

# The Big Willamette Winter Gardening Chart

## Fall, Mid-winter & Over-wintering crops for the PNW - Version 4.0 - January 2011

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Crop	Sow	Hardy	Eat	Variety, Sources and Comments
<b>Arugula</b>	Late July - Sept 15	H-VH	F, W, ES	A mainstay. One of the easiest crops to grow and consistently one of the most popular greens in the winter garden. Most seed companies offer one unnamed 'Arugula' though very recently, we have seen a pick-up in diversity made available. Most of the newer offerings are less lobed, strappier, and milder. Fedco has a couple of less orthodox lines. Arugula can be grown with or without protection, though outside, hereabouts, it will look ragged as the cold and rains deepen. Sylvetta (Fed, Ter), a perennial arugula and a different species, is hardier, half the height of the annual forms and much slower-growing - for winter eating it should be started in the spring. The earlier you sow the annuals, the larger the plant. Larger plants are more susceptible to winter damage from snow and severe sub-freezing temperatures. Grown under cover, arugula weathers the harshest weather flawlessly. One of the very first plants to bolt in early spring. Easy to save seed from. <i>Tuscan</i> (Adapt) is hardy & spicy, <i>Ice-Bred</i> (Fed) is very hardy, <i>Sputnik</i> (SOC) tastes great, <i>Astro</i> (UR) is mild & high yielding.
<b>Asian Vegetables</b>		HH-VH	F, W, ES	Scores of winter hardy Asian vegetables and greens remain unknown/untested hereabouts. PNW Asian gardeners have a story to tell. Kitazawa Seed Company (KT) with a remarkably well-designed website, specializes. Also Try Evergreen Seeds (EV)
<b>Beets</b>	July 1 - July 15	H-VH	F, W, ES	<i>Lutz Greenleaf</i> (TT, GS) aka. <i>Winterkeeper</i> and <i>Lutz Salad Leaf</i> (SOC), is perhaps our most proven winter beet, hardier than traditional summer varieties such as <i>Chioggia</i> (GS, SFI, Nic, Ter), <i>Early Wonder</i> (SIS, Ter, JSS), <i>Bulls Blood</i> (WGS, Nic, Ter) and others which will nevertheless hold through mild winters. The <i>Mangel Beets</i> (TT, Nic, SOC) are vigorous, large and happy, but not the best flavor. All beets we have trialed will succumb to top damage from the weather by early- to mid-spring in a typical year. Where we have snow on the ground, the foliage will often 'melt' - as with chards, in the same family. You can start beets on the early side - they will be larger but may get a little tuff - <i>Cylindrical</i> beets tend to stay tender longer but we have not yet encountered a variety that weathers snow on the ground. <i>Golden</i> beets can be slower to grow. Locally selected/adapted beets do noticeably better at holding up through winters than commercial varieties. If seeking a spring crop, sow in flats through the end of September, then transplant into a greenhouse in February to harvest in mid- to late-April. If faced with rodents or temps below 18°F, dig and store.
<b>Broccoli, Summer &amp; Fall Types</b>	Jun 15 - Jul 15	HH-H	F	Broccolis don't handle the ravages of mid-winter well. Broccoli excels as a fall crop, however, sown in June through mid-July, transplanted by end-August, producing huge heads with lots of side-shoot action, through to December and, of course, it will be sweetened somewhat by the cooler weather where spring-sown broccoli, growing into warming temperatures, is not. Fall broccolis seem only ever to be unreliable if they are planted out a little early and then we have hot temperatures in September, say in the 90s, when aphids will hit the stressed plants hard. We have been reduced to the merest handful of reliable OP broccolis - the economic drift toward hybrids has hit broccoli hard. We are beginning to experiment with growing broccoli under cover to carry the plants past November-December in good condition. <i>Umpqua</i> (Adapt) is a proven variety, <i>Nutribud</i> (Adapt, PS, Nic) has great sideshoots and flavor. Try <i>Purple Peacock Broccoli</i> (WGS, Ter) for color and variety.
<b>Broccoli, Overwintering or Sprouting Types</b>	Jun - Jul 25	UH	Jan - May	The British refer to what we call 'broccoli' (summer and fall heading varieties) as 'calabrese.' Instead, 'broccoli' has always been the name they reserve for sprouting/overwintering varieties, a very different type of broccoli, and almost completely overlooked hereabouts, which has long been a mainstay of European winter gardens - maturing during the 'hungriest' period of the winter season, from the New Year into late Spring, filling the "Hunger Gap". Plants produce a multitude of small heads on long stems over a couple of months with the heads becoming smaller over time. The only varieties commonly available in the US are <i>Rudolph Extra Early</i> (Ter) which will crop around early in the new year, <i>Purple Sprouting</i> (BG, Ter) and <i>White Sprouting</i> (BG). <i>9 Star Perennial</i> (TM) is a white type that may come back a second or third year if kept picked. Many others exist to fill the harvest gaps throughout the Dec - late May timeframe. Sometimes available from local seedsavers. The Territorial Sprouting Broccoli Blend offers a spectrum of maturities. All are out of the UK. These are big plants in the ground for the better part of a year, even without taking them to seed: prepare your garden plans accordingly. If seeding on the later side (mid-July) to carry small plants through the rigors of mid-winter, you will need to side-dress in early Feb. Sow Rudolph, the earliest maturing, in May or June, the rest by mid-July, for large plants.

