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Fall and Winter Vegetable Gardening in the Pacific Northwest



Oregon State University



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Fall and Winter Gardening in the Pacific Northwest



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With a little extra planning and care, you can enjoy fresh vegetables from your garden most of the year. Many cool-season crops produce well in the fall and, in mild-winter areas of the Pacific Northwest, hold through the winter if protected. You can plant these vegetables in mid- to late summer after you harvest spring crops and as space is available. To be successful, you need to plan ahead, choose varieties wisely, and give proper care to your plants.

Keep in mind that fall and winter weather can vary greatly from year to year. A crop that fails one year due to an unusually early freeze or an abnormally cold winter might thrive in a milder year. Be willing to experiment, and don't give up if your results some years are less than ideal.

GETTING STARTED

Choosing varieties

Fall gardening is possible in most parts of the Pacific Northwest. Late plantings of warm-season crops such as corn and beans can be harvested until the first killing frost. Cool-season crops, such as kale, turnips, mustard, broccoli, and cabbage, withstand frost and grow well during cool fall days.

In fact, some of the best vegetables are produced during the warm days and cool nights of fall. These environmental conditions add sugar to sweet corn and crispness to carrots. Parsnips, kale, collards, Brussels sprouts, and Jerusalem artichokes are examples of crops that are improved by a touch of frost.

Winter gardening is possible in mild-winter areas west of the Cascades. With a little protection, cool-weather crops can be harvested throughout the winter. In addition, some fall-planted crops (for example, certain varieties of broccoli, carrots, and onions) will grow slowly through the winter and be ready to harvest early in the spring.

Choose varieties that are suited to fall and winter harvest. Some varieties are designated specifically for fall planting, while others perform well only in the spring. Table 1 lists some good varietal selections for several vegetables that are appropriate for fall and winter gardens. Consult seed catalogs for additional information.

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Table 1.—Vegetables for fall and winter gardening

Crop	Minimum temperature (°F)	Start well ahead	Store in garden*	Early spring harvest	Recommended varieties/Comments
Beet	15	•	•	•	Winterkeeper, Albina Verduna. <i>Will resprout in spring for greens.</i>
Broccoli	10			•	Purple Sprouting, White Sprouting Late, Rudolph
Brussels sprouts	10	•			Jade Cross “E”, Lunet, Oliver, Red Rubine
Cabbage	10	•	•	•	Danish Ballhead, Excel, Gloria, Melissa, Zerlina
Carrot	15		•		Bolero, Merida, Royal Chantenay
Cauliflower	10	•			Snow Crown, Snow Ball
Celeriac	20				<i>Can go to 10°F if cloched.</i>
Celery	10	•		•	Utah Improved. <i>Needs some protection.</i>
Celtuce	20				<i>Can go to 10°F if cloched.</i>
Chives	0			•	
Collard	0			•	Champion
Corn salad, fetticus, feldsalat, lambs’ lettuce	0			•	<i>Use small-leaf varieties.</i>
Cress, winter	15				
Endive	10				President, Perfect. <i>Best under cloche.</i>
Fava bean	15				Aquadulce, Sweet Lorane for eating. <i>Plant September–August for May harvest. Many varieties are even hardier.</i>
Fennel	20				<i>Can go to 10°F if cloched. Self-sows freely.</i>
Garlic	0			•	<i>Mulch.</i>
Horseradish	0		•		<i>Restrict spread!</i>
Jerusalem artichoke	0	•	•		<i>Restrict spread!</i>
Kale	0			•	Winter Red, Winterbor, Siberian
Kohlrabi	15	•			Grand Duke, Kongo, Winner
Leek	0	•	•		Durabel, Alaska, Goliath, Siberia, Mekwina
Lettuce, leaf	15			•	Winter Density, Oak Leaf, Top Gun, Merveille des Quatre Saisons (also known as Continuity). <i>Best under cloche to prevent rain damage.</i>
Mustard	20			•	Mizuna. <i>Can go to 10°F if cloched.</i>
Onion	0			•	Bulbs: Walla Walla, Keepwell, Hi-Ball, Buffalo, Red Cross. Bulblets and tops: Egyptian Top, Multiplier. Scallions: Hardy white bunching (Scallions usually are better in spring.)
Parsley	0	•			<i>Italian plain leaf; curled types with some protection.</i>
Parsnip	0	•	•		Cobham Marrow, Gladiator
Radish, Oriental	10		•	•	All Season’s White Long, China Rose
Rutabaga	20		•		Marian, American Purple Top, Improved Laurentian. <i>Can go to 10°F if cloched.</i>
Salsify	0	•	•		
Spinach	0			•	Bloomsdale Savoy, Tye, Skookum, Olympia, Hybrid 424, Melody, Wolter Baker, St. Helens. <i>Plant in well-drained soil.</i>
Swiss chard	10			•	Perpetual, Dorat, Ruby Red. <i>Even spring-planted chard often comes through the winter and resprouts.</i>
Turnip	10		•		Purple Top White Globe. <i>Also good for late fall harvest.</i>

*Mature vegetables can be stored in the ground and used as needed.



