Half-runners (fall somewhere between pole and bush beans)

Planting Information

- ♦ **Germinates in:** 7 days (bush beans); 14 days (pole beans)
- ♦ **Planting depth:** 1-2 inches
- ♦ **Spacing in beds:** 8 inches
- ♦ **Spacing in rows:** 4-6 inches
- ♦ **Spacing b/w rows:** 18-36 inches

Plant beans in the garden 2 weeks after the last frost date. Sow seeds in a sunny, well-drained area. To ensure the best germination rate, place the seed with its eye facing down and keep soil moisture even. Beans do not like to be transplanted.

Maintenance

For all beans, mulch to keep down weeds and maintain even soil moisture. When weeding, be careful not to jostle the plants' roots because they are especially sensitive to movement. For pole beans, use the same mechanism you would use to support a pea or tomato plant: trellises, stakes, or fencing.

Harvesting Guidelines

For all types of beans, frequent harvesting encourages the plant to produce more fruit. Similarly, pods left on the plant to ripen will stop the plant from producing. Pick shell beans when they are plump but still tender.

Savor the taste of beans in:

- ♦ Fresh garden salads (cut snap beans or cooked shell beans)
- ♦ Dilly beans (pickled in vinegar, garlic, dill & other spices)
- ♦ Sautéed with onions, garlic and almonds



Beet (Goosefoot Family)

Matures in: 55 - 80 days

In addition to offering high yields, the beet is a root crop that thrives in almost every climate and all but the heaviest of soils. Its origin is in the Mediterranean, where it first occurred as a leafy plant without enlarged roots. Its greens are rich in vitamins A and C and contain higher concentrations of iron and minerals than the leaves of spinach. Its roots are rich in potassium and contain protein, fiber, iron, calcium, phosphorous, niacin, as well as vitamins A and C. Beets may be eaten raw, baked, boiled, steamed, or pickled.

Planting Information

- ♦ **Germinates in:** 3-9 days
- ♦ **Planting depth:** 1/2 inch
- ♦ **Spacing in beds:** 6 inches
- ♦ **Spacing in rows:** 4 inches
- ♦ **Spacing b/w rows:** 1-2 feet

Plant in the garden about one month before the last expected frost date. One caution in early planting is that warm spells may trigger early crops to prematurely go to seed. Beets have a reputation as spotty germinators, but soaking seeds two hours before planting should help to soften the seed coat. The “beet seed” is actually multiple seeds in one pouch. Germination will also improve if adequate seed-to-soil contact is ensured. Beets will grow best in rock and root-free soil.

Maintenance

Early weeding is important in giving the young beets a growing advantage over weeds. Beets prefer full sun and may benefit from fertilization with seaweed products. As beets mature, they may need to be hilled up at times; if the root emerges from the ground, cover it with soil again. The crop may need to be covered with wire fencing, or an adequate substitute, to prevent animal intervention.

Harvesting Guidelines

Up to 1/3 of each plant's leaves may be harvested at one time without harming the plant. Harvest when roots are 1 1/2 to 3 inches in diameter – hand pull to avoid bruising. Twist off the tops, leaving approximately one inch of stem. If storing, layer in boxes and store at 32 degrees.

Savor the taste of beets in:

- ♦ Spring salads (baby beet leaves mixed with other greens)
- ♦ Root Julienne (sliced root vegetables, roasted with spices)
- ♦ Carrot/Beet salad (shredded with balsamic, raisins, & apples)



Brambles—Blackberries & Raspberries (Rose Family)

Brambles, including a wide variety of blackberries and raspberries, symbolize warm summer days. These sweet and tangy fruits are divided into a number of categories: summer-bearing raspberries (black & purple varieties) generally tolerate summer heat well, but are less winter-hardy; fall-bearing raspberries (yellow and red varieties) are the easiest to cultivate, are generally winter-hardy and can handle the late summer heat; blackberry varieties include erect, semi-erect and trailing. Erect berries are winter-hardy and particularly thorny; semi-erect are thornless and more productive, but require a trellis. Trailing blackberries, often called “dewberries”, ripen early but need support and are not winter-hardy.

Planting Information

Most gardeners prefer to plant “barefoot” plants (seedlings) that are recommended for the area and can easily be found at local nurseries. Because brambles have perennial roots and biennial shoots, one plant can produce for 10-25 years. For this reason, it is important to cultivate soil fertility before planting. Conduct soil tests and amend soil to balance nutrient levels and establish a slightly acidic 6.0-7.0 pH level.

- ◆ **Spacing in rows:** 2-4 feet for raspberries; 5-6 feet for blackberries
- ◆ **Spacing b/w rows:** 5 feet for raspberries; 7 feet for blackberries

Space long, narrow rows far enough apart for sun to hit all parts of the plant; this will encourage fruit production on the lower half of each cane. Plant seedlings in the early spring. Keep roots moist until transplant. Dig a large hole to accommodate the plant so roots don't bend, suspend plant in hole and fill in with soil and compost.

Maintenance

Brambles prefer full sun and weed-free growing. Mulch heavily with hay, wood chips, compost or a green manure, like clover. Many growers plant nitrogen-fixing bush beans or clover to replenish soil and reduce weeds.



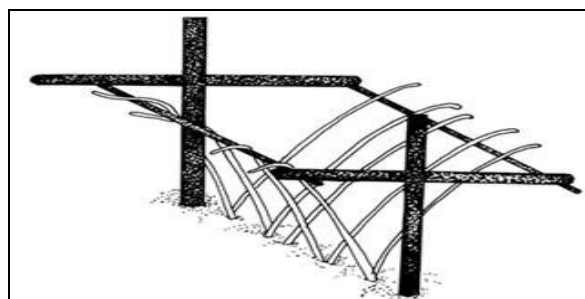
Savor the taste of berries in:

- ◆ Homemade jams & preserves
- ◆ Garden salads (with walnuts, balsamic dressing & feta cheese)
- ◆ Torts, pastries, pies and cakes!

Many bramble varieties need support to stay upright (which will, in turn, increase fruit production by reducing risk of disease and increasing sun exposure). We recommend building a simple trellis (see picture for details) and providing a wind break to help canes stay upright.



The “V” trellis is useful for distinguishing first-year and second-year canes; tie second-year canes to the strings and cut at the end of the season.



The “T” trellis is also easy to make and works well with summer-bearing raspberries. Tie second-year canes to the strings and cut at season’s end.

Prune berry plants in order to keep them at full production (see table below):

Bramble	Variety	Pruning Instructions
Blackberry	Erect, Semi-Erect & Trailing	Prune in early spring, select thickets canes, cutting them back to about 7 feet. Prune side branches to 8-12 inches
Raspberries	Fall-bearing	As early as possible, cut close to ground level, without leaving stubs
	Summer-bearing	Prune early spring before growth & after last harvest. Cut off any weak canes or sprouts. Keep 2-4 large canes, cutting them back to 4-5 feet
	Black & Purple	In summer: cut tip off each cane 2½-4 feet, cutting floricanes back to the ground. Leave 6-9 of largest canes

Pests & Diseases (See Section 3: Common Pests & Diseases for more information)

- ◆ Japanese Beetle: (common in New England), pick fruit immediately when ripened
- ◆ Mold/Mildew: remove weak canes immediately, burn if infected

Harvesting Guidelines

In general, red raspberries ripen first, followed closely by black raspberries and blackberries. Harvest fruit once they it is ripe when they are dry; harvesting after a rainstorm severely diminishes shelf life. Keep refrigerated and consume within days or freeze for several months.

Broccoli (Brassica Family)

Matures in: 40 - 85 days

Broccoli contains high concentrations of A, B and C vitamins, in addition to calcium, and iron. These nutritional benefits, combined with an excellent flavor, generally compel individuals to overlook broccoli's space inefficient nature. While most broccoli varieties will yield one good-sized main head, there are many varieties that also yield a heavy crop of "side shoots." These side shoots will continue to grow and may be harvested until the onset of a deep freeze. In addition to its nutritional benefits and long-lived season, broccoli may be eaten raw or cooked and is a crop that freezes exceptionally well.

Planting Information

- ◆ **Germinates in:** 3-10 days at 50-85°F
- ◆ **Planting depth:** 1/4 inch indoors; 1 inch outdoors
- ◆ **Spacing in beds:** 18-24 inches
- ◆ **Spacing in rows:** 18 inches
- ◆ **Spacing b/w rows:** 2-3 feet

Start broccoli indoors 8 weeks before the last frost date. Transplant outdoors when seedlings are 6 inches tall and have 4-5 true leaves. Harden off broccoli seedlings for one week before transplanting. The crop grows best between 60-65°F; it is primarily a spring and fall crop, and the heat of the summer often diminishes yields. Plant early spring and/or late summer.

Maintenance

Broccoli prefers full sun and cool weather; if your area is hit by an unexpected warm spell, provide partial shade to prevent the crop from prematurely going to seed. In very hot weather, mulch around your broccoli plants to cool the soil. Broccoli grows well with 1-1 1/2" water per week.

Harvesting Guidelines

Broccoli is ready to harvest when the heads are dark green (or dusky violet for purple varieties); yellowing heads are overripe. Harvest the central head first by cutting the stalk to leave several inches of it on the plant. Small, compact heads offer the best flavor. You can often get a second harvest of smaller side shoots.