Crop	Sow	Hardy	Eat	Variety, Sources and Comments
<b>Brussels Sprouts</b>	June (Maybe May)	UH	W	Consistently the very hardiest of the winter brassicas. All varieties we have trialed have done well, except Rubine which should be avoided. Varieties are usually categorized according to the part of the winter in which they mature sprouts - early, mid and late. Although sometimes it is hard to find any good non-hybrid seed. <i>Long Island Improved</i> (Nic, SOC) is sometime good and the most readily available, <i>Roodnerf</i> (Fed, Ter) is possibly the best OP variety we currently have. A great array is available from European, especially British sources, and many of the best are hybrids. <i>Redbull</i> (Adapt) and <i>Fallstaff</i> (Fed, Ter) are good red varieties. <i>Mezzo Nano</i> (GS) and <i>Hild's Ideal</i> (GS), <i>Seven Hills</i> (BG) are good but need to be started early maybe even in May. English Gardening books recommend planting in March, but that may be too early for our climate. The plants will often attract intense aphid pressure in the warm dampness of our early rains. Don't worry, the plants bounce back regardless. They thrive in balanced, well-fertilized soils but appear fussier than other Brassicas in less than optimal soils. If they do not "sprout up" pick leaves and cook as Baby collards.
<b>Bucks Horn Plantain</b>	Jun - Aug	VH-UH	F, W, S	( <i>Plantago coronopus</i> ) Super winter hardy salad green with mild nutty flavor. Popular in Italy. Also known as Minutina and Erba Stella. Plants can sometimes act a perennials, but it is best sown in monthly succession for the highest quality salad leaves. Highly recommended by Eliot Colman for growing in greenhouses overwinter in Maine. Seed can be acquired from Adaptive Seeds (Adapt), Gourmet Seed International (GS).
<b>Burdock</b>	April - June	UH	F, W, S	<i>Okinawa Long</i> (Adapt) <i>Takinogawa Long</i> (TT) <i>Watanabe Early</i> (KT) and others (KT, EV). Sow in Spring, then again in late June for a round of smaller roots that are easier to dig. Some varieties have good edible leaves, although burdock leaves disappear after hard frost. Dig large roots before mid winter because they become very difficult to dig.
<b>Cabbage, Fall/Storage</b>	June - Jul 15	H-VH	F, W	<i>Stein's Late Flat Dutch</i> (Ter), <i>Premium Late Flat Dutch</i> (GS), <i>Danish Ballhead</i> (Ter), <i>Copenhagen Market</i> (GS), <i>Dottenfelder Storage</i> (TT) are green cabbages worth growing and storing. <i>Red Drumhead</i> (BG, Fed), <i>Rodynda</i> (TT) are good red types that are slower growing but great for storage. A Jun 15 sowing guarantees sized-up cabbages headed into fall, though gardens in tip-top shape will readily handle sowings through mid-July. Some cabbages can get aphid riddled going into fall, be ready to spray them off. Juicy fast growing spring types like Golden Acre and Early Jersey Wakefield are best left for spring sowing.
<b>Cabbage, Overwintering</b>	June - Jul 15	VH-UH	W, S	A very important winter crop even as we have only scraped the surface of the wide variety available to us. Almost all the material is sourced out of Europe, hybrid and OP. In most climates colder than ours, 'storage' cabbages are traditionally 'lifted' in October and stored in high humidity, for up to six months with stems and rootballs left attached. Hereabouts, we can often leave them in the ground. Savoy cabbages are recognized by their curly often bluish leaves and tend to be the hardiest varieties, due to their high dry matter. Many of the juicy savoy types from Italy (GS, SFI) seem a bit less hardy. Hardy red cabbages are difficult to find though <i>Kalibos</i> (TM) a pointy purple cabbage has proven our best find in recent years, although it is still not hardy below 10°f. We are beginning to trial more varieties in depth, especially out of Italy and Germany, stay tuned. Sowings on the earlier side of the window will result in larger cabbages headed into the winter. Of the 60 or so varieties we have trialed, the vast majority will nevertheless hold well through early- to mid-winter if started on the earlyish side. Varieties well suited to overwintering such as <i>January King</i> (BG, Ter) will do well from a sowing thru Jul 15. Winter cabbages appear hard hit by temperatures dropping below the low teens, so consider digging and storing. <i>Melissa Savoy F1</i> (Fed) seems to be the hardiest hybrid. <i>Vertus Savoy</i> (BG, Fed) is a standard European cabbage, while <i>Frigga Savoy</i> (Fed) is vigorous but small.
<b>Carrot</b>	June - July 15	H-VH	F, W, S	Sow in mid to late June for fall harvest and by mid-July to have overwintering carrots sized up going into the winter. Carrots are content outside through most winters without protection, as similar to most root crops hereabouts. Where predation from nutria or other critters is an issue, they and other root crops will need to be dug and stored. All varieties will decline as Spring progresses, less hardy varieties faster than others. Before this happens, dig and store in sealed plastic bags in the refrigerator or loose in the crisper - they will keep for months. Try storing in totes with sawdust in the garage or shady north side of the house. Keeping germinating carrot seed moist in the middle of the summer heat wave can prove challenging. Sow 1/4" deep, keeping the ground moist, covering the bed with cardboard may help, removing it just before germination, within about a week. <i>Rodelika</i> (TT) and <i>Autumn king</i> , <i>Flakee &amp; Rothild</i> (GS), <i>Scarlet Keeper</i> (SIS, SOC) are carrots which hold their sweetness through winter and storage, like to be seeded July 1 rather than July 15 when most others are seeded. There is much room for breeding work in winter-hardy and flavorful storage carrots - the vast majority of material currently available will stagger on through winters rather than thrive, as they were bred for summer production. Some of our other favorites are <i>Red Core</i> Chantenay (SOC, WP, Nic), <i>Scarlet Nantes</i> - <i>Navasio's Improved</i> (TT, SOC), Be careful, Carrots will die once temps drop through the low teens and gophers love them.

