



PREPARING THE SEED TO PLANT

*Open all bags upon arrival and inspect the tubers. If you are unable to plant them immediately, the seed should be stored loosely in a cool, dark place. Humidity is necessary as the seed should not be allowed to dry out, consider putting the bags into a refrigerator (these dehydrate the potatoes), put bags we sent you into a doubled supermarket paper sack and seal it well. This will sufficiently slow down moisture loss while permitting the seed to breath adequately. We do not use chemicals to prevent our potatoes from sprouting. So the seed potatoes you order may have already begun to sprout when they arrive. This is okay-in fact some consider it desirable. Please 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. All tubers the size of a hen's egg (1-3 ounces), may be planted whole. Ones this size are highly desirable. Professional potato growers call these "single drops." We try to manage our seed potato fields so as to produce as large a proportion of single drops as possible. Larger tubers give the grower a dilemma. As a general rule the larger the seed piece, the larger the crop both in terms of size of individual potatoes and overall yield. On the other hand, the larger the seed pieces used, the more seed it takes to plant a given area. At minimum, however, 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 immediately before planting, using a clean, sharp knife. Seed may be allowed to "heal over" for a day prior to planting, but must not be allowed to dry out. Spread the cut pieces out on a table in the shade or one layer deep in shallow boxes. Do not put in direct sunlight; avoid shriveling the seed pieces, which will weaken them. **Growers dust newly-cut pieces with fungicide to guard against scab or reduce the threat of infection by bacteria or fungus. Organic gardeners may use powdered sulfur, placing a teaspoonful or two in a large paper sack and gently tossing the cut potato pieces to cover them with sulfur dust.***

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. In ideal soil potatoes can make incredible yields. Fortunately, the potato is also very adaptable and will usually produce quite respectably where soil conditions are less than perfect. Because of this, many people who grow their own food on marginal agricultural ground depend on the potato for their very survival. All soils, be they ideal of too heavy or too light, should be deeply fitted before planting by sub-soiling or double digging and by incorporating organic matter. Humus is important. It lightens and aerates heavy ground while it increases the moisture holding capacity of sandy earth. And humus adds the organic component of fertility that potatoes need to be truly healthy. Potatoes especially thrive one newly plowed pasture land, a circumstance a bit difficult for most vegetables because of the large number of weed seeds. The frequent hoeing used to hill the crop up keeps weeds under control while the high levels of organic matter from the rotting sod keeps the soil light and loose. 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 1 ton/acre (that's 5 pounds per 100 square feet) provides all

damage from predatory insects. If you're uncertain as to how to do this, we sell a couple of fine books on the subject. 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 verticillium 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

The most basic rule: 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 serious 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. The Colorado Potato Beetle is the most widespread and destructive potato pest. Both adults and larvae feed on leaves and stems, sometimes defoliating entire plants. Handpicking the beetles off the plants is fine control in a small garden, if you catch the problem early. Drop the beetles into a container and then smash them all at once. Check also for small yellow eggs, in clusters, on the undersides of leaves and crush these immediately. Beetle eggs over-winter in the soil, especially at the edges of the garden. Rotation of the farm potato crop is essential, but rotation in a backyard won't do much good for this mobile pest; you have to move the potato patch more than just a few feet. *Bacillus thuringiensis* (Bt.) var. *San Diego*, is an effective botanical control, but unfortunately, only for the larvae. The adults are not harmed at all. 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 this 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. Start with spraying as soon as there is anything in the garden for the beetles to eat and spray every 10 days to two weeks. That way no larvae get a chance to become adults and your problem may "peter out" before the potato vines are significantly damaged. Bt. is a bacteria not significantly different than the ones that make yogurt. 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 5% Rotenone dust or a Pyrethrin spray. Flea beetles can also make so many pinholes in leaves that the overall yield suffers greatly. The health of the vines has a great deal to do with how much interest flea beetles have in a plant. So the best prevention is total soil fertility. Sometimes spraying fertilizer like fish emulsion and/or liquid seaweed can lessen the interest flea beetles may have in a potato patch. Rotenone and/or Pyrethrin controls flea beetles, too. If you are having flea beetle problems, you should consider improving your soil's fertility next year.

