Growing Potatoes

• **PREPARING THE SEED TO PLANT**: Seed potatoes should be stored in a cool, dark place. We do not use chemicals to prevent our potatoes from sprouting. They may have already begun to sprout. This is often considered desirable. Handle them carefully.

When examining them, chitting, cutting or planting, leave the sprouts on. If you break sprouts off you will delay emergence of the vines; and, you will greatly increase the number of vines that finally do emerge from each potato, greatly reducing the ultimate size of the potatoes you will harvest.

Tubers the size of a hen's egg (1-3 ounces), should be planted whole. Potato growers call these "single drops." **As a general rule the larger the seed piece, the larger the crop both in terms of size of individual potatoes and overall yield.** At minimum, each piece should weigh at least 2-4 ounces and must contain two or more strong eyes.

Most people cut up larger potatoes into pieces before planting. Seed should be allowed to "heal-over" for a day or two prior to planting. Spread the cut pieces out in shallow box. Do not put in direct sunlight; avoid shriveling the seed pieces. Organic gardeners use powdered sulfur, a teaspoonful or two in a large paper sack, gently tossing the cut potato pieces to cover them with sulfur dust to prevent fungus.

• **CHITTING OR PRE-SPROUTING**: The practice of greening and pre-sprouting seed potatoes before planting them out encourages early growth and hastens the development of marketable tubers. The method is simple: spread the seed tubers in open-top crates, boxes or flats, one layer deep with the "seed end" uppermost. (If you'll closely observe a seed potato, you'll notice that one end was attached to the plant, the other end has a larger number of eyes from which the sprouts emerge. This end with the eye cluster is called the seed end.) The flats are kept in a warm place (70 degrees F.) where light levels are medium in intensity (bright shade). The warmth stimulates the development of strong sprouts from the bud eye clusters, which in the presence of light, remain stubby and so are not easily broken off. Usually seed potatoes are greened up starting a week or tow before planting. **Do not cut the seed before greening it up. It will dry out. Cut it just before planting.**

• **SOIL PREPARATION**: The ideal potato soil is deep, light and loose, a well-drained but moisture retentive loam. Most potato varieties are very aggressive rooting plants, and are able to take full advantage of such soil. Fortunately, the potato is also very adaptable and will usually produce quite respectably where soil conditions are less than perfect.

All soils should be deeply fitted before planting by sub-soiling or double digging and by incorporating organic compost. Kellogg's Amend or Gromulch will lighten and aerate heavy ground while increasing the moisture holding capacity of sandy earth.

Potatoes do best in soil with a pH ranging from 5.2-6.8. Alkaline soil will tend to make many varieties get scabby. Potatoes also respond to calcium, but newly-applied agricultural lime can induce scab so if lime is needed, far better if it was added the previous year. On soils already above 6.0 we recommend using a little gypsum to supply calcium while leaving the pH just about unchanged. Gypsum applied at 5 pounds per 100 square feet provides all needed calcium.

Potatoes need well-balanced nutrition. Mature finished compost at 25-50 pounds (1-2 cubic feet) per 100 square feet dug into the rows below the seed is generally sufficient to produce a fine crop. We recommend supplementing with Biosol and/or Dr. Earth fertilizer (not too much). Potatoes given too much nitrogen grow lots of leafy vines but make few tubers. Too much potassium and your tubers may contain less protein. Organic gardeners may use cottonseed meal to enhance the nitrogen and lower the pH. Alfalfa meal or chicken manure compost also work well.

• **PLANTING**: Seed potatoes can rot without sprouting in cold, waterlogged soil, so planting extremely early can be risky. Optimum soil temperature for good growth ranges from 55 deg. F. to 70 deg. F. A small planting of the earliest early potatoes may be attempted by planting in late April. If a late frost burns the vines back to ground level the tubers will make more sprouts, and each time this setback happens the final yield gets later and smaller. Your main crop should be sown in mid May so that risk of frost blackening the emerging vines is reduced. The width between rows and overall plant spacing is determined by the size of your garden, your method of cultivation and the amount of irrigation you have available (or wish to use). Farmers and market gardeners need 36-42 inches between rows to permit efficient cultivation and hilling. Gardeners can get by with as little as 2 feet between rows. Whatever your row spacing, dig a shallow trench about 6-8 inches deep. Plant the seed pieces 10-14 inches apart in this trench. Using a rake, cover the seed with 3-4 inches of soil-do not fill the trench completely.

• **HILLING**: Hilling is crucial to creating a place for potatoes to develop abundantly and of large size. Sprouts will emerge in about two weeks, depending on the soil temperature. When the stems are about 8 inches high, gently hill the vines up with soil scraped from both sides of the row with a hoe. Doing this simultaneously weeds the row. Leave about half of the vine exposed. Hilling puts the root system deeper where the soil is cooler while the just scraped-up soil creates a light fluffy medium for the tubers to develop into. All tubers will form between the seed piece and the surface of the soil. Another hilling will be needed in another 2-3 weeks and yet another as well, 2 weeks after the second. On subsequent hillings, add only an inch or two of soil to the hill, but make sure there is enough soil atop the forming potatoes that they don't push out of the hill and get exposed to light (or they'll turn green). But if you hill up too much soil, you'll cover too many leaves and reduce your final yield.