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<b>Cauliflower, Overwintering</b>	June - July	VH, UH	W, LS	Cauliflowers are a very happy winter crop, even as they can be fussy to establish - this is a young plant you never want to stress either in flats or in the ground. Sow fall varieties to harvest by end-Oct-begin-Nov around Jul 1, overwintering varieties no later than Jul 25. Be careful to make the distinction between fall and overwintering types - they are very different creatures. The advantage of taking smaller plants through mid-winter is that they have less of a tendency to succumb to the weather - caulis have an especially spreading habit making their leaves particularly susceptible to the weight of heavy snow-on-the-ground. But, if seeding on the later side of July, you will need to side-dress in early Feb. Many varieties are not made available to gardeners, but roundabout ways do exist for intrepid hunters to secure them. To hand, we have the excellent <i>Galleon</i> (Ter), <i>Maystar</i> (Ter), <i>Purple Cape</i> (BG) (Ter) and varieties carried by local seed stewards such as <i>Leamington Winter Giant</i> (Adapt).
<b>Celeriac</b>	Spring	VH	F, W, S	Celeriac is a very tasty root, generally cooked but also eaten raw. Uncommon and treasured by European chefs, it holds great promise for us as a winter mainstay. Stores very well into spring, but only hardy to about 15°F unprotected. The key is to transplant in the May-June and water well all summer and lifting for winter storage. Most varieties available are good. Try the common Brilliant (TT, Ter, Nic), Monarch (TT), or Cesar (AL, GS, BC), Try Giant Prague (GS, BC) for a old heritage type. Adaptive Seeds is working on a few varieties for 2012.
<b>Celery</b>	Spring	VU-UH	F, W, S	Leaf' or 'cutting' celery is extremely hardy, typically used in soups or anyway parsley is used. The stalk celery we are most familiar with is less hardy and less flavorful. <i>Hollow Pipe of Malines</i> (Adapt) a cutting type from Belgium is possibly the best available selection. <i>Cutting Celery</i> (BG, JSS) is also good. Maybe try <i>Celery Afina</i> (Nic), <i>Safir Cutting</i> (Fed), and <i>Par-Cel</i> (Fed, JSS, TM). <i>Red Venture</i> (WGS, Nic, Fed, Ter) is a good locally bred and hardy red stalk type.
<b>Chicory &amp; Radicchio</b>	Jul - Aug	VH-UH	F, W, ES	A much-underrated winter crop with unbelievable diversity. One of the hardiest salad greens which will continue to grow throughout the winter and will hold all the way through to mid-spring. Disease-resistant and slugs avoid it. Leaves are much milder in the winter than summer some are even sugary sweet. Sugar loaf/Zuckerhut (WGS, GS, SFI) and Bianca di Milano (GS) are the Sweetest. Adds spectacular color to a winter salad and they are excellent cooked. Many varieties will bolt if seeded on the early side. Not these: <i>Early Treviso</i> (WGS), <i>Palla Rossa</i> (WGS), and the impressively diverse <i>Wild Garden mix</i> (WGS) (Ter). <i>Castelfranco</i> (UR, WGS, GS, SFI) and <i>Verona</i> (GS, SFI) Chicories are beautiful and extremely hardy. Most F1 hybrid radicchios are not winter hardy. Italian seed catalogs are particularly strong in this crop. We have learned to love this plant and will never go a winter without them again. Slogs avoid it but gophers love the roots.
<b>Cilantro</b>	Jul - Aug	VH	W	A contribution to the winter diet that is raved about by those who include it. Smaller plants will weather the harshest conditions, including snow on the ground. Seeded mid- to late-July, then again in mid-Aug, is a recommended tactic for having cilantro available in both early- and late-winter. Try <i>Standby</i> (Adap) bred by Tim Peters in Oregon for winter hardiness.
<b>Collards</b>	Jul	VU-UH	F, W, ES	<i>Cascade Glaze</i> (PS) is one of the tastiest leaf brassicas yet developed. <i>Champion</i> (WGS) is locally reselected from the original Vates strain. Depending on the combination of weather conditions, some years collards are harder than kales. Collard raab (the flowering stalks which appear as plants begin running to flower in the spring) is regarded as the sweetest of the Brassica raabs. Brussels sprout leaves can be used exactly like collards they are only a little smaller.