Choosing a location

The first key to a successful fall or winter garden is location. Much depends on your garden's microclimate. Microclimates vary from yard to yard (for example, urban gardens tend to be warmer than rural gardens) and within a single yard. Choose the warmest location you have. Don't plant in a spot that is prone to early frost (for example, at the bottom of a hill) or exposed to the wind. Look for an area that gets as much sun as possible during the short days of autumn and winter, such as a south-facing slope.

If possible, place your garden where it is easily accessible. It's no fun to slog through winter's mud and cold rain to harvest your crops.

To reduce insect and disease problems, don't plant crops where a related vegetable was growing. For example, put broccoli in a spot vacated by peas, not by cabbage. See OSU Extension publication FS 242, *Preventing Plant Disease in Your Garden and Landscape* ("For more information," page 8).

Preparing the soil

For crops that will be in the garden during the rainy season, good drainage is essential. Raised beds are best. If your soil doesn't drain well, amend it with organic matter such as compost.

Prepare the soil by restoring nutrients removed by spring and summer crops. A light layer of compost or aged manure, or a small application of a complete chemical or organic fertilizer, boosts soil nutrients in preparation for another crop.

PLANTING AND EARLY CARE

When to plant for fall harvest

Timely planting is another key to a successful fall garden. The crops need time to mature before cold weather and short days curtail growth; but, if you plant too early, the young plants might wilt in the heat or mature too soon. To determine the time to plant a particular vegetable for the latest harvest, you need to know the average date of the first killing frost in your area and the number of days to maturity for the variety grown. Choose the fastest maturing varieties for late plantings.

The formula below can help you determine when to start your fall garden.

- Number of days from seeding or transplanting outdoors to harvest**
- + **Number of days from seed to transplant (if you grow your own transplants)**
- + **Average harvest period**
- + **Fall factor (about 2 weeks)**
- + **Frost-tender factor (if applicable)**
- = **Days to count back from first frost date**

The *fall factor* takes into account the fact that plants grow more slowly during the cool, short days of autumn. The *frost-tender factor* is added only for those crops that are sensitive to frost (e.g., corn, beans, cucumbers, tomatoes, and squash). These crops must mature 2 weeks before frost to produce a reasonable harvest.

Presprouting seeds

You can reduce the fall factor by 2 to 5 days by presprouting seeds indoors. Almost any crop can benefit from presprouting. To presprout seeds, place them between two layers of damp paper towels. Place the towels in a plastic bag and keep them in a warm place until the seeds germinate. Another method is to soak seeds for 4 hours. Allow the seedlings to reach a length of up to 1 inch.

Be careful not to break the roots when planting. You can plant sprouted seeds more deeply than normal to help prevent drying out. Water well until the plants break the soil surface.



When to plant for winter harvest

Crops that go through the winter in mild areas of the Pacific Northwest must be well established, but not mature, unless you simply are storing them in the ground (i.e., root vegetables such as carrots and leeks). Most winter crops are planted from June to early August. Table 2 shows recommended planting dates for several winter vegetables.

Table 2.—Recommended planting dates for winter vegetables.*

Crop	Planting date	Planting method
Beet	July 15	Seed
Broccoli	June July	Transplant or seed
Brussels sprouts	July 10–15	Transplant
Cabbage, extra early	June July 15–August 1	Transplant or seed
Cabbage, late	May 20–June 25	Transplant or seed
Carrot	July 15	Seed
Celeriac	June	Transplant
Celery	June 1–July 15	Transplant
Chinese cabbage	July 1–15	Seed
Collard	July 15	Seed
Corn salad	September	Seed
Fava bean	September; February 1–March 31	Seed
Kale	June July 20–August 10	Transplant or seed
Kohlrabi	June July 20–August 10	Transplant or seed
Lettuce, head	To July 15	Transplant or seed
Lettuce, leaf	To August 10 and December–January	Transplant or seed
Mustard	August 15–October 10	Seed
Onion, bulbing	August 1	Sets
Onion, multiplier	September	Sets
Parsnip	May 15–June 15	Seed
Rutabaga	July 10–31	Seed
Spinach	August 1–15	Transplant or seed
Swiss chard	June–July	Seed
Turnip	August	Seed

*Dates recommended are for the mid-Willamette Valley, Oregon. Planting dates might vary in other areas.

Early care

If it's hot and sunny when you plant, your young plants will need extra care. Water transplants daily at first. You might need to sprinkle seeds and newly germinated seedlings twice a day. To keep the soil moist and protect young plants from the sun, temporarily shade them. Boards and umbrellas make good shade structures.