Savor the taste of broccoli in:

- ◆ Asian stir-fry (sautéed with carrots and snap peas)
- ◆ Pasta alfredo (steamed and added to creamy garlic sauce)
- ◆ Broccoli quiche (baked in a custard pie with cheese & herbs)

Cabbage (Brassica Family)

Matures in: 60 - 110 days

Cabbage is a space-efficient crop that prefers cool weather. With early, mid-season and late-season varieties, it is often considered a year-round crop. Coming in an array of greens, reds and purples, gardeners appreciate cabbage's relatively easy cultivation and high nutritional value, with significant amounts of A, B, B₁ and C vitamins. In the past, farmers grew headed cabbage as storage crops that could be enjoyed fresh from the root cellar in winter. Headed varieties can weigh anywhere between 2 to 50 pounds. Leafed varieties are often eaten fresh from the garden, either raw or cooked.

Planting Information

- ♦ **Germinates in:** 5-10 days
- ♦ **Planting depth:** 1/4 inch
- ♦ **Spacing in beds:** 18 inches
- ♦ **Spacing in rows:** 12 inches
- ♦ **Spacing b/w rows:** 18-36 inches

Start seedlings indoors 4 to 6 weeks before transplanting outside. When seedlings have three or more true leaves and daytime temperatures reach 50°F, transplant outdoors, taking care not to disturb the root ball. Plant seedlings 2-3 inches deeper than they grew indoors or direct seed cabbage 4 weeks before the last frost date.

Maintenance

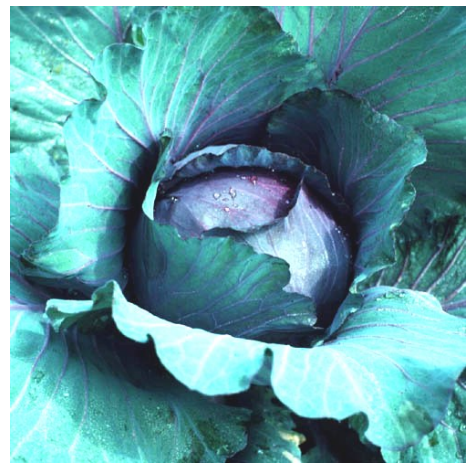
If you direct seed cabbage into your garden, protect young plants by weeding often. Mulch heavily to maintain soil moisture and prevent weed growth. Side-dress with well rotted manure 3 weeks after transplanting outside. Constantly wet leaves increase cabbage's vulnerability to disease, so do not water foliage in humid or cool weather. As the plant matures, water less frequently. If plants are growing quickly, or start to crack, twist the plant a half turn and pull up slightly to slow its growth. If leaves start to yellow, provide a nitrogen boost with manure tea (or precede cabbage with nitrogen-fixing beans or peas).

Harvesting Guidelines

Cabbage heads are ready to harvest when they are firm, glossy and softball-size or larger. Use a sharp knife to remove each head from its stalk and leave the stalk intact for a second crop of smaller heads. Cabbage can be eaten raw, cooked or fermented, or stored for later consumption in a cool, dry root cellar.

Savor the taste of cabbage in:

- ♦ *Coleslaw (sliced, with mayo, vinegar, sugar and spices)*
- ♦ *Stuffed cabbage (also called "Pigs in a Blanket")*
- ♦ *Asian stir-fry (sautéed with bacon and soy sauce on rice)*



Carrots (Parsley Family)

Matures in: 70-80 days

Like cabbage, carrots are a space-efficient crop that prefer cool weather. With early, mid-season and late-season varieties, in four different shapes and many colors, carrots are perfect for every meal. Carrots are also widely-regarded as a nutritious, easy to prepare food, that is high in vitamins B, C, D, E, and K.

Planting Information

- ♦ **Germinates in:** 7-21 days
- ♦ **Planting depth:** 1/4-1/2 inches
- ♦ **Spacing in beds:** 2-3 inches
- ♦ **Spacing in rows:** 6 inches
- ♦ **Spacing b/w rows:** 18-30 inches

Carrots grow best in loose, deep, rock-free soil. We recommend ‘double digging’ to keep soil loose and using loose compost instead of manure (which is too nitrogen-rich). Begin planting three weeks before the last expected frost; run a shallow trench with your finger to create a row for planting and sow seeds 1 inch apart. Lightly water after planting, being sure not to wash the seeds away, and keep seeds moist throughout germination. Planting in close proximity to radishes may improve germination.

Maintenance

Thinning carrots will prevent overcrowding and provide you with a varieties of carrot sizes. When true leaves emerge, thin to 3 inches apart. Use mulch to keep soil cool and reduce weed problems. Prevent “green shoulders” of carrots by keeping them covered with soil.

Harvesting Guidelines

You can harvest carrots once they are mature enough to eat; however, the longer they mature, the tastier they become. Hand-pull carrots, as tools generally bruise them. For winter storage, remove carrot tops and place in sand in boxes topped with straw.



Savor the taste of carrots in:

- ♦ Dipped in Hummus, salad dressings, and other dips
- ♦ Roasted veggie medley (with sweet potatoes and squash)
- ♦ Carrot Cake with cream cheese frosting

Collard Greens (Brassica Family)

Matures in: 75 - 80 days

Although collards are a staple in the Southern United States' cuisine, the plant grows well in the cooler weather of the north, and its flavor improves after a frost. With origins in the eastern Mediterranean region, collards have been cultivated for thousands of years for their nutrient-rich leaves. Collards are a good source of A & C vitamins, as well as calcium and iron.

Planting Information

- ♦ **Germinates in:** 5-12 days
- ♦ **Planting depth:** 1/4 inch
- ♦ **Spacing in beds:** 15 inches
- ♦ **Spacing in rows:** 9-18 inches
- ♦ **Spacing b/w rows:** 3 feet

Collard seeds have a high germination rate, so take care not to over-seed. Sow collard seeds indoors 4 weeks before the last frost date and transplant when the soil temperature reaches 50°F. If direct-seeding outdoors for the fall, plant seeds 8 to 10 weeks before the first frost date.

Maintenance

Collard greens undergo stress with very warm or very cold weather; use black plastic mulch to warm soil before transplanting. Other mulch could help soil retain its moisture in hot, dry spells. In especially hot, sunny weather, cover plants with row cover to provide shade.

Harvesting Guidelines

Collard plants can be harvested young for tender, flavorful leaves, or when fully mature. When the plant reaches 1 foot or more in height, pick outer leaves by grasping its stem and gently pulling sideways from the trunk. Be sure to leave at least 2/3 behind to feed the rest of the plant. Harvest collards often to promote the health and re-growth of the plant.

Savor the taste of collards in:

- ♦ Pizza (finely chopped, sautéed with onions)
- ♦ Pesto (blanched and pureed with garlic, oil and spices)
- ♦ Soup (sliced into strips and cooked in soup)



Corn (Grass Family)

Matures in: 55 - 95 days

Native to the Americas but treasured by European settlers and traders, corn has been cultivated for over 4,000 years. With hundreds of corn varieties on the market, it generally falls under the following categories: popping corn; field corn, which is primarily used for livestock feed and corn meal; multicolored ornamental corn; and sweet corn, which is most often consumed directly from the cob. Corn is generally considered space-inefficient, given the large amount of space it takes per number of ears produced. Sweet corn is most often boiled or steamed but may also be enjoyed raw. For storage, it may be canned or frozen – two processes which unfortunately sacrifice its fresh summer flavor.

Planting Information

- ♦ **Germinates in:** 7-10 days at 50°F or higher
- ♦ **Planting depth:** 1 inch for early crops; 4 inches for mid-summer crops
- ♦ **Spacing in beds:** 12 inches
- ♦ **Spacing in rows:** 8-12 inches
- ♦ **Spacing b/w rows:** 2 1/2 - 3 1/2 feet

Plant 3 seeds in furrows 12 inches apart. As plants grow, thin to one plant per 12 inches by snipping plants at soil level (so as not to disturb its shallow root system). Corn's roots are weak and shallow, so be sure to plant it in a sunny area protected from high wind. Planting in blocks (beds) rather than one long row will ensure better pollination by the wind.

Maintenance

Corn is a very heavy feeder, and thrives in soil with high organic matter and nitrogen. For this reason, farmers often pair beans with corn, planting before, after, and/or with corn. In addition to high nutrient levels, corn requires 1 inch of water per week; the preferred watering method is at ground level instead of top-watering. Because weeding risks damaging corn roots, try controlling weeds by mulching with hay or black plastic. Side dress with blood meal or fish fertilizer at 6 inches and 2 feet.

Harvesting Guidelines

Corn is typically ready to harvest 3 weeks after the silks appear on its ears – at this point, the silk should turn a dark brown to black color and feel “just dried”. To check for ripeness while still on the stalk, cut a small slit in the silk covering, pierce a kernel, and read the liquid: if it is clear, it is too early; if it is milky, then it is ready; and if it is pasty, it is overripe.



Savor the taste of corn in:

- ♦ Corn chowder (creamed, with peppers and potato)
- ♦ Fresh salsa (cut off the cob, with tomatoes and onion)
- ♦ Scalloped corn (Baked with bread crumb topping)

Cucumber (Cucumber Family)

Matures in: 55 - 60 days

Cucumbers are believed to have originated in India and, as such, are a frost-sensitive crop. Their size and shape differ greatly by variety, but all cucumbers can be categorized into two types: slicing and pickling. Slicing varieties are generally larger and take longer to mature than pickling varieties. Nutritional benefits of cucumbers include a high concentration of vitamins A and C, as well as numerous minerals in the fruit's skin.