ALTERNATIVE PLANTING METHODS

MULCHING

If your soil is shallow, rocky or contains so much clay that the forming tubers can't push it aside as they try to swell up, or, if you grow potatoes where the summer's heat is intense, or if you have problems with potato scab in your soil, growing in mulch may be your solution. Prepare your seed bed as deeply as possible and make it fertile, just as you would for growing the potatoes in soil. But instead of making a trench for the seed pieces, plant them on the surface of just below it. Loosely shake mulch over the bed, 6-10 inches deep. The very best mulch to use is loose, seed-free grain straw, Seed-free hay that has been fluffed up, leaves and/or well-dried grass clippings can also be used. As the plants grow, continue to add more loose mulch as though you were hilling up the plants. Be sure to keep the tubers well-covered at all times.

The result is excellent weed control, a continuous supply of moisture and reduced stress from heat. At harvest time, pull back the mulch. Your nest of potatoes should be clean, uniform and easy to gather.

THE CAGE METHOD

Grow a few potato plants, each or in their own wooden box, crib, barrel or wire cage. The container should be about 18x18 inches at the base, about 24-30 inches tall, and able to be gradually filled with soft soil or mulch as the vines grow. Set each container atop a well-prepared fertile soil. Plant one strong seed piece and cover lightly with 4 inches of soil. As the vines grow, gradually fill the container with mellow compost, mulch or soil, but always make sure you don't cover more than one-third of the vine's new growth. With some varieties, the underground stolons which produce potato tubers keep on forming new ones for some time. In containers the yield may be increased 200-3000 percent compared with open-field culture. This is a great way to grow a lot of potatoes in a very limited space. We recommend doing this with Yellow Finn, Indian Pit, Red Pontiac, or the fingerling types. Watering requirements will be greater however, so check the cages or containers frequently in warm weather.

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.

SOUTHERN GROWN POTATOES

Early Spring Planting

Spring comes to the Deep South (Zones 8, 9, 10) when it is frequently too stormy in the North to ship your seeds without a high likelihood of them freezing in transit. To get seed potatoes securely you should order in October or November. Store the seed in your refrigerator (there are instructions on the preceding pages) until mid-January. Then bring the seed potatoes into the warmth and light and pre-sprout (chit) them for 2-4 weeks. Plant when conditions are favorable, sometime in February to early March, depending on your location. If you are uncertain when to plant or which varieties grow best at this time of year, ask a neighbor, the Extension Service.

Fall-Planted Potatoes

In zones 8-10, over wintering gets the earliest of the earlys. And if you have an extra old refrigerator, you can fill it up after harvest and hold your harvest through the summer until the fall crop. Here's what to do. Order some seed now for delivery next September. These newly dug seed potatoes don't sprout easily. First, chill them; put the tubers in a paper bag and place it in the refrigerator for 2-4 weeks. Then follow the directions for "greening" or "chitting" them. They will probably sprout in 2-4 weeks. Another way to induce sprouting is by putting apples, bananas, or onions in a paper bag with the tubers and placing the bag in a warm room (70 degrees F.). Ethylene gas given off from the fruits will initiate sprouting. Potatoes that are chilled for a month to six weeks will respond much more rapidly. You can also treat with Gerablic Acid. Plant your just sprouting potatoes from October through November. Choose a site that allows good drainage where winter rains may be heavy. By January, your potatoes could be emerging. By March, the vines may be two feet tall! Of course, weather will greatly effect emergence and growth. Be sure to provide protection from frost when it threatens. Dig new potatoes after blossoming. Harvest the rest when the vines have browned off. Save some seed in your refrigerator for a late-summer planting and fall harvest.