

A Very Brief Overview of Mountain Vegetable Gardening

Good soil is essential for any vegetable garden. Since our native soils are mineral, rock-dust, they require substantial applications of mature compost (like **Bumper Crop** or **Amend**) and biologically alive organic fertilizers (like Gardener&Bloom or Dr.Earth) to support plants well. If you are just starting out, consider testing your soil with a simple kit (A&L).



A "production" vegetable should receive at least 6 hours of direct sunlight a day. Windbreaks and heat-sinks can improve the microclimate. Rocks and walls collect solar heat and radiate warmth at night. Choose a location that allows cold air to flow out of your garden in the evening. Cold air drains into low pockets. **In 1993 we had 6 nights without frost in Truckee.**

In **Cold Climate Gardening**, Lewis Hill says "Cold does not actually exist. It is merely the absence of heat." We protect gardens with row-cover to preserve heat.



Frost Fabric / Floating Row Cover- Since 1985 we have tested many brand of spun-bonded poly- row covers to hold warmth and protect the nursery (and our own gardens) from frosts or intense sun (and hail storms)

The most durable and versatile row-cover is 1.5oz. n-sulate that offers 6-8°F protection and 50% light. We use a double layer for extreme cold.



I have used it over my garden for weeks at a time with water, light and air going through all day yet warmth staying in at night. We offer it in 10x12' packages or by the yard (12' wide) from the Villager's bulk rolls. **Always have frost protection fabric on hand.** *There is NO "average last date of frost" in Truckee.*

Cool season perennial herbs and veggies. Asparagus and ostrich ferns produce succulent new growth during the cool spring months. Rhubarb and horseradish are extremely vigorous perennials. Chives, lovage, mint, oregano, tarragon, and thyme all produce well and are attractive perennials in the landscape. Sage, rosemary and marjoram produce well thru summer and tolerate frost but don't return.

Cool season annual herbs and veggies. These hardy and frost tolerant annuals are planted in the cool months of early spring and can be started earlier indoor or directly seeded into the warming soil (~50°F). Common cool season vegetables include arugula, beets, broccoli, brussels sprouts, cabbage, cauliflower, celery, collards, chard, garlic, kale, kohlrabi, leeks, lettuce, onions, pak choy, parsnips, peas, potatoes (foliage may frost), radishes, rutabagas, spinach and turnips. A soil thermometer is a useful tool.



Warm season annual herbs and veggies. Tender plants require warmer temperatures to germinate, sprout, grow and set fruit. These crops can be directly seeded into the ground later in the season. Tomatoes, peppers and eggplant need to be started indoors in March. Common warm season crops include beans, carrots, (corn?), cucumbers, squash, and zucchini. Tender herbs include anise, basil, cilantro, dill, fennel, and nasturtium. These plants should be located together in the warmest part of the garden for easy frost protection (or grown in a hot-house).



Hardening-Off

Seedlings (from indoors) need a "hardening" period of a little more sun and cold every day for a couple of weeks until they can handle our intense sun, drying winds and mountain chill. Row cover fabric used over the new plantings for a week or more will help them adapt. Be very careful at first not to sun-burn, freeze or dry your seedlings. Remember, **tomato, pepper, cucumber, pumpkin, squash and zucchini can never tolerate frost without protection.** Cold frames and un-heated greenhouses (like the ones at the Villager) are as great for hardening-off as they are for raising cool season greens.



Indoor Seeding Times

Mid-February through Early May

Start seed indoors from late February through April for planting outdoors in mid to late May (4-8 weeks): broccoli, brussels sprouts, cabbage, cauliflower, celery, leek, lettuce, onion, pepper and tomato. Early to mid-March is a good time to plant tomato seeds indoors here.

Fruits and Berries: Dormant, over-wintered apple, pear, pie-cherry and plum trees as well as blueberry, currant, elderberry and raspberry can be planted as soon as the soil is workable.