Planting Information

- ♦ **Germinates in:** 3-10 days at 60°F or higher
- ♦ **Planting depth:** 1/2 inch
- ♦ **Spacing in hills:** 2-3 inches, in groups of 6
- ♦ **Spacing b/w hills:** 2-3 feet

Cucumber thrives in sunny, well-drained areas and constantly warm soil. Although cucumber doesn't typically transplant well, you can plant seeds in peat pots indoors 1 week before the last frost date. Transplant peat pot direct into the ground when night-time temperatures are consistently above 60°F. If direct-seeding outside, prepare soil by forming small elevated mounds, or "hills", 2-3 feet apart from each other. Plant 6 seeds a few inches apart in a small circle on top of each hill. Thin each group to the 3 strongest plants.

Maintenance

Just after transplanting, protect plants from intense sun by shading them. Cucumbers are heavy feeders and like deep watering, especially as plants start to fruit. Take care to prevent standing water and remove wet weeds to keep your plant disease-free. Fertilize with dried seaweed to boost the plant's defense against pests. Although not necessary, growers often trellis their cucumbers to produce straighter fruit and prevent ground rot. Some gardeners pinch off the main stem after it produces 6 to 8 leaves to encourage side shoot growth.

Pests & Diseases (See Section 3: Common Pests & Diseases for more information)

- ♦ Powdery Mildew

Harvesting Guidelines

Cucumbers can be harvested at any point, and should be reviewed daily; yellowing at the flower end indicates over-ripeness. Harvest fruits by gently twisting them from their vines; constant harvesting encourages new growth.

Savor the taste of cucumber in:

- ♦ *Gazpacho (cold soup, with other diced vegetables)*
- ♦ *Homemade pickles (sliced, in vinegar, sugar and celery seed)*
- ♦ *A tall glass of water (sliced—makes it taste crisp!)*



Eggplant (Nightshade Family)

Matures in: 100 - 150 days

Eggplant is a warm-weather crop originating in India. Its wild cousin is known as Aubergine in Europe. Although eggplant is most commonly deep purple, its many varieties produce white, yellow, green and black fruit of all different sizes. Eggplant is often enjoyed roasted, baked, fried, or pickled; in fact, many prize eggplant for its meat-like texture and flavor, particularly when roasted. The crop may also be canned or frozen equally well.

Planting Information

- ♦ **Germinates in:** 8-10 days at 75°F or higher
- ♦ **Planting depth:** 1/4 inch
- ♦ **Spacing in beds:** 18 inches
- ♦ **Spacing in rows:** 15 inches
- ♦ **Spacing b/w rows:** 18-36 inches

Start eggplant indoors 11 weeks before the last frost date to maximize production. It can be helpful to soak seeds overnight before planting. Because eggplant thrives in warm conditions, using a heating pad to raise soil temperature will ensure better germination. Transplant seedlings outdoors when the temperature is reliably above 65°F and soil temperature is at least 60°F.

Maintenance

Eggplant requires above-average moisture levels, so mulching with hay or black plastic can help retain soil moisture and heat. Gently hand-pull any weeds that make it past the mulch. When plants are 6 inches tall, pinch off the central growing tip to encourage formation of several branches.

Harvesting Guidelines

Although eggplant has a several-week long harvesting window, it is best to pick fruit when its skin is fully colored, slightly soft and lustrous. If seeds are brown, the fruit is overripe. Harvest fruit by clipping it from its stem, making sure to leave a small amount of stem intact. Constant harvesting of not-fully mature fruit encourages further fruit production.



Savor the taste of eggplant in:

- ♦ Baba ghanoush (grilled and pureed with spices)
- ♦ Roasted eggplant tomato soup
- ♦ Eggplant parmesan (breaded and fried, with cheese & sauce)

Garlic (Allium Family)

Matures in: 9-10 months

Well known for its mild to spicy flavor, garlic is one plant that is used in cuisines around the world. The onion-like plant grows bulb-like, with a long thin leaves. The three garlic varieties are: Stiff-neck garlic, which grows one ring of cloves around a central stem; Soft-neck garlic, which is the kind found in most stores; and Elephant garlic, with very large, mildly flavored cloves. Garlic is almost always cured before consumption to extend its storage period.

Planting Information

- ♦ **Planting depth:** 1-2 inches
- ♦ **Spacing in beds:** 6-8 inches
- ♦ **Spacing in rows:** 4 inches
- ♦ **Spacing b/w rows:** 12-18 inches

Garlic is one of few plants that *overwinters*, and produces higher yields in the summer when planted the previous fall. Select varieties that do especially well in your area, or try to purchase bulbs from local growers. Plant the largest cloves year after year to increase your yield. Separate cloves from one another right before planting and keep the papery skin intact. After planting, cover with mulch and let sit through the winter.

Maintenance

Because garlic likes deep, rich soil, you can remove mulch cover and add a layer of compost in the spring. Garlic doesn't require intensive watering, so water only during dry spells. To keep weeds at bay, grow low-growing companion plants like lettuce or beets between garlic plants. When plants begin to flower, cut the flower buds off to redirect the plant's energy to producing larger bulbs.

Harvesting Guidelines

Garlic is ready for harvest when its outer leaves become yellow or the top of the plant falls over. (This indicates that the plant no longer needs to absorb energy for reproductive processes; its seeds are mature.) Loosen soil with a pitchfork or simply use your hands to firmly pull plant from the ground at its base.

Cure garlic by drying them in a dry, well-circulated, sunny area. Place garlic side-by-side on a wooden palate, table or screen. Curing is complete when the garlic skins are dry and the necks are hard. Cut the plant tops and store in a cool, dry place for up to 5-8 months.

Savor the taste of garlic in:

- ♦ *Garlic spaghetti (minced garlic sautéed in butter)*
- ♦ *Vegetable stir-fry (with ginger and soy sauce)*
- ♦ *Hummus (pureed chick peas, with lemon and olive oil)*



Grapes (Grape Family)

Matures in: several months

With varieties native to both Eurasia and the Americas, grapes are popular in wine-making and for eating fresh. Wine grapes typically have higher sugar content for fermenting and table grapes are usually less sweet, but perfect for drying into raisins or preserving in jellies. With extensive root systems, grapes generally do not require fertile soil, but it takes diligence to train and prune grape vines for the greatest yield. As with other fruits, it takes 3 years to produce fruit. Talk with local growers to find the best local varieties.

Planting Information

- ◆ **Planting depth:** cover roots completely
- ◆ **Spacing in rows:** 8 feet

Because grapes are sun-loving and need good drainage, planting them on a gentle south-facing slope will provide optimal growing conditions. Create a trellis to support and train grapevines as they grow by burying 2 eight-foot tall posts 2 feet underground and stringing galvanized wire between them 3 feet and 6 feet above ground. Transplant the bare-root grapevine so that its roots are completely covered but buds are exposed.

Maintenance

Good drainage, full sun and moist soil are key to growing healthy grapevines. Cover soil with compost and black plastic mulch or rocks to maintain warm soil. Water plants 1 inch per week.

Train grapevines by keeping them well pruned over the duration of their lifetime. As the trunk develops two canes, loosely tie one cane on one side of the trunk and the other cane on the other side. As the trunk continues to grow, continue this last step for two more canes that lay close to your trellis wire. These will be this year's fruiting canes. It is important to identify and tag renewal spurs, buds shooting off the trunk that will be next year's fruiting canes. Cut away all other growth. Lastly, trim your fruiting canes to about ten buds each, not counting the ones close to the cane's base.

Harvesting Guidelines

After grapes turn color, wait at least several days to harvest. Generally stems and seeds are brown when ripe. To harvest, cut bunches from the vine. Store fresh grapes for eating at 40°F in a slightly humid environment.



Savor the taste of grapes in:

- ◆ Garden salads (sliced in half)
- ◆ Wine or fresh juice
- ◆ Granola (dried, as raisins)

Kale (Cabbage Family)**Matures in:** 55-65 days

Kale is an incredibly hardy green that is high in vitamin A, vitamin C, and minerals. This crop will thrive in a semi-shaded areas or cloudy climates but becomes tough and bitter in hot weather. Frost tends to sweeten kale, which is most often enjoyed after cooking but may also be eaten raw. If planted in the fall, kale will continue to produce through early winter. Kale also freezes well.

Planting Information

- ♦ **Germinates in:** 3-10 days
- ♦ **Planting depth:** 1/2 inch
- ♦ **Spacing in beds:** 18 inches
- ♦ **Spacing in rows:** 12-18 inches
- ♦ **Spacing b/w rows:** 18-24 inches

If starting indoors, kale may be planted 10 weeks before the last frost date. Transplant seedlings into warmed soil (covered with black plastic mulch) on or around the last frost date.

Maintenance

Keep the soil moist and mulch continuously to control weeds. To reduce disease, don't plant kale or other 'cabbage family' crops in the same location more than once every three or four years. As temperatures drop in the fall, protect your kale plants by covering with row cover, a cold frame, or plastic hoop houses. Kale will continue to produce through fall frosts.

Pests & Diseases (See Section 3: Common Pests & Diseases for more information)

- ♦ Aphids

Harvesting Guidelines

Begin by harvesting outer leaves first and leaving remaining bottom leaves to feed top leaves. Harvest larger leaves for cooking and smaller leaves for salads. Grab kale stems where they connect to the central stalk and quickly pull to one side. Continuous harvesting promotes new growth.

Savor the taste of kale in:

- ♦ Sautéed greens (with onion, garlic and olive oil)
- ♦ Kale chips (baked hot with olive oil and salt)
- ♦ Soups (especially bean soups)



Leeks (Onion Family)

Matures in: 70-110 days

This plant is a relative to onions, but is valued for its flat leaves instead of its bulb. This plant is enjoyed similar to green onions and scallions, and is considered the easiest of the onion family to grow. You can eat the plant like any other vegetable or use it to accent other flavors. The plant can be cooked with or without its green leaves, although the leaves are rather strong.

