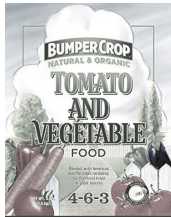


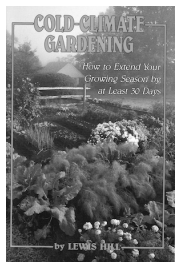
# A Very Brief Overview of Mountain Vegetable Gardening

**Good soil is essential for any vegetable garden.** Our native soils are mineral (i.e. "rock-dust"), they require substantial applications of mature compost (**Bumper Crop** or **Amend**) and biologically alive organic fertilizers (**Bumper Crop** or **Gardener&Bloom**) to support plant vigor. If you are just starting out, consider testing your soil with a simple kit (A&L Labs).



A "production" vegetable garden should see at least 6 hours of direct sunlight a day. Windbreaks and heat-sinks can improve your microclimates. 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 settles in low pockets. *In 1993 we had just a handful of 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 1984 we've tested many brands of spun-bonded polyester 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 extra protection.



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" here.*

**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. Tender perennials like rosemary and marjoram produce well thru summer and tolerate frost but are not hardy enough to survive our winters.



**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 indoors 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. Many of these crops can be directly seeded into the ground later in the season. **Tomatoes, peppers and eggplant need to be started indoors by April.** Common warm season crops include beans, carrots, 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 so they can handle our intense sun, drying winds and mountain cold. Two or three layers of row-cover fabric over seedlings or new plantings for a week or two can really 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.



## Organic Gardening Notes

A favorite LOCAL gardening / farming resource is Sierra Valley Farms own Gary Romano's book: **"July & Winter: Growing Food in the Sierra."**

Soil should anchor roots, hold moisture and nutrients, and allow gas exchange. 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 large house with a kitchen, pantry and cold storage where the roots reside. Organic fertilizers, are the raw foods in the pantry and in storage. Organic fertilizers containing living microorganisms provide the gardeners, chefs, and caretakers for roots living there." - eric

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 while Old World countries using manures and composts for over 5000 years 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 within minutes of exposure to some chemical fertilizers and it can take years to bring them back.

Soil under organic agricultural management can accumulate ±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.

## Indoor Seeding Times

### Mid-February through Early May

Start these seeds indoors from late February through April for planting outdoor in mid to late May (4-8 weeks): broccoli, brussels sprouts, cabbage, cauliflower, celery, leek, lettuce, onion, pepper, eggplant, 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.



### 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)



## Outdoor Seeding Times

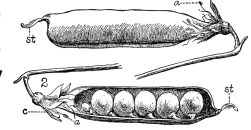
### Mid-March through Early May

As soon as the ground is workable (not wet or muddy) plant asparagus, beets, horseradish, leaf lettuce, ostrich fern, parsnips, radish, rhubarb, rutabaga, softneck garlic, 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 (or two) after planting.



## Early May through Mid-May

Solarize (warm) 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, corn, squash, zucchini, and surprisingly, carrots.



## 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.

## Villager Nursery, inc.

10678 Donner Pass Road  
Truckee, California  
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**Garlic - Softneck Garlic** - Bulb size is maximized by planting early in 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. They are generally considered more productive than hardnecks. **Hardneck garlic** can be more productive than softneck varieties in the coldest climates. They are planted in October and November here.

**Onion Seedlings** - Seedlings are more productive than "sets". Tease apart seedlings and plant individually 1-1 1/2 inches deep and 4 inches apart. Space rows at least 12 inches for larger bulbs. With "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 fast as you can. Onions demand full-sun, loose well-drained, moist soil and they do their best 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".



**Perennial Onion** - (*Allium x proliferum*) The "tree-onion" is a hybrid between a bunching onion and a shallot. These perennial heirlooms, also known as "walking onions", form clusters of bulbils on the tips of the leafstalks. Harvest the sweet pungent scallions in spring and the bulbils in summer (use like pearl onions).