<b>Corn Salad / Mache</b>	Sept	UH	W	Also known as Mache or Lamb's Lettuce, it is an extremely hardy annual, an excellent substitute for lettuce in winter salads, producing a low-growing rosette, up to 6" wide that will grow right on through a winter. Slugs avoid it. Takes a long time to germ and appears to enjoy the shade of a nurse crop - such as a squash plant you will be pulling in the Fall. Succession sowings late August through April will gift a harvest November through Spring. Sow thickly and harvest whole plants, taking the largest plants each time below the crown so that the rosette of leaves stays together. <i>Vit</i> (Ter, GS) and <i>Medallion</i> (GS) are readily available, though larger-leaved varieties such as <i>d'Olanda/Holland Large Leaf</i> (GS) can be found. In Europe low-growing plant is traditionally grown under cover. Avoid standing water as it will rot out.
<b>Cress - Upland</b>	Jul - Aug	UH	W	<i>Belle Isle Upland Cress</i> (WGS). Not watercress or curly cress, but upland cress. Never freezes and a super-nutritious self-sower. Strong delicious flavor, fairly peppery.
<b>Endive &amp; Escarole</b>	Jun - Aug	H-VH	F, W, S	A salad green that weathers outside weather and slug predation surprisingly well. For escaroles try <i>Eros</i> (SOC), <i>Diva</i> (Adap) and <i>Great Batavian</i> (WGS). For frilly endives try <i>Pancalieri a Costa Bianca</i> (Adap, GS), <i>Greek</i> (Adap), <i>Frizee de Meaux</i> (Adap, BG, WGS), They are surprisingly slow to run to seed, bolting in late spring and therefore helping fill the hunger gap. Start to get damaged if the temperature drop near or below 20°F but often will pull through into the spring and look wonderful. Sweet and crunchy in the winter. Traditional varieties often show a bit more cold tolerance than the more modern "summer bred" varieties. One of our favorite winter salad greens.

Crop	Sow	Hardy	Eat	Variety, Sources and Comments
<b>Favas</b>	Oct - Nov or February - April	H-VH	LS	This bioregion, until recently a world center for independent fava breeding and research has lost all major commercial lines it was stewarding. Prairie Garden Seeds has the only significant fava diversity on offer in N. America. The UK has 'broad bean' material in depth - see the Thompson & Morgan catalog. A nitrogen-fixer, favas have traditionally been sown in mid-October, though trends may be shifting given the challenging conditions of recent winters. An early-October sowing will provide you with larger plants going into the winter, therefore offering the ground noticeably more protection from the beginning winter rains. However, early-Oct seeded favas have a far greater tendency to be wiped out in December/January when their additional height makes them extremely susceptible to heavy snowfall. Likewise, favas will succumb to temperatures dipping through the mid-to-low teens in December and January - unless they are sown late (mid-Nov) into mulch. An evolving local approach: mulch your beds with leaves AND sow favas into them from mid-October through February. That way you get unparalleled ground coverage and good fava survivability. Fall sown favas will mature beans by early June. Sowing favas in February provides a harvest about a month later. A Jan thru Feb sowing of favas can provide a fast, impressive cover-crop in time for turning in by mid- to late- May with a summer food crop to follow and avoids the threat of snow or extreme cold. Bell-bean or horse-bean small-seeded favas (more seeds per lb) are typically promoted as a hardier cover crop than the large-seeded eating favas, but in our experience, large-seeded favas are indeed hardier. Locally-adapted over-wintering favas are hardier than those available commercially.
<b>Fennel - Bulb and Wild</b>	15-Jul	H-UH	F, S	Harvest in early November. Full size bulbs have a tendency to rot going into the winter, but if they survive they will winter over and size up further in the spring. Wild Fennel and Bronze Fennel can be picked for vegetable use in early spring after it sprouts back up from the roots but before it starts to bolt.
<b>Garlic</b>	Sep 15 - Nov 15	UH	All Year	Traditionally sown in October but some sow in mid-September for larger heads. If you miss the window, sow Jan - Feb. Some experienced growers locally sow only in the spring. Typically side-dressed in February. There is very impressive garlic diversity. When harvesting garlic, do not remove the dried stems before storing - the heads will keep for an additional two months. Harvest as green garlic in early spring and harvest garlic scapes in late spring. Soft neck types keep much longer than hard neck types
<b>Jerusalem Artichoke</b>	Winter - early Summer	UH	W, S	Sunchokes 'grow' during the summer months. Foliage will die to the ground with the arrival of winter but the tubers are happy to remain in the ground to be lifted, as needed, throughout the course of the year. An extremely drought-tolerant crop, they thrive on neglect and may indeed be the easiest food crop we are able to grow hereabouts. A caveat: plant them only where you intend to have them for life. Though they will not travel, they are well nigh impossible to remove from a location once planted. Growing 8'-12' each season, they make a quick, dense, screen. Watering in Sept and Oct helps tubers form more prolifically. We tend to grow just the one variety locally, passed hand-to-hand, but there is enormous diversity in Sunchokes - in taste, storage ability, color, etc. - most available through the Seed Savers Exchange Yearbook.