Sweet Peas aren't edible but "old-timers" say April first is THE day to plant them in Tahoe.

Choose a sunny spot and prepare the soil with rich compost, organic fertilizer and limestone. 3-5 days before planting, soak your seeds in water over night and sprout them in a bag with a moist paper towel. When the root tip is visible, carefully plant the seeds in a 2" trench and cover



with 1/2" of soil. As the seedlings grow let the trench fill in.

Late April through Mid-May

Start these tender veggies indoors from late April to mid May, for planting outdoors in June (2-5 weeks): corn, cucumber, pumpkin, squash and zucchini (or direct seed in mid-June)

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Outdoor Seeding Times

Mid-March through Early May

As soon as the ground is workable (not wet or muddy) plant asparagus, beets, soft-neck garlic, horseradish, ostrich fern, leaf lettuce, parsnips, radish, rhubarb, rutabaga, spinach, and Swiss chard. Include calendula, dianthus, and viola for edible flowers. Use milk jugs full of water or rocks next to seedlings to protect them from hard frosts. Cover the garden with n-sulate floating row cover for a week after planting.

Early May through Mid-May

Solarize the soil for a few days before planting for better results because warmer soil ($\geq 50^{\circ}\text{F}$) will encourage seeds of broccoli, cabbage, carrot, cauliflower, lettuce, mustard, pea, sunflower and any previously mentioned.

Plant sprouted potatoes. Start a few hills of potatoes at two-week intervals until mid-June for "new potatoes" throughout the summer. (Some years April potato plantings produce the best).

Early June through Mid-June

Warm soil ($\geq 50^{\circ}\text{F}$) is required for germination of warm season veggies. Consider risking an earlier seeding of these crops if warm weather is predicted but generally wait until after the first week of June for beans, carrots, corn, squash, and zucchini

Mid-June to Late June

Plant more arugula cilantro, leaf-lettuce, spinach, radish, peas, Swiss chard and pumpkin.

July and August

Re-seed radish, leaf-lettuce and spinach.

Organic Gardening Notes

Soil should anchor roots, hold moisture and nutrients, and allow oxygen. Healthy soil is teeming with beneficial soil organisms that release long lasting nutrients, prevent disease and promote vigorous plant growth. *A teaspoon of healthy soil may contain 100 million bacteria, 400-800 feet of fungal hyphae plus millions of other microorganisms.*

Soil amended with mature compost is like a luge house with kitchen, pantry and cold storage where the roots reside. Organic fertilizers, are the raw foods in the pantry and in storage. Organic fertilizers that containing living microorganisms provide the gardeners, chefs, and housekeepers to care for the roots.

With millions of tons of chemical fertilizers used each year in the U.S., crop yields per acre are near the lowest in the world. Old World countries using manures and composts for 50 centuries have extraordinary yields, many times those of the U.S.

Americans waste millions of gallons of water and expose our children and pets to chemical levels ten times the rates that are used in commercial farming. Soil life can be killed with minutes of exposure to many chemical fertilizers and it can take years to bring them back.

Soil under organic agriculture management can accumulate $\pm 1,000$ pounds of carbon / acre foot of soil each year, equal to about 3,500 pounds of carbon dioxide per acre from the air and sequestered into soil organic matter.

Helping Mountain Gardens Thrive Since 1975
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Growing Potatoes

Preparing the potato "seed": Seed potatoes are specially grown, virus free tubers that will produce more than twice the harvest of organic tubers from produce department. They should be stored in a cool, dark place. Since we use no chemicals to prevent sprouting, they already have desirable sprouts, so handle them carefully.

When examining, chitting, cutting or planting, leave the sprouts. Breaking sprouts will delay vines and increase the number of vines that eventually emerge. More vines equate to smaller tubers at harvest. Tubers the size of an egg or smaller, should be planted whole as "single drops" and are preferred by many. Fingerling seed will naturally be smaller. As a general rule, the larger the seed piece, the larger the crop: both in terms of overall yield and individual size. Ideally, each piece should weigh two ounces and offer two to three strong eyes.