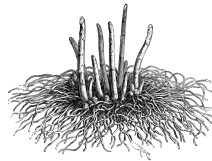


**Rhubarb**- (*Rheum rhabarbarum*) is a very cold hardy plant with red or pink leaf stalks (petioles). It prefers, rich loose soil (side-dress with compost spring & fall), and plenty of fertilizer. It grows in full sun or woodland shade. Rhubarb's enormous foliage is a beautiful addition to any landscape.

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



**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. Lewis Hill has a delightful chapter on asparagus.



**Fiddlehead Fern - Ostrich Fern** - (*Matteuccia Struthiopteris*) - The most beautiful vegetable. "Asparagus for shady gardens" with a nutty flavor reminiscent of asparagus and pleasantly bitter. Harvest fiddleheads that are tightly curled and no bigger than a half-dollar (larger = tough, unfurled = bitter). Take only three fiddleheads 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.



**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 a grocer. Store in a cool, dark place. Since we use no chemicals to prevent sprouting, they may already have desirable sprouts. Handle them carefully.

Leave the sprouts. Removal will delay vines and increase the number of vines. More vines = smaller tubers at harvest. Tubers the size of an egg or smaller, should be planted whole as "single drops". Fingerling seed are naturally smaller. Generally, 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**: Pre-sprouting seed potatoes before planting encourages earlier growth and reduces time to harvest by two weeks. Spread out the seed tubers on flats with the eyes or the "seed end" up. Keep warm (70°F) w/ moderate light for a week or so and then move to a cooler location (~50°F) with bright light. Chitting takes at least two weeks. Do not cut the seed before chitting. It will dry out. Cut three days before planting, so 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 on a flat, out of direct sunlight to avoid shriveling the seed pieces. Powdered sulfur protects cut surfaces from fungal infections. Use a teaspoonful in a paper bag with the pieces and gently toss them around. (carefully dust over cuts if pre-sprouted). Our Truckee / Tahoe soils lack sulfur (an important plant nutrient).



**Prep'ing Potato Soil :** 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 well in anything short of mud.

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

Potatoes do best in soil with a pH ranging from 5.2-6.8. Alkaline soil will tend to make many varieties scabby. Sulfur can help lower pH.

Potatoes appreciate a little calcium (also lacking in our soils). Lime is best applied in fall to "mellow-in" over winter. Oyster Shell or Dolomite should be used sparingly if applied at planting.

Potatoes want well-balanced nutrition. We recommend adding Biosol and G&B vegetable fertilizer along with the composts. Potatoes given too much nitrogen grow lush vines with few tubers. Excess potassium reduces protein. Organic gardeners use cottonseed and alfalfa meals to feed 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. Plant more in early May. 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. They should not be allowed to dry-out.

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

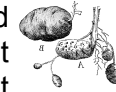


**Hilling:** Sprouts emerge in about two weeks, depending on the soil temperature. When the stems are about 8 inches high, gently cover "hill" the vines with soil and compost from around the plants. Leave about half of the vine exposed. Hilling keeps the root system deeper in cooler soil. Tubers form between the seed piece and the soil surface. Hill again every 2-3 weeks. Use an inch of soil in subsequent hilling and be sure forming potatoes never see light and turn green.

**Avoiding Pests:** The best defense is a good offense; maintain healthy vigorous vines. Soap and Neem will treat aphid infestations. Compost teas seem to reduce many insect and disease problems while feeding the plants. Avoid un-composted animal manures, alkaline soil, and water logging. Where scab occurs, incorporate sulfur into the rows several weeks before planting.

Don't grow potatoes in the same ground more than once in three years and other nightshades should not precede nor follow potatoes.

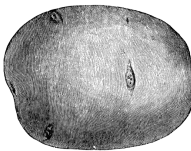
**Harvesting:** About two months after planting, early varieties bloom, indicating that "new potatoes" might be ready. Gently harvest with as little disturbance as possible. The ideal time for the main harvest is when the vines are dead, usually after a heavy frost. Drier soil allows for cleaner harvesting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



Place your spading fork outside the hill to avoid stabbing any potatoes. If the soil is wet, let them air-dry on the surface for a few hours or days before gathering. 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).

**Varieties:** We offer a dozen or so varieties every season, organic whenever possible, in several colors and sizes and we think all of them are delicious and productive in our climate.



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