Planting Information

- ♦ **Germinates in:** 5-7 days
- ♦ **Planting depth:** 4-6 inches
- ♦ **Spacing in beds:** 6 inches
- ♦ **Spacing in rows:** 4 inches
- ♦ **Spacing b/w rows:** 18 inches

If starting indoors, leeks may be planted 12 weeks before the last frost date. Plant in an open tray with no division, keeping day temperatures at 65-70°F and night temperatures at 55-60°F. Transplant on or around the last frost date, when plants are 6-8 inches long. Dig 6-inch wide trenches 18 inches apart. Gently place leeks 4-6 inches apart in trenches. Refill each trench, leaving only 1-2 inches of the plant above ground.

Maintenance

Once in the ground, water plants evenly and treat with manure tea once a month. Hill or mound soil around plant stems several times during growing season, but be careful not to bury young leeks.

Pests & Diseases (See Section 3: Common Pests & Diseases for more information)

- ♦ Onion Maggots (use floating row covers to prevent infestations)
- ♦ Thrips
- ♦ Botrytis Leaf rot

Harvesting Guidelines

The best leek flavor comes after a light frost. Leeks will grow in temperatures above 10°F; however, harvest the entire crop from soil when extremely cold temperatures are expected. Once harvested, leeks can be stored in the refrigerator for a few weeks. If longer storage is desired, pack them in a box with moist soil and store in a cool, dry place.



Savor the taste of leeks in:

- ♦ Mashed potatoes (chopped, for added flavor)
- ♦ Potato leek soup
- ♦ Egg dishes (diced or sliced into omelets, frittatas, etc.)

Lettuce (Compositae Family)

Matures in: 45-65 days

Popular around the world, lettuce is an easy-to-grow lunch and dinner favorite. Its main varieties can suit any purpose: Crisphead is great for sandwiches; Butterhead offers a rich, buttery taste; Batavian lettuces are sweet and grow well in any season; Leaf lettuce matures quickly and offers unique flavors; and Romaine is a salad favorite.

Planting Information

- ♦ **Germinates in:** 6-12 days
- ♦ **Planting depth:** 1/4 inch
- ♦ **Spacing in beds or rows:** 1-12 inches apart, depending on variety
- ♦ **Spacing b/w rows:** 12 inches

Most lettuces do best in spring and fall, although certain varieties tolerate the hot summer better than others. Direct seed lettuce 2-4 weeks before the last frost date; run your finger down the length of your bed to create a very shallow trench for your lettuce seeds. Sow tightly for smaller, more tender leaves, or more spread out for larger head varieties. You can grow lettuce indoors 8 weeks before transplanting in early spring. Row cover/hoop houses and cold frames can extend your season by creating warmer outdoor growing conditions for your lettuce.

Maintenance

Lettuce is generally very easy to grow, but we recommend planting in partial shade to discourage bolting. This crop benefits from crop rotation seasonally. It can also be grown in-between larger plants that take longer to mature (ie tomato or eggplant).

Pests & Diseases (See Section 3: Common Pests & Diseases for more information)

- ♦ Aphids
- ♦ Cutworms
- ♦ Slugs
- ♦ Grayish Mold (if found, remove from plant, disposing far away from garden)

Harvesting Guidelines

The leaf can begin to be picked when there are 4-5 mature leaves of useable size (keep picking until the seed stalk appears or leaves become bitter). Head lettuce should be cut at soil level with a sharp knife and refrigerated immediately. Harvest in the morning for the best carotene and quality.

Savor the taste of lettuce in:

- ♦ Salads, with a variety of other garden vegetables
- ♦ _____-Lettuce-Tomato sandwiches
- ♦ Lettuce wraps (with tofu and Asian-style vegetables)



Melon (Cucumber Family)

Matures in: 90-130 days

Of the various cultivars of melon, each falls into 1 of 3 categories: Muskmelons, or cantaloupes, have a pumpkin-like ribbing, skin covered in a netting of shallow veins, and salmon or green-colored flesh; Winter melons, a subcategory of muskmelon, are larger and more oval than most muskmelons, ripen as the weather cools and keeps for relatively long periods of time if stored properly; and Watermelons have red or yellow flesh, smooth green skin, and thrive in hot summer weather.

Planting Information

- ♦ **Germinates in:** 10 days at 70°F
- ♦ **Planting depth:** ½ inch
- ♦ **Spacing in hills:** 2-3 plants, 2 inches apart
- ♦ **Spacing b/w hills:** 4-6 feet (6-12 feet for watermelons)

Melons are warm-weather crops that require full sun and excellent soil drainage. Prepare planting area by forming mounds, or hills, of soil 6 or more feet apart. Flatten the top of each mound and plant 6 seeds in a circle 2 inches apart. It may benefit seeds to soak in a compost tea solution for several hours, allow seeds to sprout in a moist paper towel, and then plant outdoors. As the seedlings grow, thin to the strongest 2-3 plants by cutting the weaker plants at soil level. If your climate experiences cold temperatures for much of the growing season, consider using infrared-transmitting black plastic mulch to keep soil temperatures high. Prepare mounds as described above, cover with a sheet of black plastic and secure edges by shoveling dirt on top. Allow to heat soil for 2-3 days before planting.

Maintenance

To encourage heavier fruit production, encourage side shoot formation by pinching off the main growing stem after it has produced 5 large leaves – side shoots may be pinched off after forming 3 leaves. Provide a large amount of water as fruits develop. Fertilize with well rotted manure when the fruits set and again two weeks later using manure tea.

Harvesting Guidelines

Once ripe, fruits will easily separate from the vine, with little to no resistance – just picking it up should be sufficient. For watermelons, look at the ground spot or the bottom surface of the melon: when it has turned from a light straw color to gold orange or rich yellow, it is ready.



Savor the taste of melon in:

- ♦ Fruit Salad (with grapes, berries & other melons)
- ♦ A glass of water (diced watermelon pieces add flavor!)
- ♦ Chilled Melon Soup (pureed with yogurt, juice and spices)

Okra (Malvaceae Family)

Matures in: 50 - 60 days

Native to Africa, okra was brought to the United States in the 1600s and has been established in the South as a side dish and thickening agent for gumbos and stews. Okra is widely eaten raw, boiled, steamed, and fried. Despite its tropical origins, okra will grow successfully in regions well suited to corn cultivation. Depending on variety, the large-flowered, fast-growing plants will reach 2-6 feet in height. In spite of its cold intolerance, okra is best stored in the freezer.

Planting Information

- ◆ **Germinates in:** 10 days at 70°F
- ◆ **Planting depth:** 1 inch
- ◆ **Spacing in beds:** 2-3 seeds in a group, every 12 inches
- ◆ **Spacing in rows:** 3 inches
- ◆ **Spacing b/w rows:** 2-3 feet

Plant okra directly in your garden when soil temperatures reach a steady 65°F. Pre-soak the seeds for several hours in compost tea and/or nick with a file to puncture the seed coat. Plant 3 seeds together, about 1 inch apart, every 12 inches. As plants begin to grow, thin to 1 strong plant per foot by cutting the weaker plants at soil level.

Maintenance

Generous fertilizing, particularly with nitrogen, will encourage rapid growth and increase yields. Consistent watering is as vital, if not more, than regular nutrient boosts.

Pests & Diseases (See Section 3: Common Pests & Diseases for more information)

- ◆ Damping-off (seedlings fall over and die)
- ◆ Verticillium wilt (wilted branches, yellowing leaves)

Harvesting Guidelines

Pods will form a week or so after the blossom opens and should be picked when they are between 2-4 inches in length. Constant harvesting encourages new growth; similarly, pods left on the plant will become woody, lose flavor, and slow future pod production.

Savor the taste of okra in:

- ◆ Fried Okra
- ◆ Okra in soups (especially with tomatoes)
- ◆ Pickled Okra



Onions (Allium Family)

Matures in: 55-60 days

This pungent root vegetable is heralded around the world as a popular flavor enhancer. It comes in a wide variety of shapes, sizes and colors, and can be grown for its bulb as an onion, its whole plant as green onions, or its leaves as scallions. Although you can grow onions from seed, gardeners most commonly buy “sets”, or mini bulbs that have been grown from seed and sold at their ‘seedling’ stage.

Planting Information

- ◆ **Germinates in:** 4-10 days
- ◆ **Planting depth:** 1/2 inch
- ◆ **Spacing in beds and rows:** 1 inch for scallions; 3 inches for onion bulbs
- ◆ **Spacing b/w rows:** 12-24 inches

When starting onions from seed, expect them to take 100-160 days to mature. Plant seeds 3-7 weeks before the last frost date. Transplant sets 2-4 weeks before the last frost date.

Maintenance

Onions are light feeders, and require little added fertilizer, although we do recommend spreading a layer of compost when planting. Onions can tolerate frost and light freezes, but in warm weather, onions started from sets rather than seeds are more likely to bolt. Water onions moderately, about 1 inch per week. Discontinue watering one week before harvest. Mulch with hay to maintain soil moisture and temperature.

Harvesting Guidelines

To harvest onions as scallions, snip leaves frequently to encourage new leaf growth. To harvest green onions, gently hand-pull at soil level as long as leaves are green. When leaves turn yellow and start to drop to the ground, fully mature onions are ready to harvest. Grab plant at soil level and gently pull upward.