<b>Kale - European and Scotch</b>	Jun - Aug 15	VH-UH	F,W, ES	<i>Lacinato Rainbow</i> (WGS), <i>Lacinato/Nero Di Toscana/Palm Tree</i> (Ter, JSS, HMS, SIS, WGS), <i>Pentland Brig</i> (BG, Adap), <i>Oregreen Curled &amp; Savoy Cross</i> (PS), <i>Redbor F1</i> (Ter), <i>Winterbor F1</i> (Ter) are readily available from commercial sources, but a vast array of genetic diversity, including the hardiest, tastiest varieties, are now held by non-mainstream sources locally. Kales can be started later than the other brassicas but won't get big from an August sowing. Err on an earlier seeding, especially because kale does not like early setbacks such as heavy slug pressure not unknown in home gardens on planting out, and the possibility of an earlier arrival of winter. Remember to 'overplant' numbers so that you have plenty to eat during the refrigerator months of Nov-Jan when growth slows/stops. Expect a bonanza in the Spring. Solid advice: try sowing a variety of kales: there exist a whole range of tastes/colors/textures/bolting times etc. and different varieties perform better from year-to-year. It appears the most impressive kales emerging locally derive from material sourced by the Seed Ambassadors during their European tour in 2006. Available from Adaptive Seeds currently as <i>The Kale Coalition</i> (Adap). Eat the feast of flowering sprouts (kale raab) as the plants bolt in the Spring. Beware commercial vendors advertising colorful 'ornamental kales' as 'tasty' and/or not clearly advertising varieties as F1 (hybrid). F1 varieties, such as Redbor and Winterbor, though very hardy, are reliably poor in taste and texture.
<b>Kale - Russian and Siberian</b>	Jun - Aug 15	VH-UH	F, W, ES	In very recent years, due to the efforts of locally-based, public domain plant stewards, the Southern Willamette Valley has emerged as the heartland of global kale diversity. A good thing, because this most space-efficient of food crops, highly nutritious and allowing repeated harvests, is the backbone of our winter gardens. It is the easiest winter brassica to grow, far more forgiving of fertility requirements than cabbage and cauliflower, for example - and better suited to montane soils off the valley floor than any other Brassica. <i>Hunger Gap Kale</i> (Adap), <i>Western Front</i> (Adap, BG), <i>White Russian</i> (WGS), <i>Red Russian</i> , <i>Winter Red</i> (WGS, Ter), <i>True Siberian</i> (PS, SOC), <i>Red Ursa</i> (WGS), <i>Improved Dwarf Siberian</i> (Ter), <i>Wild Garden Mix</i> (WGS, Ter) are well proven in this class, locally. The taste of kale sweetens markedly as the weather 'worsens' - plants 'defend' themselves from the cold with sugars. <i>Gulag Stars</i> (Adap) an interspecific kale-mustard cross, originally from Peters Seed and Research and available from local seed-savers, is proving popular as a hardy green.

Crop	Sow	Hardy	Eat	Variety, Sources and Comments
<b>Kohlrabi</b>	Jun 15 - Jul	VH	W	<i>Gigante</i> (Nic), <i>Superschmelz</i> (Ter), <i>Kolibri F1</i> (Ter), <i>White Vienna</i> , <i>Purple Vienna</i> are all great. Avoid Kongo. A crop many people don't know how to eat but, among aficionados, commonly regarded as 'the candy of the garden'. Eat it raw as an appetizer or in salads or in stir-fries. Of varieties readily available locally, <i>White Vienna</i> is fast, sweet and crisp; <i>Superschmelz</i> juicy but a little slower, and <i>Purple Vienna</i> has the most flavor but is also the most savory. For winter crops, sowing <i>Superschmelz</i> June 15 is optimal for having the impressively large plants size up. Sow the others no later than the early side of July, otherwise the plants have a tendency to be undersized going into winter. An early February seeding, transplanted in mid-March, will be ready mid-April through the beginning of May. The leaves can be harvested as 'kale' when the plant is pulled - tending to be sweeter and more tender than kales harvested at that time of year. Other non-commercially available, but impressively locally-stewarded mixes are available from public domain plant breeders at local seedswaps.
<b>Leeks</b>	Mar - May 15	UH	F, W, LS	An essential winter crop. Incredibly space-efficient, extremely hardy and, importantly, still palatable after many crops have succumbed to the tendency to bolt in mid-Spring. They will hold until June. Varieties of 'Summer leeks' will do, in a pinch, if you have no other seed to hand, but they will suffer rather than thrive in winter weather and are prone to rotting. We are, however, rich in winter-hardy varieties of this food crop. Plants can be seeded densely so that one container contains hundreds of seedlings. Transplant before the seedlings get too crowded ('pruning' and feeding them will help them bulk up in the start container) at about 8" spacing. They like rich soil. It is a myth that leeks have to be blanched by planting them in trenches that are filled in as the plants grow. Simply plant them at a normal depth like onion seedlings and they will grow long, straight, white stalks. By late winter, many leeks will have a ragged outer layer - pull it off and the leeks are perfect underneath. Even once the plants begin to bolt in late Spring, they are edible once the tough center stalk is removed.
<b>Lettuce</b>	Aug - Nov depending on variety and harvest-timing		F, W, S	Contrary to received opinion, lettuce is extremely cold-hardy and many varieties will shake off extended hard freezes without blinking. However, the rains and associated rot will do them in, so growing them outside through winters is unreliable - especially if we have a wet November. Growing under protection makes the most sense. The darkest red lettuces seem to fend off the cold and disease better than other varieties (the anthocyanins covering both bases?). Experiment with different varieties and timing, making succession sowings early August through November, then January onwards (growth stops by Thanksgiving). A beginner's rule: for outdoor varieties, sow early August; for greenhouses, succession sow late August through beginning October. Names can be misleading: many varieties have been bred for cold-hardiness, but not damp-hardiness - <i>Arctic King</i> may handle the cold well, but it succumbs quickly to disease in our bioregion. In the greenhouse, lettuce is more susceptible to attack from <i>Botrytis</i> fungus than any other type of green, and although the dryness of a greenhouse helps keep slugs at bay, lettuce is more susceptible to slug attack than other greens. Lettuces do far better in open-ended greenhouses with air circulation than in closed greenhouses. Picking leaf by leaf and not letting any leaves get too old and root prone can extend the life of lettuce deeper into the winter, possibly by increasing airflow.