• **WATERING**: Minimally irrigated potatoes are less watery and taste better. The skins are also tougher so the tubers store better. There is some evidence that potatoes grown this way have a higher protein content as well.

• **FERTILIZING**: After emergence and until blooming ends, we highly recommend foliar spraying every two weeks with BigBloom and a good liquid seaweed extract like Maxicrop. You can't beat foliar sprays for ease of application, and the plants respond with growth that will result in a higher yield at the end. Spray in the morning while it's still cool and the dew lingers on the leaves. This way all the fertilizer is absorbed. The best time to make the first application is the day before you hill up the vines for the first time. Once the vines are in full bloom, they stop making much new vegetative growth and begin to form tubers. Additional fertilization at this stage is virtually pointless.

• **AVOIDING PEST AND DISEASES**: Soil is everything! Build and maintain a healthy, well-balanced soil and your plants will naturally resist disease and damage from predatory insects.

Scab. Avoid un-composted animal manures, alkaline soil, and water logging on potato ground to avoid scab. Where scab has been a problem, try acidifying your soil pH by incorporating small amounts of elemental sulfur into the rows several weeks before planting.

Disease. Don't grow potatoes in the same ground more than once in three years. Many diseases, like early or late blight and verticulum wilt are soil borne.

Insect pest populations can also accumulate in a spot. Other members of the nightshade family (tomatoes, peppers, eggplant) should not precede nor follow potatoes.

• **INSECTS**: To avoid insect problems have vigorously growing, healthy vines. Plants putting on lots of leaf rapidly can generally withstand some predation without a significant loss of yield. We avoid planting too early when cold weather check growth. Leaf-eating insects can become a much more serous problem once vine growth has stopped and tubers are forming. The tubers store the food made by the leaves; if too many leaves are lost the tubers can't develop properly.

Bacillis thuringienses (Bt.) var. san diego, is an effective botanical control for Potato Beetle, but it only controls the larvae. The adults are not harmed. Hours after the "worm" eats a bit of treated leaf, it becomes so sick it can't eat again and dies within a day or two. Then the bacteria multiply within the larvae's decomposing body and are later released into the environmental background to kill still other beetle larvae. Even growers with small gardens should consider Bt. because these bacteria, once established, persists in the area for years and continues to significantly reduce the number of those insects who succumb to it. And if Bt. is sprayed frequently it can virtually eliminate the problem. Bt. is entirely nontoxic to humans and other animals and harmless to most insects as well; you can immediately eat food sprayed with it. If adult beetles are causing too much trouble, Bt. will not help until the next cycle has come around. For adults, the organic gardener can use a Pyrethrum spray.

Compost teas have been shown to reduce many insect and disease problems.

• **HARVESTING**: Normally, seven or eight weeks after planting, the earliest varieties are blossoming. This signifies that early potatoes (new potatoes) may be ready, so gently poke into a potato hill by hand to see what you can find while making as little disturbance as possible. You may either "rob" a few plants of a potato, or simply harvest an entire plant from the end of the row. "Rob" gently to avoid injuring growing roots and stressing the plant.

The main crop: Later varieties are usually grown for winter storage. The ideal time to harvest is when the vines are dead. Wait until heavy frosts kill the tops off. If you can wait for the tops to die back naturally, your harvest will be a little bigger and your potatoes just a tad richer. Dryish soil is definitely an advantage when harvesting; the tubers come up a lot cleaner and with much less effort. After the tops are dead, rest the tubers in the ground, undisturbed for two 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. It is better to harvest in the cool morning hours. You want to chill your tubers down as fast as reasonably possible and if they start out cool it will be much easier.

When hand digging, place your fork outside the hill at first and lift the hill from outside so as to avoid stabbing a potato. If the soil is wet, let them air-dry on the surface for a few hours before gathering them. If the weather is unsettled and you still must harvest, spread the potatoes out under cover and let them air-dry before storing.

"Field-grade" your harvest. Separate out and discard (or eat immediately) any blemished, scabby, misshapen, or injured tubers. Do not put cut or damaged tubers (those injured during harvest) into a sack of good ones; they will rot and rot other potatoes with them.

• **STORAGE**: Potatoes keep best in the dark at 36 deg. to 40 deg. F., at high enough humidity that they don't dry out, and given enough air circulation that they can respire (don't forget, they're alive). Light and/or warmth promote sprouting and will also turn the potatoes green. But, cold potatoes bruise easily, so handle them gently when moving them around in storage. We recommend burlap sacks, slotted crates or baskets.
(The previous is from several sources on-line and compiled for this hand-out)