Onions may be eaten fresh, but for longer shelf life, they must be cured. After harvesting the entire plant, lay gently on the ground to dry out; rotate them once or twice for 3-4 days. When the plant has browned, cut off the leaves so there is 1 inch of growth remaining on the bulb. Layer onions 3 inches deep in a screened or grated box and store in a dark, dry, well-ventilated place for 2 months. At that point, onions can be consumed or stored for the winter.



Savor the taste of onions in:

- ◆ Pizza (caramelized, with spinach or other toppings)
- ◆ Quiche (scallions, green onions or onions in an egg custard)
- ◆ Any soup, sauce or stir-fry!

Oregano (Mint Family)

Matures in: 55-60 days

This great perennial herb is originally from the Mediterranean region but is grown around the world. When used for cooking, oregano is largely used in Italian dishes and as a flavoring for soups, stews, dressings and many other dishes. Origanum vulgare, or wild oregano, has much higher oil content is often cultivated for its health and medicinal benefits.

Planting Information

- ♦ **Germinates in:** 7-14 days at 65-75°F
- ♦ **Planting depth:** 1/8 inch
- ♦ **Spacing in beds and rows:** 1 1/2 feet
- ♦ **Spacing b/w rows:** 1 1/2 feet

If cultivating oregano from seed, start indoors 8 weeks before the last frost date or direct seed on the last frost date. Most gardeners prefer to grow from cuttings of plants they've been able to sample, since oregano flavor differs greatly from variety to variety. If cultivating from a cutting, root them in a slightly sandy compost. Oregano grows well in dry, rocky soil. Plant close to beans to improve their flavor and growth, or cucumber and squash to deter pests.

Maintenance

Oregano requires relatively low maintenance with a low water level. It is cold-hardy and can tolerate frosts and light freezes. If grown in a container, bring indoors in harsh winter weather and return outdoors in the spring.

Harvesting Guidelines

Harvest oregano mid-morning and when it is dry. When the plant is 6 inches tall and has flowered, gather its leaves in a bunch and cut all leaves except the lowest set of leaves; this encourages bushy growth as the plant regenerates. Handle harvested oregano gently to preserve its aromatic oil; do not rinse with water. Create small bunches to dry, tie together and hang upside down in a warm, dark, dry place; once they have dried, separate whole leaves and store in airtight jars. Just before use, crush or grind them for optimal flavor.

Savor the taste of oregano in:

- ♦ *Homemade tomato sauce (minced)*
- ♦ *Dominican-style rice & beans*
- ♦ *Meat rubs (for flavoring baked chicken or meatloaf)*



Peas (Legume Family)

Matures in: 55-75 days

Gardeners value peas for their ability to fix nitrogen back into the soil to feed future crops. Pea vines generally mature at 2-3 feet and can be grown just about anywhere there's sun and something to climb up. Because they are cool-weather hardy, there is no need to start indoors. This vining fruit can be eaten uncooked on salads, boiled or fried.

Planting Information

- ♦ **Germinates in:** 3 weeks
- ♦ **Planting depth:** 1-1 1/2 inches
- ♦ **Spacing in beds:** 2-4 inches
- ♦ **Spacing in rows:** 1 inch
- ♦ **Spacing b/w rows:** 18-48 inches

Peas grow best in spring and fall weather; anything above 70°F will slow growth and pod production. Plant peas 5-7 weeks before the last frost date in the spring and 10-14 weeks before the first frost date in the fall. Soak seeds 24 hours before planting to loosen the tough seed coat and speed germination. In areas where peas haven't been planted before, inoculate seeds by coating them with inoculants (found in your nearby garden supply store); this is most easily done by putting inoculants powder, a few drops of water, and your seeds in a sealed plastic bag and shaking right before planting. Plant in a sunny spot with well-aerated, loose soil; using double rows instead of beds will help protect them from high winds.

Maintenance

Pea roots are weak, so mulching to prevent weeds will keep pea roots intact. Water about 1/2 inch a week before they flower. Once flowering begins, increase water to 1 inch per week. Because peas grow vines, you can easily train them to grow up stakes, trellises or fences by weaving in their main stem. Legumes (peas, beans and alfalfa) provide their own nitrogen, so there is no need to fertilize.

Harvest Guidelines

Peas are ready about three weeks after a plant blossoms. Harvest daily when ready, just before ripeness, so you eat the freshest, sweetest peas. Daily harvesting encourages the plant to continue growing.



Savor the taste of peas in:

- ♦ Steamed, over mashed potatoes
- ♦ Split Pea Soup with ham
- ♦ Snow-pea salad (with feta cheese, carrots and balsamic)

Pepper (Nightshade Family)

Matures in: 55-80 days

Pepper is said to be the America's first crop cultivated by indigenous peoples. With a wide selection of peppers, gardeners can choose to grow sweet or hot varieties that come in oblong, square, long and skinny, and round shapes. Peppers can range in color from red to yellow, green, purple and black. Both sweet and hot peppers may be savored fresh, cooked, dried, ground, or infused in oils; they keep well in the freezer.

Planting Information

- ♦ **Germinates in:** 10-12 days between 65-95°F
- ♦ **Planting depth:** 1/4 inch
- ♦ **Spacing in beds:** 12-24 inches
- ♦ **Spacing in rows:** 15 inches
- ♦ **Spacing b/w rows:** 24 inches

Start peppers indoors 8-10 weeks before the last frost date. Because peppers are warm-weather crops, we recommend cultivating seedlings using a heating mat. Transplant seedlings 4 weeks after the last frost date, or when soil temperatures are consistently 60°F and above. To strengthen plants, clip off any blossoms that form prior to transplanting outdoors. It is important to separate hot peppers and sweet peppers in the garden to avoid cross pollination.

Maintenance

Keeping soil evenly moist is necessary. Apply a thick layer of light mulch (like straw or grass clippings) or black plastic mulch to deter weeds. Plastic row cover can be used to keep plants warm on colder evenings, but take care to remove the plastic during warm days.

Pest & Disease Tips

- ♦ Keep beds free of debris to prevent the 'pepper weevil'
- ♦ Handpick & destroy any pests or diseased parts of plant

Harvesting Guidelines

Pick peppers as soon as they are useful; this promotes further growth. For maximum vitamin C content in sweet peppers, wait until the fruits turn red or yellow. Similarly, for maximum heat in hot peppers, allow them to turn red or orange before picking. Pepper store well for 2-3 weeks after harvest in the refrigerator.

Savor the taste of peppers in:

- ♦ *Fajitas (roasted, with onions & mushrooms)*
- ♦ *Stuffed Peppers (hollowed and baked with rice and meat)*
- ♦ *Corn chowder (diced, with creamed corn and potatoes)*



Potato (Nightshade Family)

Matures in: 70-140 days

Native to the Andes Mountains of South America, the potato has been a staple crop in the Americas for hundreds of years. The first early crop, or “new” potatoes, is often enjoyed after being gently boiled with the skins on. Fully mature potatoes are cooked in any number of ways, from roasting, to boiling, to frying. Potatoes are traditionally a storage crop, with some varieties keeping over longer periods (measured in months) than others.

Planting Information

- ♦ **Planting depth:** 1-2 inches
- ♦ **Spacing in beds:** 12 inches
- ♦ **Spacing in rows:** 8 inches
- ♦ **Spacing b/w rows:** 24-36 inches

Few gardeners go to the trouble of starting potatoes from seed. Planting ‘seed potatoes’ expedites the growing process. Aim to plant one potato with 2-3 eyes per foot; if a seed potato has more than 2-3 eyes, cut the potato into pieces to split them up. Although potatoes can be planted as soon as the ground can be worked, it is safer to plant them 1-2 weeks before the last frost date to avoid root rot. Avoid growing potatoes near or after legumes; conversely, marigold can be planted nearby to deter pests.

Maintenance

Make sure to replenish the soil covering the tubers (a process called “hilling”) as necessary, in order to prevent overexposure to the sun. Hilling may be stopped once blossoms emerge.

Harvesting Guidelines

After the first blossoms appear, the plant’s first “new” potatoes may be harvested without interrupting the plant’s growth. To harvest, pull aside the soil near the bottom of the plants and gently pull off tubers around one inch in diameter - this practice is traditionally called “grabbling.” After the foliage begins to wither and die, the remaining tubers should be fully grown. If the weather is not very hot or very wet, the crop will keep in the ground for several weeks; however, the crop should be dug up prior to the first frost. Take care not to eat green potatoes, as they may contain unsafe levels of a toxic substance called solanine.



Savor the taste of potatoes in:

- ♦ Twice-baked potatoes (baked, hollowed, baked, & filled)
- ♦ Potato leek soup
- ♦ Pot roast (with carrots, onions, and meat)

Pumpkin (Cucumber Family)

Matures in: 100-115 days

Pumpkin plants produce rounded and ribbed orange fruits which vary in size and shape. Some varieties are grown specifically for eating – pie- and soup-making, for instance – and, as such, are bred for their thicker walls, smaller seed cavities, and better taste. Other varieties are grown for decorative carving purposes and high-weight competitions; these varieties are generally much larger. In either case, pumpkins may be grown as a storage crop.

Planting Information

- ♦ **Germinates in:** 5-10 days
- ♦ **Planting depth:** 1-2 inches
- ♦ **Spacing in hills:** 6 seeds, 2 inches apart
- ♦ **Spacing b/w hills:** 4-8 feet

Prepare hills by shoveling soil and compost into 3-foot wide, 2-foot tall mounds spaced 4-8 feet apart. Direct seed pumpkin 1-2 weeks after the last frost date, or when soil temperature is consistently 60°F. Poke a hole to plant each seed 1-2 inches deep on the top of the mound. When plants are 2-3 inches tall, thin to the strongest 2-3 plants per mound by cutting the other plants at soil level.