<b>Miner's Lettuce</b>	Aug	VH-UH	W, S	A North-American native. Very cold tolerant. Regrows for repeated harvest. Shade tolerant
<b>Mustards (<i>Brassica juncea</i>)</b>	Aug	VH	F, W, S	Less attacked by pests and slugs than <i>B. rapa</i> , good in salad but best cooked. In the winter, mustards lose much of the 'heat' that typifies their summer taste and, of course, lose it with cooking, too. Most are hardy with some being less hardy. <i>Garnet Giant</i> , <i>Ruby Streaks</i> , <i>Southern Giant</i> , <i>Pizzo</i> , <i>Red Giant</i> , <i>Osaka Purple</i> (WGS), <i>Green Wave</i> (WGS), <i>Magma</i> (WGS), <i>Golden streaks</i> , <i>Green In Snow/Shi-Li-Hon</i> (Adap), <i>Oak Fire</i> (Adap), <i>Spicy Curls</i> (Adap). Many of these mustards will be broken by 3'-4' snow, especially the larger forms such as <i>Southern Giant</i> , though <i>Osaka Purple</i> shows the best tendency to bounce back. It is also the most prolific self-sower among mustards. Although seed catalogs differ confusingly in their classifications of mustards and greens, there is no doubt that much winter hardiness is to be found here. Sow at the beginning of August for a Fall crop, then every two weeks through the Equinox and you'll have food October through March. With a little protection, even the tender mustards will make it through. <i>Green Wave</i> (WGS) and <i>Green In Snow</i> (Adap) are very hardy but occasionally, unpredictably, bolts with an August sowing.
<b>Mustards (<i>Brassica rapa</i>)</b>	Aug	H-VH	F, W, S	Are milder than the <i>B. juncea</i> mustards, excellent for salad and light cooking. Very hardy and damp resistant. <i>Mizuna</i> , <i>Tatsoi</i> , <i>Tokyo Bekana</i> (WGS), <i>Yukina Savoy</i> (WGS), <i>Komatsuna</i> , <i>Mibuna</i> , <i>Mizpoona</i> (WGS), <i>Pink Petiole Mix</i> (WGS), <i>Purple Rapa Pop Mix</i> (WGS). Start <i>Tatsoi/Tah Tsai</i> in mid-Aug; and <i>Kyoto Mizuna</i> by end-August. <i>Tatsoi</i> handles outside weather, including snow, just fine. <i>Mizuna</i> will begin to look ragged by mid-winter, though looks fine under cover. Densely sown, these crops make a highly efficient use of greenhouse space. Benefits from floating row cover. Same species as <i>Bok Choy</i> and <i>Napa Cabbage</i> .
<b>Onions, Green</b>	Jun 15 - Beg Jul	H-UH	F, W, LS	Scallions can be overwintered under cover, but have a tendency to turn to slime outside and seem to be vulnerable to damage by snow on the ground. Some varieties such as <i>Evergreen Hardy</i> (TT, KT), <i>White Spear</i> (Adap, JSS) are hardier than others. As with all alliums, they are slow-growing. Red types have often melted mid winter for us. Green ones bounce back from damage better. Green onions are often perennial and can be eaten all year round.

Crop	Sow	Hardy	Eat	Variety, Sources and Comments
<b>Onions, Overwintering</b>	1-Sep	UH	Spring-Fall	Siskiyou Sweet (SOC, SIS) and Walla Walla are good. Seed Sept. 1 and transplant by end Sept - early Oct , eat as "spring onions" from April-June. Will dry down for short term storage in late Jun-Jul. Sweet onions are extra sweet when overwintered. Although many onion varieties will overwinter, weather conditions in very recent years have severely confused all varieties with the vast majority bolting in the spring without bulbing properly. Japanese hot onion varieties have the smallest tendency to bolt of all onion types, after overwintering.
<b>Pac Choy and Chinese Cabbage</b>	Aug	HH-H	F, EW	Brassica rapa. Sow <i>Joy Choy F1</i> Pac Choy (Ter) beg-August; <i>Ching Chiang</i> Pac Choy (Ter); <i>Prize Choy</i> (UR), <i>Openapa</i> (PS) is a locally-bred OP Chinese cabbage is hard to find Nozaki Early (Adap, SIS) is a good Napa cabbage.. Local efforts are being made to de-hybridize Joy Choy, one of the fastest spring-sown crops to maturity. Sow in early February under cover for eating in May. Bok chois, outside, have a particular susceptibility to late spring hailstorms. They are however, extremely cold hardy, both outside and under cover, produce a good deal of food, are highly disease and pest tolerant, and will continue to grow in cold conditions. The broad strengths of this crop, which excels in cool weather, is moving it centerstage as a defining presence in year-round PNW farms/gardens.