Chitting: The practice of greensprouting or pre-sprouting seed potatoes before planting them encourages early growth and can reduce time from planting to harvest by ten to fourteen days. Simply spread out the seed tubers in open-top boxes with the eyes or "seed end" (with the most eyes) up. Keep the boxes in a warm (70°F) moderate light location for a week or so and then move the spuds to a cooler location (~50°F) with more light to produce green and stocky sprouts. Chitting can take two to four weeks. Do not cut the seed before chitting. It will dry out. Cut three days before planting. Plan ahead.



Chunking: Most US growers cut up larger potatoes into pieces before planting (and after chitting). "Seed" pieces should be allowed to "heal-over" for a few days prior to planting. Spread the cut pieces out in shallow box out of direct sunlight to avoid shriveling the seed pieces. Use powdered sulfur to protect the cut surfaces from fungal infections. A teaspoonful in a paper bag, gently tossed around the cut potato pieces (be careful to not damage the sprouts) works well. Our Truckee / Tahoe soils are lacking in sulfur (an important nutrient) so this can only help.

Soil Preparation: Potatoes thrive in light, loose, rich, deep and well-drained loam. But we have grown potatoes successfully in a pile of old pine needles, in straw and in compost. Potatoes are very adaptable and will usually produce reasonably where soil conditions are less than perfect.

All soils should be deeply amended by incorporating organic compost like Kellogg's Amend or Bumper Crop to lighten and aerate heavy ground or increase the moisture holding capacity of sandy soils.

Potatoes do best in soil with a pH ranging from 5.2-6.8. Alkaline soil will tend to make many varieties "scabby". Potatoes appreciate calcium (also lacking in our soils). Lime is best applied in fall to "mellow-in" over winter. Oyster Shell flour and Dolomite lime should be used sparingly when applied at planting time.

Potatoes want well-balanced nutrition. We recommend supplementing amendments with Biosol and G&B vegetable fertilizer. Potatoes

given too much nitrogen grow lush vines with few tubers. Excess potassium reduces protein. Organic gardeners use cottonseed meal and alfalfa meal to enhance the nitrogen and lower the pH.

Planting: Ideal soil temperatures range from 55°F. to 70°F. A small planting of the earliest potatoes may be attempted in mid April with ample mulching. Rows and spacing varies with each garden, but as little as 18 inches between rows with plants 10-12" apart. Dig a shallow trench ~6 inches deep and place the spaced seed pieces in it. Cover the seed with 3 inches of soil. Do not fill the trench.

Watering: Minimally irrigated potatoes taste better and the skins are tougher (store better). Potatoes grown this way may have a higher protein.

Fertilization: Along with slow-release nutrients in the soil, after emergence and until blooming ends, a few of foliar feedings with an organic "bloom" fertilizer is beneficial. Plants respond with growth that results in higher yields.

Hilling: Sprouts emerge in about two weeks, depending on the soil temperature. When the stems are about 8 inches high, gently cover "hill" the vines with soil scraped from both sides of the row. Leave about half of the vine exposed. Hilling keeps the root system deeper in cooler soil. Tubers form between the seed piece and the soil surface. Hill again in another 2-3 weeks and again 2 weeks after that. Add only an inch of soil in subsequent hilling and be sure to cover any forming potatoes so they never see light.

Avoiding Pests: Avoid un-composted animal manures, alkaline soil, and water logging on potato ground to prevent scab. Where scab occurs, incorporate elemental sulfur into the rows several weeks before planting to lower pH.

Don't grow potatoes in the same ground more than once in three years. Early and late blight and *Verticillium* wilt rest in the soil for years.

Other members of the nightshade family (tomatoes, peppers, eggplant) should not precede nor follow potatoes.

Bugs: To avoid insects pests, the best defense is a food offense; maintain healthy vigorous vines. Soap and Neem can be used to treat aphid infestations. Compost teas seem to reduce many insect and disease problems.