Once young plants are established, you can use a mulch to hold moisture in the soil and control weeds. Irrigate when necessary, so the young plants have sufficient moisture.



Fall plantings tend to have few insect problems, as they avoid the peak insect activity of midsummer. However, some insects, such as cabbage worms and cabbage root maggots, may be worse late in the year. Row covers and cloches help deter insects as well as extend the season (see “Season extenders”).

Vegetables that remain in the ground throughout the winter need some extra care. The following suggestions can make your winter garden more successful.

- Remember to control snails and slugs in August and September, especially if you mulch your plants. By reducing the population in early fall before the breeding season, you’ll have less trouble during the winter (and next spring as well).
- Do not fertilize overwintered crops late in the fall. Too much nitrogen encourages a flush of new growth, which is susceptible to freezing.
- When thinning, leave extra space between plants that will stay in the garden over the winter. Closely spaced plants are more susceptible to rots and slug damage in cool, wet weather than are those with adequate air circulation.

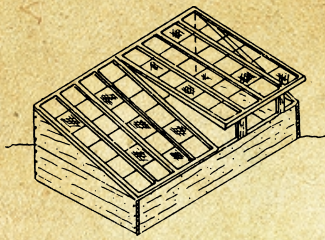


Figure 1.—Cold frame.

PREPARING FOR FROST

Fall garden care intensifies when the weather forecast predicts the arrival of frost. Your main concern then should be to harvest all ripe, tender crops before they are chill damaged. For example, tomatoes, summer squash, melons, eggplants, cucumbers, and peppers cannot withstand frost and should be picked immediately. Store the vegetables until needed.

If the frost warning is mild (the temperature is not expected to fall below 30°F), try covering tender plants that still hold a lot of immature fruit. Baskets, burlap or canvas sacks, boxes, blankets, or buckets help protect plants from frost. Warm days will mature some of the fruit as long as the plants have nightly frost protection.

Cool-weather crops such as cabbage, broccoli, kale, carrots, many salad greens, Brussels sprouts, leeks, beets, turnips, scallions, parsley, cilantro, and spinach can withstand some frost. Some of these crops are quite hardy and will survive temperatures well below freezing; others can be damaged by temperatures below 30°F. See “Season extenders” for ways to keep these plants growing well past the first frost.

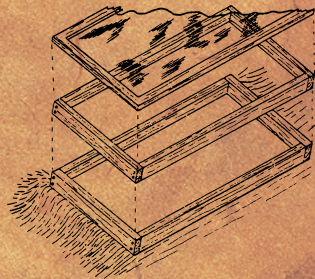


Figure 2.—Dutch light.

SEASON EXTENDERS

Protection from incessant rain can extend the life of a winter garden dramatically. Heavy and prolonged rains can saturate the soil, encourage slugs, and create an ideal environment for leaf diseases. By covering your winter crops with a cloche, cold frame, row cover, Wall-o-water™, plastic mulch, or other product, you can avoid many of these problems and extend the growing season. The following structures protect plants from frost as well as heavy rain.

Cold frames and hotbeds

Cold frames and hotbeds are inexpensive structures for growing cool-weather crops. *Cold frames* rely on the sun for their sole source of heat (Figure 1). Heat is collected when the sun’s rays penetrate clear plastic, glass, or fiberglass. *Hotbeds* are heated by soil-heating cables, steam-carrying pipes, or fresh, strawy manure buried beneath the plant rooting zone.

Cold frames

The ideal location for a cold frame is on a southern or southeastern slight slope to ensure good drainage and maximum exposure to sun. A sheltered spot with a wall or hedge to the north protects against winter winds. Sinking the frame into the ground a bit also provides earth insulation.

To simplify use of a cold frame, consider a walkway to the front, adequate space behind the frame for removing the top, and perhaps a counterbalance to make it easier to raise and lower the top. Some gardeners make their cold frame lightweight enough to be moved from one section of the garden to another. An example is the Dutch light, which is a large but portable, greenhouse-like structure (Figure 2).

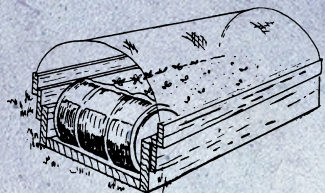


Figure 3.—Solar pod.

Frames can be built from many materials; wood and cinder block are most common. If you use wood, choose a species that resists decay or one of the new plastic materials that look like wood. Never use creosote- or pentachlorophenol-treated wood, because these substances can vaporize easily and are harmful to plants and humans. Frame kits are available, some of which contain automatic ventilation equipment.

There is no standard size for a cold frame. Size depends on the amount of available space and desired crops. Do not make the frame so wide that you can't reach all parts of the interior for weeding and plant care; 4 to 5 feet usually is the maximum width.