<b>Parsley</b>	Apr - mid-May	VH-UH	F, W, S	Very slow growing. Incredibly cold-hardy with some variability between varieties. Will readily self-sow. Try <i>Einfache Schnitt</i> (Adap), <i>Survivor</i> (WGS, Nic), <i>Darki</i> (WGS, HMS) is and excellent curly type if you can find it.
<b>Parsley Root</b>	Apr - mid-June	VH-UH	F, W, S	Root Parsley, grow it like leaf parsley. Use like parsnips. Extremely hardy. Try <i>Hamburg</i> (Ter), <i>Berliner</i> (Adap, GS), <i>Arat</i> (Fed, JSS) and <i>Eagle</i> (HMS). Very popular in Eastern Europe.
<b>Parsnip</b>	May - Jun	UH	F, W, S	<i>Cobham Improved Marrow</i> (Ter) and <i>White Spear</i> (Adapt), <i>Harris Model</i> (Fed) and any others. Sow again in mid-July for a round of smaller roots that are easier to dig. Parsnips taste better with repeated frosts. Among those who grow them, a highly popular addition to the roasted winter vegetable diet.
<b>Perennial collards/kales</b>	Feb - Jul	VH	F, W	Two varieties of perennial collard/kale exist locally. Seed is not commercially available. Find seed or cuttings at local Eugene-Springfield Permaculture Guild seedswaps.
<b>Radish</b>	late Aug - late Sept	VH	F, W	Winter radishes, popular in European and northern Asian winter diets, can provide lots of food, are very hardy, and bring spectacular rainbows of color to winter diets. <i>Black Round Winter</i> (Adapt, GS), <i>Hilds Blauer</i> (Adapt, GS) and the classic white <i>Diakons</i> are our favorites. We are still determining optimal timing and cultural techniques on many winter varieties, experimenting with <i>Chinese Red Meat</i> , <i>Neckurrhn Red</i> , <i>Green Luobo</i> , <i>China Rose</i> , <i>Black Spanish Round</i> and among others. Covering seed/transplants with Floating Row Cover appears to be the best way of keeping root maggots at bay. Radishes with denser flesh such as the <i>Black Spanish</i> , <i>Black Winter</i> , <i>Hilds Blauer</i> and <i>China Rose</i> varieties hold up better to maggot damage, which massively increases the likelihood and severity of core rot. Baker Creek Heirloom Seeds and Gourmet Seeds International have strong winter selections.
<b>Romanesco</b>	Jun - Jul	VH	F, S	Highly popular among aficionados who are familiar with this crop, Romanesco is often classed as a broccoli, but in culture, habit and cooking, resemble caulis. Treat fall Romanescos as you would fall caulis, overwintering Romanescos as you would overwintering caulis. Check Italian-import seed catalogs such as Italian Seed and Tool (under the cauliflower listing). Great varietal depth exists in Europe but has not made it to these shores. As with broccoli, these plants excel as a fall crop but, by December, have typically succumbed to the weather.
<b>Rutabaga</b>	July - Aug 15	VH	F, W	"Rutabagas, the next big thing" An extremely underrated winter crop which holds in the ground better than any other root crop, thriving, continuing to grow and keeping their looks where other root crops will be staggering by the time spring fully arrives. Used in soups or mashed with potatoes, a spectacular addition to the winter diet. Try making Rutabaga fries. There appears to be distinct difference in varietal vigor in this crop. Sowing in July ensures plants sizeable by mid-winter, though later sowings for later eating works because the plants will continue to put on size where many other winter crops slow. The hardest varieties, out of Eastern Europe and available from Adaptive Seeds and the Seed Savers Exchange Yearbook, will weather severe winter conditions which kill the majority of other crop types. <i>Major Dunne</i> (Adap) is originally from Ireland, <i>Nadmorska</i> (Adap) originally from Lithuania. <i>Laurentian</i> is an American variety. <i>Joan</i> (WGS) is great. Any Rutabaga variety is good, if the seed sprouts.
<b>Scorzonera and Salsify</b>	Spring	UH	W, S	Scorzonera is a perennial, big, long, black-skinned root, a mainstay of Northern European winter cropping for many a year, and used like other roots in soups and baked. Most seed catalogs offer one variety. We lack diversity Stateside but most seed catalogs offer a (same) variety. Grow like parsnips. Salsify, a biennial white root, sometimes called Oyster Root, is closely related to Scorzonera botanically and in the way it is grown. We have little experience with it locally. A winter-hardy root crop.
<b>Sorrel</b>	Year round	UH	F, W, ES	Many different species exist and catalogs tend not to list appropriately. But consistently very hardy and very perennial. A sour green used in soups and salads. <i>Transylvanian Sorrel</i> (Adap) never fails. Great in Omelets

Crop	Sow	Hardy	Eat	Variety, Sources and Comments
<b>Spinach</b>	Aug - Sept 15	VH-UH	F, W, S	Spinach excels as a Fall crop. It is also one of the very hardiest of winter crops, surviving extended below 10 degree temperatures which will kill all other salad greens and most other winter crop types. Greenhouse spinach does well where air circulation keeps disease at bay and the dryness lessens slug pressure, though the plant can also be grown outside even as getting it through to the other side of winter, hereabouts, looking happy, is difficult. Spinach overwintered outside, looking tired and yellow after the rigors of mid-winter, will pick up and thrive with side dressing Feb 1. <i>Giant Winter Spinach</i> (AL, Fed) aka <i>Giant Invierno</i> (GS) is perhaps your best outside bet even as a slew of OP winter-hardy varieties are recently coming available to us. The common <i>Bloomsdale</i> (WGS) can perform OK. While European varieties such as <i>Verdil</i> , <i>Guntmadingen</i> and <i>Belgian Winter</i> (Adap) are rare and perform very well. Sow outside crops by mid-August and greenhouse crops by mid-September. Sow in Aug for harvest mid-Sept through October. Sow Sept for harvest after March through April.