Harvesting: About two months after planting, early varieties bloom, indicating that early potatoes might be ready. Gently harvest new potatoes creating as little disturbance as possible. The ideal time for the main harvest is when the vines are dead, usually after a heavy frost. Drier soil allows for cleaner harvesting with less effort. After the tops are dead, rest the tubers in the ground, undisturbed for a weeks to "cure," while the skins toughen up, protecting the tubers from scuffing and bruising during harvest and storage. Minor injuries in the skin may heal if allowed to dry.

Place your spading fork outside the hill from outside to avoid stabbing any potatoes. If the soil is wet, let them air-dry on the surface for a few hours before gathering them. If the weather is poor and harvest is essential, let them air-dry before storing. "Field-grade" your harvest. Separate and toss (or roast immediately) any blemished, scabby, misshapen, or injured

tubers. Do not put cut or damaged tubers (incl. those injured during harvest) into a sack with good ones; they will rot potatoes near them.

Storage: Keep potatoes in the dark at 36-40°F., with good air circulation (don't forget, they're alive).

Potato Varieties Villager Usually Carries

Cal White - Early - Long lasting with brilliant white flesh.

Cherry Red - Early - Medium sized tubers, bright to dark red skin with brilliant white flesh.

Yukon Gold (Organic) - Early - This round tuber has smooth, thin yellow skin with pink coloring around shallow eyes and yellow flesh. It provides excellent buttery flavor.

Russet - Norkotah - Early - Developed by Dr. Robert Johansen, talented breeder of the Anoka. Uniform tubers, brown skin and white flesh. Cooks excellent like any russet. It is scab-resistant and provides dependable yields. Home grown Improved Russet tastes nothing like the store bought spuds.

Dark Red Norland - Early - This potato has deep red — almost burgundy skin and white flesh. It makes good potato salad, keeps well, has good disease resistance and moderate scab resistance. This is the earliest red of them all. Developed at the University of North Dakota.

Kennebec - Mid-Season - Salt-of-the-earth kind of spud - never fails! Fine flavor. Boil or mash'em, peel'em or not. Smooth white skin, smooth-textured white flesh, shallow eyes make for easy washing and peeling. Resistant to mosaic, late blight and net necrosis. Dependably produces only large potatoes on most soils.

All Blue (Organic) - Mid-Season - Medium-sized, smooth blue-skinned Peruvian Potato has deep purple flesh. It has high yields. When cooked, they have a fluffy texture and nutty flavor.

German Butterball - Mid-Season - Smooth, thick, golden skin and butter-yellow flesh in a medium oblong tuber with outstanding taste. Great for hash browns, fries, steaming or baking, and it stores well. Excellent flavor.

Bintje Organic Heirloom - Late - Bintje has pale yellow skin, pale yellow smooth flesh and oval tubers. It is a flavorful all-purpose potato. Good keeping characteristics and disease resistance. Can be grown anywhere and provides high yields.

Yellow Finn Organic Heirloom - Late - This potato has an unusual pear shape, deep yellow-tan skin and waxy yellow flesh. The taste is natural butter-like, and is good boiled, baked, fried or included in soups.

Fingerlings have rampantly aggressive vines and a long setting season. Usually the potatoes don't bulk up until the very end of the season. They have natural resistance to late blight and other diseases. Yields also run big, so fewer pounds of seed to produce more. #1 in restaurants.

Russian Banana Fingerling - Late - Developed in the Baltic region of Eurasia and praised for its excellence as a salad potato, a medium sized tuber with yellow skin and yellow flesh. Firm texture and great flavor.

Austrian Crescent Fingerling - Late - Austrian Crescent has nutty-tasting yellow flesh wrapped in a light thin yellow skin.