Maintenance

A steady water supply and soil rich in organic material encourages fast growth. Black plastic mulch can speed growth by heating soil. Application of dried seaweed to surrounding soil may help with pest defense.

Harvest

If storage is the ultimate goal, pumpkins should be harvested prior to the first frost, as frost – though it may act to sweeten the fruit's taste – will shorten the fruit's storage time. Make sure the skin is hard and thick by cutting it with your fingernail. Harvest should take place during dry weather and the harvester should use a sharp knife to remove the fruit from the vine, taking care to leave 3-4 inches attached to the fruit. Handle the pumpkins with care, as bruised fruits will not keep as long.

Savor the taste of pumpkins in:

- ♦ Mashed with raisins, carrots & brown sugar
- ♦ Pies, cakes, and other desserts
- ♦ Pumpkin soup (pureed, with curry & other spices)



Sage (Mint Family)**Matures in:** varies

Although this perennial shrub is native to Southern Europe, it is hardy to very cold temperatures and produces leaves for harvest year-round. Its velvety leaves can be silvery-green, a grayish purple or tri-colored, depending on the variety. Its late-winter to early-summer blooms range from white to violet. In addition to its popular use in cooking, sage has been used medicinally, religiously and for its therapeutic aroma.

Planting Information

- ♦ **Germinates in:** 7-21 days at 65-70°F
- ♦ **Planting depth:** 1/8 inch
- ♦ **Spacing b/w plants:** 12-18 inches
- ♦ **Spacing b/w rows:** 3 feet

Although sage can be started from seed, most growers prefer to propagate plants from cuttings and transplant outdoors 1-2 weeks before the last frost date. If starting from seed, plant indoors 4-8 weeks before the last frost date. Plants from seed take two growing seasons to mature. Improve carrot, marjoram, strawberry and tomato growth by planting sage close by.

Maintenance

Sage can handle poor soil and little water, but requires full sun. Plants must be pruned regularly, but this can be done while harvesting.

Harvesting Guidelines

Sage has very aromatic leaves that lose their scented oil if washed. Gather and cut leaves with flowers that have just opened up to 6 inches below the flower buds. With new plants, harvest lightly throughout the growing season and stop harvesting in September.

**Savor the taste of sage in:**

- ♦ Fresh Breads, dipping oils & spreads
- ♦ Baked chicken (in rub)
- ♦ Homemade soups, candles & teas

Summer Squash (Cucumber Family)

Zucchini, Yellow Crookneck & Pattypan

Matures in: 50-60 days

Summer squash are a long-time summer essential for New Englanders. These 3 varieties will produce varying sizes and flavors, unique to the summer season, and can be adapted to meet the needs of small spaces and gardens by planting 3 squash at the base of a constructed tripod. Summer squash can be accompanied in the garden by celery and corn, but to avoid cross-pollination, pumpkins and melon should be planted at a distance.

Planting Information

- ◆ **Germinates in:** 5-10 days at 60°F or higher
- ◆ **Planting depth:** Sow 6 seeds ½" deep in a circle
- ◆ **Spacing in hills:** 2 inches
- ◆ **Spacing b/w hills:** 4-6 feet

Beginning a week after the last frost date, summer squash thrives best in well-draining soil and full sun. However, seeds can be sowed in peat pots indoors 2 weeks before transplant (1 week before first frost date). While full grown plants can handle colder temperatures, seedlings are very sensitive to the cold. Heat soil for several days before planting/transplanting by covering with black plastic mulch. Be sure to water well and clip off weaker seedlings to make room for strong ones.

Maintenance

Just after transplanting, water seedlings generously at ground level and do not handle plants when wet.

Pests & Diseases (See Section 3: Common Pests and Diseases for more information)

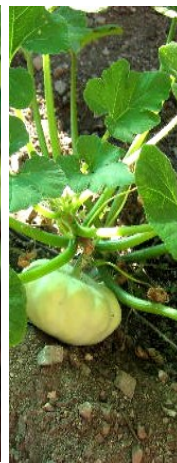
- ◆ Powdery mildew (ashy-gray leaves)
- ◆ Squash vine borers (long, white caterpillars that create yellow dust droppings as base)

Harvesting Guidelines

Summer squash will continue to blossom until the first frost, but only if fruit is picked before it matures or before the blossom falls off the tip. If you do miss the fruit, the whole plant will no longer produce. To harvest, cut fruit with a 1" stem. Be careful not to lift squash by the stem to avoid bruising.

Savor the tastes of summer squash in:

- ◆ Grilled with Olive oil and Italian spices
- ◆ Zucchini Bread
- ◆ Zucchini au Gratin (baked with cream & bread crumbs)



Sunflower (Compositae Family)

Matures in: 100-120 days

The sunflower is another crop that comes in a wide variety of sizes.

At one end of the spectrum, there are some that grow as tall as 15 feet and have heads that measure 1 full foot across. At the other end of the spectrum we find the so-called “dwarf” varieties, which reach between 1 ½-2 feet in height. While many might consider the sunflower as an ornamental crop only, they actually have a much wider range of use. The plants’ seed is used for animal consumption human and non-human alike – dyes are made from its petals, and paper can be made from the pith of the plants’ stalk. Plantings of sunflowers may be used as windbreaks, privacy screens, or living supports for pole beans. The seeds made be eaten either raw or toasted and are an excellent storage crop.

Planting Information

- ♦ **Germinates in:** 5-15 days
- ♦ **Planting depth:** 1 inch
- ♦ **Spacing in beds and rows:** 6 inches
- ♦ **Spacing b/w rows:** 18-36 inches

As seedlings are frost resistant, sunflowers may be planted around the last frost date. Water well after planting and thin seedlings to 1 ½ feet. Many gardeners snip the main stem of branching varieties, which produces several smaller uniformly sized flowers with tall 12 inch stems.

Maintenance

In order to keep down weeds, spread a 3-4 inch layer of mulch. Take care to water regularly from the time the flowers emerge until they mature.

Harvesting Guidelines

Seeds should be harvested as soon as they begin turning brown or when the backs of their heads turn yellow. Cut heads with at least 2 feet of stem and hang upside down until fully dry. To extract the seeds try either rubbing 2 seed heads together or rubbing each seed head with a wire brush, or similar tool.



Savor the taste of sunflowers in:

- ♦ Roast Seeds
- ♦ On top of salads and in cereal or granola
- ♦ Mixed with nuts, dried fruit and oats

Swiss Chard (Goosefeet Family)

Matures in: 50-60 days

This relative of beets goes by many common names: Swiss chard, silverbeet, perpetual spinach, spinach beet, crab beet, seakale beet and mangold. Unlike beets, which are grown for their edible roots, Chard is cultivated for its leaves. The leaves are a bit bitter, however, can be used in salads while the leaves are still young. When the leaves mature, they are best if cooked, which helps diminish the bitter flavor.

Planting Information

- ♦ **Germinates in:** 5-7 days
- ♦ **Planting depth:** ½ inch
- ♦ **Spacing in beds:** 8-12 inches
- ♦ **Spacing in rows:** 6 inches
- ♦ **Spacing b/w rows:** 12-24 inches

Like beets, each “seed” is truly a cluster of seeds. Plant chard directly into your garden 2-4 weeks before the last frost date. Thin by harvesting baby chard plants until they measure 6-12 inches apart. Because chard grows relatively low to the ground, farmers often plant it in-between taller, longer-season plants like tomato.

Maintenance

This easy-to-grow plant has a deep root and is resilient to changes in its environment. Treat with manure tea when there are 4 true leaves. Keep the soil moist because dry soil causes them to bolt. Cover with shade cloth if temperatures reach 80°F.

Harvesting Guidelines

Quickly pull outer leaves to one side to harvest. As plants age, the leaves become tough. Cut plants back to about 3-5 inches tall to encourage new growth.

Savor the taste of Swiss chard in:

- ♦ In salads (with beets, onions and other fresh vegetables)
- ♦ Chick pea casserole (baked with tomatoes and spices)
- ♦ Sautéed with peppers and parmesan cheese



Tomato (Nightshade Family)

Matures in: 55-85 days

There are hundreds of different tomato varieties that span all shapes, sizes and colors. Sizes range from those approximately the size of a cherry to the so-called “beefsteak” varieties which routinely reach sizes greater than two fists. Shapes vary from fairly round to oblong to pear-shaped. Colors range from yellow, orange, and red to pink and deep purple. Perhaps the most important differentiating feature of all these varieties is whether each is determinate or indeterminate. Determinate, or bush, varieties terminate their growth between 1-3 feet in height and will generally produce only 1 crop of fruit. Indeterminate varieties grow between 6-20 feet tall and will continue to grow and produce unless terminated by frost or disease. One way to further differentiate between tomato varieties is characterizing each by its use – paste, slicing, and cherry (generally snacked on or dropped into salads). Tomatoes may be canned, juiced, dried, or frozen for storage.

Planting Information

- ♦ **Germinates in:** 6-12 days
- ♦ **Planting depth:** ½ inch deep
- ♦ **Spacing in beds:** 24 inches
- ♦ **Spacing in rows:** 18-24 inches
- ♦ **Spacing b/w rows:** 24-36 inches

Start planting indoors 6 to 8 weeks before the last frost date. Transplanting should take place after all danger of frost has passed. When transplanting, bury up to the first leaf in soil—this encourages greater root development.