A simple method of insulation is to place burlap sacks filled with leaves over the frame at night to protect against freezing. Another method is to stack bales of straw against the frame.

New cold frame designs include systems for passive solar energy storage, such as black containers filled with water that absorb heat during the day and release it at night. An example is the solar pod, which is shaped like a tunnel (Figure 3). Other designs have a very high back and a steeply sloped glass top. Some designs include movable insulation that is folded up during the day and unfolded at night or during extremely cold weather.

Ventilation is most critical in late winter, early spring, and early fall on clear, sunny days when temperatures rise above 45°F. Raise the top to prevent heat buildup inside the frame. Lower it early enough to conserve heat for the night. An automatic, nonelectric lifter is a good investment.

Hotbeds

A cold frame can be converted to a hotbed. For a manure-heated bed:

1. Dig out an area 8 or 9 inches deep (deeper if you need to add gravel for increased drainage).
2. Add an 8-inch layer of straw horse manure.
3. Cover with 6 inches of good soil.

For an electric-heated bed:

1. Dig out an area 8 or 9 inches deep.
2. Lay down thermostatically controlled electric cable in 6- to 8-inch loops, evenly spacing the cable but never allowing it to cross.
3. Cover with 2 inches of sand or soil.
4. Lay out hardware cloth to protect the cable.
5. Cover with 4 to 6 inches of good soil.

Cloches and row covers

Cloches originally were bell-shaped glass jars set over delicate plants to protect them from the elements. The definition now includes many types of portable structures that shelter plants from drying winds, rain, and cold air.

Cloches are set over individual plants or made into tunnels for whole rows. They trap solar radiation and moisture evaporating from the soil and plants. Cloches generally are lightweight, portable, and reusable. The best designs can be closed completely at night to prevent frost damage and opened or removed completely during the day for good air circulation. Make sure cloches are anchored or are heavy enough so they don't blow away.

The hotcap and the cut-off plastic jug are simple cloches (Figure 4). More elaborate ones include fiberglass tunnels (Figure 5), special plastic cloches, row covers with slits to allow aeration, and panes of glass connected by specially designed hinges to form a tent (Figure 6).

You can assemble an excellent Quonset-type cloche quickly by covering a 5- to 6-foot piece of concrete reinforcing wire with row cover or plastic. The heavy-duty wire comes in 5- and 7-foot lengths. It is strong enough to shrug off snow loads.

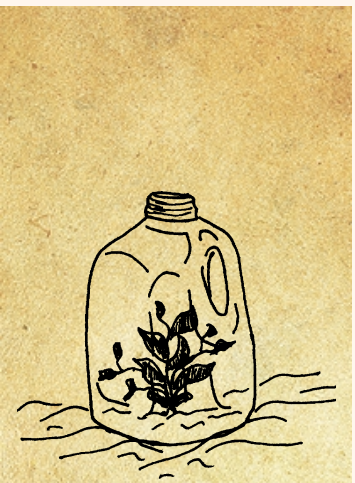


Figure 4.—Plastic jug cloche.

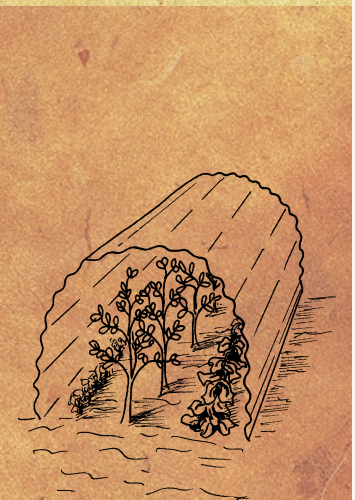


Figure 5.—Fiberglass tunnel cloche.



Figure 6.—Glass tent cloche.

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PNW 497, University of Idaho.



FOR MORE INFORMATION

OSU Extension publications

- Constructing Cold Frames and Hotbeds, FS 246 (published 1980, reprinted 1996). No charge
- Eastern Oregon Vegetable Garden Guide, EC 1491 (published 1997, reprinted 1998). \$1.50
- Gardening with Composts, Cloches, and Row Covers, EC 1247 (published 1986, reprinted 1999). \$1.00
- Preventing Plant Disease in Your Garden and Landscape, FS 242 (revised 2000, reprinted 2000). No charge
- Short Season Vegetable Gardening, PNW 497 (published 1997, reprinted 2000). \$2.00
- Slugs, FS 277 (Revised 1993, reprinted 2000). No charge

Portions of this publication originally were published as part of *Sustainable Gardening: The Oregon-Washington Master Gardener Handbook*, EM 8742 (Oregon State University, Corvallis, published 2000).

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Other publications

- Solomon, S. *Growing Vegetables West of the Cascades*, Sasquatch Publishing, Seattle, 1989.

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