Onion Seedlings: Red, Sweet, Yellow - Most onion growers agree that seedlings are more productive than “sets”. Tease apart the seedlings and plant individually 1-1 1/2 inches deep and 4 inches apart. Space rows at least 12 inches for producing larger bulbs. Keep in mind when growing “bulbing” onions: 1). the bulb will be no bigger than the top. 2). The top completely stops growing when the bulb begins forming so grow as big a top as you can as fast as you can. Onions demand sun, loose well-drained, moist soil and they do their best in with plenty of vegetable fertilizer early on. Onions can be planted out by late April. Keep them moist while the tops are growing and cut back when bulbs near maturity. Harvest when the tops have “gone down”.

Leek Seedlings - (*Allium porrum*) - Leeks are closely related to onions but have a sweeter, creamier, more delicate flavor. Prized by cooks as a flavoring for dishes of all types. Using scissors cut off the top quarter of the leaves. Use a dibber and make holes 6 inches deep and 9 inches apart. Make the rows 15 inches apart. Drop the leek seedlings into the holes leaving just the tips of the leaves showing. Planting leeks deeply helps to blanch the stems. Do not fill in the holes or try to cover the roots with soil or firm them in.

Rhubarb - Cherry Red - Garden Rhubarb (*Rheum rhabarbarum*) is a very cold hardy plant with red or pink leaf stalks (petioles). It prefers, rich loose soil (side-dress with compost spring & fall), and plenty of fertilizer. It grows in full sun or woodland shade. Rhubarb’s enormous foliage is a beautiful addition to any landscape.

Ornamental rhubarb (Da-Huang), (*Rheum palmatum tanguticum*) has spectacularly large (3-4’) foliage. No leaves of this genus should be eaten. according to Cornucopia - A Source Book of Edible Plants, the leaf stem (petiole) is edible (just as with garden rhubarb).

Garlic - Silver Rose Softneck Garlic - Silver Rose has a luminous, pearly-white exterior, and is prized for use in garlic braids. It is a wonderful all-purpose garlic with a pleasant heat. Silver Rose garlic is a huge producer in warmer climates. Bulb size in cold climates is maximized by planting early in the spring. Bulb size is smaller under Truckee conditions than it would be in Gilroy. Softneck varieties (*Allium sativum* var. *sativum*) are considered the most domesticated varieties due to minimal flower stalk and bulbil production. They are generally more productive than hardnecks because the energy goes to producing a bulb rather than a bulb and flower stalk. Occasionally flower stalks will form. Hardneck varieties can be just as productive as softneck varieties in the coldest climates. They are planted in October and November in Truckee.

Early Italian Purple Softneck Garlic - Early Italian Purple is early producing large bulb with numerous small cloves. This Italian import is one of the easiest to grow. It is vigorous, widely adaptable and quite prolific, producing large, milky-white, thick-skinned bulbs with light purple stripes at its base. bulb size in cold climates is improved by planting early in the spring as soon as the ground is not muddy.

Horseradish - (*Armoracia rusticana*) is an easy to grow perennial vegetable that is used for culinary, medicinal and ornamental purposes. Horseradish has enormous leaves and but its roots are what is harvested. Preserved Horseradish is best prepared outdoors. Medicinal and therapeutic uses of horseradish include poultices for infections and arthritis.

Asparagus - UC 157 - Very cold hardy (Mostly Male) variety. Moderate moisture, minimal fertilizer, well drained soil and a sunny location. Manure spring & fall. Plant 2-3 plants for each asparagus lover in your family. The crowns grow and may be harvested after the 2nd year

Fiddlehead Fern - Ostrich Fern - (*Matteuccia Struthiopteris*) - Few vegetables are as beautiful as fiddleheads with a flavor slightly reminiscent of asparagus, but nutty and pleasantly bitter. Harvest fiddleheads that are tightly curled and no bigger than a half-dollar (larger and they’re tough, unfurled and they’re bitter). Take three fiddleheads of the five to nine fronds per crown per growing season. Never eat raw, steam for 10 minutes then sauté in butter. Fiddleheads are great with seasonal finds like morels or with eggs and potatoes.

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