Maintenance

Cage or stake each plant, as necessary. Pruning helps to speed up maturity, but may reduce overall yields in trade of better initial fruits. Watering deeply and less frequently will be more beneficial than frequent and light watering. If possible, bottom-water to keep leaves dry and minimize the spread of disease. A weekly spray of compost tea will enhance plant vigor.

Harvesting Guidelines

Pick either when fruits are fully red in color or green and firm, allowing them to ripen on a window sill that gets sun.



Savor the taste of tomatoes in:

- ♦ Caprese salad (paired with mozzarella and basil)
- ♦ Marinara sauce and other stewed sauce varieties
- ♦ Homemade tomato soup (slow-stewed with cream & herbs)

Turnip (Brassica Family)

Matures in: 30-60 days

The turnip is a fast-growing root crop that thrives in cool temperatures and has a surprising number of varieties. In fact, hot spells often bitter the plant's greens and make its roots woody. Currently considered a gourmet root vegetable, turnips were once regarded as little more than a peasant crop, given their key position in 18th century wheat-clover-oat-turnip crop rotation. In that era, they were also known as livestock food. Both its roots and greens may be eaten raw or cooked; and its greens are high in vitamins A and C as well as iron. Turnips may also be successfully stored for several months.

Planting Information

- ♦ **Germinates in:** 7-14 days
- ♦ **Planting depth:** ¼ inch
- ♦ **Spacing in beds:** 5-6 inches
- ♦ **Spacing in rows:** 4 inches
- ♦ **Spacing b/w rows:** 12-18 inches

Turnip seed will germinate anytime after soil temperatures climb above 40°F. Crops may be planted as soon as the soil can be worked in the spring but many prefer planting a fall crop about 8 to 10 weeks before the first frost date. Soil temperatures in the range of 50-70°F are ideal for fast growth.

Maintenance

When plants reach 5 inches in height, mulch with several inches of well-rotted compost. After broadcasting seeds, thin them to 3-4 inches apart.

Harvesting Guidelines

Harvest the greens as soon as they are large enough to pick, leaving at least 2/3 of them intact on the plant. When harvesting the roots, take care to loosen the earth at the base of the leaves, so as not to disturb surrounding roots. In many varieties, the small roots are the most tender and may be harvested when they are between 1-3 inches in diameter.

Savor the taste of turnips in:

- ♦ Roasted Turnips with rosemary and carrots
- ♦ Hearty soups (with potatoes, carrots, onions, etc.)
- ♦ Butternut Squash & Turnip Soup



Section 3: Common Pests & Diseases

Aphids

Looks Like...

- ♦ Tiny, pear shaped with long antennae

Signs

- ♦ Can attack almost all fruits and vegetables
- ♦ Aphids can pose problems for old collard plants and usually attack older leaves.
- ♦ Suck plant sap, causing foliage to distort and fall



Organic Remedies

- ♦ Dispose of infested leaves and plants in a plant refuse bag, do not compost
- ♦ Doing a second mid-summer planting for a fall harvest reduces the likelihood of aphid problems.
- ♦ Wash plants with water
- ♦ Spray with garlic spray

Botanical Controls

- ♦ Insecticidal Soap
- ♦ Dormant or summer oils

Botrytis Rot

Looks Like...

- ♦ Fungus; also known as “gray mold”
- ♦ Black or gray

Signs

- ♦ Leaves: light tan or gray/white spots develop, until leaves are covered by a darker fungus
- ♦ Crop withers, lettuces & greens become slimy, fruit is water soaked & soft



Organic Remedies

- ♦ Remove all damaged crops
- ♦ Water from below, don't touch plants when wet, disinfect tools

Botanical Controls

- ♦ Commercial fungicide, containing baking soda

Colorado Potato Beetle (Similar to Cucumber Beetle)

Looks like...

- ♦ Adults: yellow-orange beetles, with 10 black stripes
- ♦ Larvae: orange, humpbacked grubs with black spots on side
- ♦ Eggs: yellow ovals

Signs

- ♦ Attack potatoes, tomatoes, eggplant, petunias
- ♦ Leaves fall off, reduces yield, kills young plants

Organic Remedies

- ♦ Cover crops with floating row covers
- ♦ Handpick pests
- ♦ Use a deep straw mulch

Botanical Controls

- ♦ Spray with neems or pyrethrins



Japanese Beetle

Looks like...

- ♦ Adults: metallic blue-green, 1/2 inch with bronze wing covers
- ♦ Larvae: fat, white grubs with brown heads

Signs

- ♦ Leave “skeleton” leaves, chew flowers
- ♦ Larvae feed on lawn and garden plant roots

Organic Remedies

- ♦ Shake beetles from plant in early morning
- ♦ Apply floating row covers

Botanical Controls

- ♦ Apply milky disease spores to soil
- ♦ Spray sod with neem to control larvae
- ♦ Use baited traps



Powdery & Downy Mildew

Looks like...

- ♦ White Powdery: like Talcum powder,
- ♦ Downy: overwinters in some areas in seed, can be carried by wind/rain/tools, etc.

Signs

- ♦ Powdery: can cover most of the plant
- ♦ Begins on upper surfaces of leaves, small black dots appear and are spores
- ♦ Downy: often develops on corn, at the base of the oldest leaf



Organic Remedies

- ♦ Destroy all dropped leaves, dispose before spores form

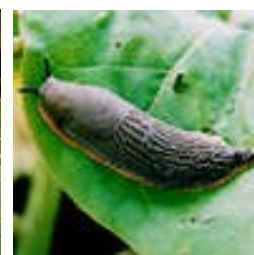
Botanical Controls

- ♦ Applying sulfur will help to reduce susceptibility
- ♦ Commercial fungicide, containing baking soda

Snails & Slugs

Looks like...

- ♦ Slugs: ½” - 10” long, slimy & worm-like, with no outer shell
- ♦ Snails: hard shells and scrape holes into leaves, leaving small, round, white eggs



Signs

- ♦ Fruit & vegetable damage is usually worst in the spring

Organic Remedies

- ♦ Carefully plan garden with much diversity to keep pests away
- ♦ Reduce pest habitat & debris; water in morning
- ♦ Use a mulch that is “slug-irritant” (i.e. shredded bark, crushed rock & cinders work well)
- ♦ Keep seedlings covered, using a plastic jug, cut out bottom, placing on top of soil & planting seedlings inside

Botanical Controls

- ♦ Spray plants with vinegar solution (2Parts Vinegar, 1Part Water) Use experimentally
- ♦ Using garlic powder or raw garlic can keep pests away

Bed (also known as “Raised Bed”): Gardeners construct these raised growing areas by piling soil, compost and/or mulch. Many beds are simply rectangular or square-shaped areas that are designated for growing plants.

Biennial: A plant that completes it’s life-cycle in two years. During the first season, the plant will germinate and grow leaves. In the second season, the plant will mature fully and produce.

Black Plastic Mulch: Used to prevent weed growth and raise soil temperature for growing areas, this thin sheet of black plastic generally comes in 3-4 foot long rolls. Cut 6 inches longer than you need in each direction and bury edges with soil to create a seamless cover for your beds.

Bolt: Plants bolt, or go to seed prematurely, when they sense environmental stress and transition to survival mode. They produce seeds in an effort to reproduce before they are fully-mature plants. Bolting often makes greens bitter.

Cane: A long slender branch generally growing directly from the roots/soil. Grapes, raspberries, blackberries and other vining fruit often produce 2 or more canes each year from the same root.

Cold Frame: A tool used to extend seasons and increase yields. Most cold frames are simply-constructed wooden boxes with a removable clear protective top (ie glass, plexiglass, plastic). The clear top allows the sun’s energy to enter the frame and captures heat for the plants and soil.

Companion Plant: A plant whose growing processes aid another plant’s growth. Companion plants could have strong odors that ward off unwanted pests, be nitrogen-fixers that add nutrients to the soil, provide shade cover that reduces heat stress, or have other biological properties that are advantageous to other plants.

Crop Rotation: Gardeners often rotate their crops so as to confuse pests and balance soil composition. Growing beets, for example, at least 10 feet away from where it grew the previous year, will eliminate nutrient depletion in one place. Crops are often rotated on a 3, 4 or 5-year schedule, grouped into: root vegetables, greens, night shades, squashes, and legumes.

Cure: Several crops (specifically garlic, shallots and onions of the Allium family) must undergo a drying process in order to store well over time. To cure, vegetables must be laid out to dry for several days, their leaves detached, and their protective covering (paper skin) dried.

Determinate: Many vining plants (ie tomatoes, beans, peas) come in bush varieties and do not require frames, trellises or caging to support their plant structure.

Direct-Seed: Plant seeds directly into the ground. Some plants have weak root systems or are sensitive to changes in their environment and grow best without transplanting.

Double Digging: The process of creating your growing area by: eliminating the top layer of grass and weeds; temporarily removing the topsoil layer in order to loosen the subsoil; adding organic matter to the topsoil and replacing it. This process improves soil structure and fertility by aerating soil and stimulating microbial decomposition.

Fertilizer: Added minerals, elements or compounds that enhance soil fertility and plant growth. Common organic fertilizers are bone meal, fish emulsion and compost tea. It is important to read instruction for applying fertilizer to maximize its effect on plants.

Furrow: A shallow trench that runs parallel to your row. Gardeners often create furrows to plant root vegetables.

Germination: The first stage of plant growth, when the seed's growth hormones turn on and direct the seed to create new tissue (sprout). The amount of time needed to germinate depends on plant variety, temperature, and available light, moisture and air.