<b>Swiss Chard</b>	Jun - Aug 15	H-VH	F, W, S	Locally saved rainbow mixes seem to be the hardiest chards without exception so far. Try <i>Seven Seeds' Rainbow</i> (SIS). Every year there are exceptions so planting a rainbow of diversity and saving seed from the hardy individuals is the probably the best plan. <i>Rhubarb Red</i> (Fed, WGS) chards seem hardiest sometimes, with white, then golden types more susceptible to the ravages of winter sometimes. Varietal adaptation means everything in this regard. Though red chards have appeal, they can fall to harsh weather outside, where <i>Fordhook Giant</i> (Ter), a thick white-stemmed variety is often our hardiest chard and will march on through and/or bounce back where all others will go down. <i>Golden</i> (WGS) often shines. If you want big plants for the winter, sow in Spring/Summer, not in the Fall. Chard takes longer to size up than kale. Chards will, in general, tolerate summer heat. Consider devoting greenhouse space to chard to guarantee overwintering. It is highly susceptible to snow on the ground which will 'melt' plants. If there is one plant in your garden to remove snow from, make it chard. Chard is space-efficient and, crucially, a key late-Spring crop, when all your Brassicas have already bolted. Using floating row cover doubles yield, protects against frost, mediates damage from snow and hail.
<b>Turnip</b>	Aug	H-VH	F, W, S	<i>Purple Top White Globe</i> are <i>Golden Ball</i> are very common. <i>Three Root Grex</i> (Adap, PS) and <i>Aprovecho Hardy Select</i> (Adap) are diverse and hardy. <i>Milano Flat purple Top</i> (GS, SFI) <i>Lodigiana</i> (SFI) and <i>Milano White</i> (GS) are delicious and beautiful. A traditional mainstay of northern European winter cropping. Again, a crop that has been grown and 'lifted' for winter storage. Sowing in August will give you large turnips from mid-winter on (Europeans may sow earlier to lift, but large turnips going into the Fall have a tendency to rot). The Japanese breeders have done much work with turnips to make them very sweet and juicy, try <i>Tokyo Market</i> (KT, GS, SOC). Any turnip will get sweeter when grown into Fall weather. We know very little about the wealth of varieties still available in Europe. Peeling them before eating may help with if you are turnip averse. Easy to grow, reliable, and will put on size throughout the winter. Although the foliage appears somewhat fragile, it will nevertheless handle snow on the ground without much damage. A <i>Brassica rapa</i> , its leaves tend to be highly susceptible to the onslaught of flea beetles we often encounter in the Fall, but the plants will bounce back from a thrashing. A worse problem can be root maggots which burrow into the roots causing them to rot or just like bad. Avoid most pests by covering with floating row cover. Emerging as a standby winter crop among experienced local winter gardeners.
<b>Weeds and others</b>				Dandelion, wild and cultivated (Ter), Nettles, Bittercress, and Chickweed (WGS) especially, are primary constituents in the very early Spring-and-onwards diets of local deep gardeners. The best monograph on Chickweed is to be found in Susan Weed's 'Healing Wise'. Harvest the tops of baby nettles; they will regrow. Bittercress ( <i>Cardamine oligosperma</i> ) is a small plant, but grows in clusters, allowing harvest in edible quantities. "Cultivated dandelion" is actually a chicory with dandelion-shaped leaves and similar bitterness.

Hardiness Key	HH= Half Hardy (down to 30°F), H = Hardy (Down to 20°F), VH = Very Hardy (Down to 10°F), UH = Ultra Hardy (Below 10°F) Under typical PNW outdoor unprotected conditions. However, hardiness is unpredictable and variable depending on many factors including duration of frost, Snow cover, Wind, and Wetness. Many plants will die due to bacterial and fungal disease at a higher temperatures if they are too wet.
Harvest Key	F = Fall, W = Mid-winter, ES = Early Spring, LS = through Late Spring, S = Spring
Sources	<b>Adap = Adaptive Seeds</b> , <b>AL = Abundant Life</b> , BC = Baker Creek Heirloom Seeds, <b>BG = Bountiful Gardens</b> , EV = Evergreen Seeds, <b>GS = Gourmet Seed International</b> , HMS = High Mowing Seeds, JSS = Johnny's, <b>KT = Kitazawa Seed Company</b> , Nic = Nichols Garden Nursery, OS = Osborne Seed International, <b>PS = Peace Seeds/Seedlings</b> , SFI = Seeds From Italy, <b>SIS = Siskiyou Seeds</b> , SPC = Sandhill Preservation Center, SOC = Seeds of Change, <b>Ter = Territorial Seed</b> , TM = Tompson and Morgan, <b>TT = Turtle Tree Seed</b> , <b>UR = Uprising Seeds</b> , <b>WGS = Wild Garden Seed</b> , WP = Wood Prairie Farm.