Green Manure: Typically wheats or grasses that are grown to improve soil fertility. Before the next season, green manure plants are often chopped up and tilled into the soil.

Hand-pull: Extract plants from the soil by wrapping one hand around the base of the plant and gently pulling up and out of the soil. This form of weeding and thinning is harmful for plants with weak root systems.

Harden-Off: The process of exposing plants grown indoors to outdoor conditions over a period of time. Refer to page 6 for instructions.

Harvest: The process of separating the desired plant part from the plant. To harvest, gardeners sometimes need clippers, scissors and gloves.

Heating Pad: A tool used in the greenhouse or under cold frames to artificially raise soil temperature for heat-loving plants.

Heavy-Feeder: Plants that extract large amounts of nutrients from the soil and often deplete nitrogen, phosphorus and potassium levels, among others.

Hoop House: A greenhouse-type structure constructed of clear plastic wrapped tight across flexible piping. It lets in and captures the sun's heat to create a warmer growing environment.

Indeterminate: A term used to describe vining plants that continue to grow and produce shoots as long as growing conditions allow. Many indeterminate tomatoes and beans need trellises, cages or frames to support its long-stemmed plant structure.

Inoculant: Most often in powder form, this mixture contains rhizobial bacteria that helps beans, peas, alfalfa and clover capture nitrogen and fix it into the soil. Gardeners apply inoculant in areas where nitrogen-fixers have not grown before, or to boost these plants' yields.

Manure Tea: The watery substance extracted when compost is pressed through cheesecloth. This nutrient concentrate is often used to fertilize plants.

Maturity: The stage at which plants' reproductive parts are fully developed. Days to maturity refers to the amount of time it takes after the plant is in the ground—either transplanted or direct seeded—to reach full fruit development.

Mound (also know as "Hill"): Plants in the cucumber family require good drainage, so gardeners often create piles of soil and compost and flatten them to form mounds to provide good drainage. "Hilling" can also be referred to as the process of adding soil to potato plants to encourage further root growth.

Mulch: The material with which gardeners cover soil in order to reduce large temperature changes and help retain moisture. Mulch can be any variety of materials but is most often hay, yard clippings, pulled weeds, black plastic or wood shavings.

Nitrogen-Fixing: Plants in the legume family (ie peas, beans, alfalfa, clover) have the unique ability to transport nitrogen from the air into the soil to make it available for plants. Nitrogen is essential to plant growth, and growers often plant nitrogen-fixing crops before or with heavy-feeders.

Overwintering: Perennial plants that cannot tolerate cold winters go into a dormant stage in which they pause growth. Garlic, spinach, and many herbs can be planted and heavily mulch in the fall to provide the first growth in the spring.

Peat Pot: A growing container composed of pressed peat. Start seeds that generally don't transplant well in peat pots 1-2 weeks before transplanting to give them a head start. Plant roots can permeate the peat layer, and over time, the peat will decompose. Before transplanting, make long cuts in the pot's sides, cut out the bottom, and rip the top off so no part of the peat pot is above soil level.

Perennial: A plant that produces growth and/or flowers each season but dies to the ground during the winter. Perennials include a wide range of trees and shrubs, herbs and vegetable plants.

pH Scale: A scale that ranges from 1.0 to 14.0 and measures the degree of acidity and alkalinity in the soil. Neutral is 7.0; lower is acidic and higher is basic (alkaline). Soil tests often test pH and offer recommendations for amending soil toward a neutral 7.0.

Prune: The process of redirecting plant growth by eliminating leaves, flowers and/or side shoots.

Ripeness: The point at which humans find a plant's leaf, fruit, root or stem desirable.

Row: Gardeners grow in rows (long parallel lines) to help organize their growing space. At a small-scale, row planting isn't as space-efficient or produce as more intensive bed planting; however, farmers prefer to plant in rows because it is more efficient for large plantings.

Row Cover: Growers often protect their plants from intense sun, shield plants from pests and/or insulate plants during cold spells with a light synthetic covering. Row cover is effective in maintaining tolerable growing conditions early or late in the season.

Seed Coat: A seed's hard protective lining. Many gardeners soak seeds in water to break down seed coats, which in turn enables plants to grow by eliminating that barrier.

Side-Dress: To apply fertilizer along the sides of plants. Some plants prefer side-dressing versus top-dressing or foliar-feeding.

Side Shoots: The smaller yields that grow after the main harvest. Broccoli and cabbage, specifically, produce tender side shoots after the main head is harvested.

Thinning: Cutting limbs off at the base, either at the ground level or as the base of the particular branch. Thinning also refers to the method of eliminating young plants to provide room for the remaining plants to grow. Many gardeners thin young seedlings by cutting their stems at soil

level or pulling the entire plant out of the ground. Others allow root vegetables and young greens grow to a desirable baby size and harvest the tender young roots and leaves.

Transplant: The process of moving a rooted plant from one place to another. This includes: starting seeds in a large flat tray and later separating them into individual pots; growing seeds in small cells indoors and later planting them into the ground; and digging up perennial plants from the ground and putting them into a pot for the winter.

Trellis: Any structure that supports plants as they grow. Many trellises are made of wooden stakes and planks nailed together; some growers create simple teepees or tie string between two posts at the ends of a bed for plants to grow up. It is important the your trellis has the structural integrity to be able to support fully productive, mature plants.

True Leaves: The leaves that emerge after the first two leaves appear. After a seed sprouts, its first two leaves act as solar panels to initiate photosynthesis and growth. All leaves produced afterward are considered true leaves.

Yield: The measure of a harvest. Plant reference books often describe growing techniques that increase yield, or environmental factors that decrease yield.

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Additional Resources

National Oceanic and Atmospheric Administration (NOAA)

Visit www.noaa.gov for the most accurate weather information available. The NOAA also has archives of historic weather patterns and information about seasonal patterns that influence the growing world.

Old Farmers Almanac (Yankee Publishing: Dublin, NH 2011)

Full of witty stories and traditional farming lore for less than \$6.00, the Farmer's Almanac is a useful tool for gauging weather patterns and growing timelines.

Rodale's All-New Encyclopedia of Organic Gardening: The Indispensable Resource for Every Gardener (Rodale Press: Emmaus, PA 1997)

This truly is the "complete, practical, authoritative" resource for the passionate gardener. Rodale's encyclopedia offers in-depth, high quality information and instructions for precise and intensive growing.

UMASS Amherst Center for Agriculture (MA Cooperative Extension)

The UMASS cooperative extension provides a plethora of growing updates, articles, and other downloadable information to meet your growing needs. Visit <http://www.umassextension.org/> to explore our extension's resources.

Urban Garden Resources of Worcester (UGROW)

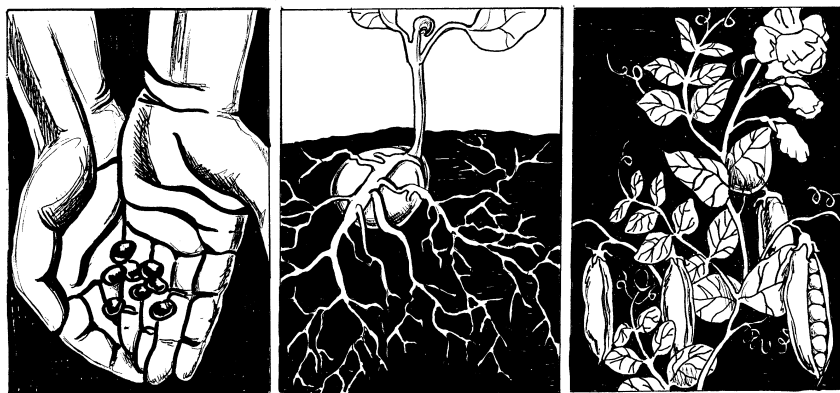
Call (508) 799-9139 or email ugrow@recworchester.org with any growing questions or concerns you may have; REC staff are constantly discovering new plant information resources and may be able to refer you to the right resources for your growing needs.

Worcester Department of Public Works Customer Service Center

The City of Worcester offers free compost to Worcester residents in several locations, organizes a leaf collection in the fall, and sells compost bins for \$45.00. To purchase a compost bin, please visit 76 East Worcester. For more information call (508) 929-1300 Monday-Friday between 8:30-4:30 to speak with a DPW representative.

Urban Garden Resources of Worcester

Urban Garden Resources of Worcester (UGROW) is a grassroots, city-wide community gardens program. UGROW believes we have the capacity to address issues of community food security and mal-distribution of resources through growing food in our own communities. We work to pose an alternative to fossil-fueled, corporate agriculture.



Plant Seeds

Nurture Roots

Bear Fruit

Since 1995, the REC has supported community members in creating and maintaining urban gardens throughout the City of Worcester. The REC currently supports a garden network comprised of approximately 2,000 gardeners that grow over 15,000 pounds of food annually. We provide community garden sites with soil testing services, compost deliveries, organic seeds and seedlings, urban gardening workshops, and start up support. Our work with community gardens helps connect neighbors and people from all ages. The UGROW program engages with neighborhood groups, schools, youth, senior citizens, and artists.

For more information, please contact the UGROW Coordinator at ugrow@recworchester.org.



Regional Environmental Council (REC)

The REC is a grassroots, non-profit organization in Worcester, Massachusetts. Founded in 1971, REC has been dedicated to building healthy, sustainable and just communities in Worcester and beyond for over 40 years.

Find out more about the REC programs and how to get involved by calling 508-799-9139 or visiting our website at www.recworchester.org.