

GROWING POTATOES IN THE HOME GARDEN

Potatoes are an excellent choice for the home garden. They yield well under a range of soil and growing conditions and can be stored for long periods without canning, drying, or freezing. They can be prepared by any method of cookery, alone or in combination with other foods.

An average sized baked potato contains 90 to 100 calories—slightly more than an apple, equivalent to one-half cup of cottage cheese. Potatoes contain small amounts of protein. This protein is among the best to be found in vegetables. Tubers are a source of trace minerals and several vitamins, including Vitamin C. The vitamin C content will vary with the preparation method.

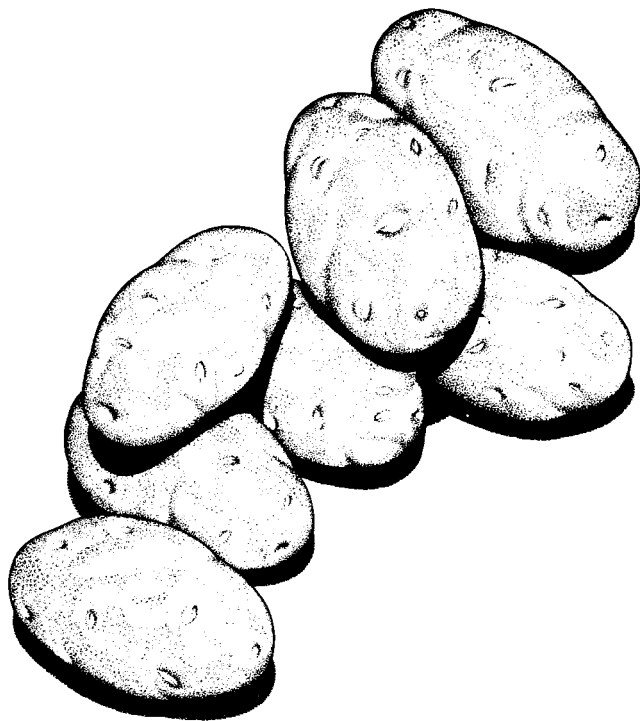
Potatoes perform well in most situations but are susceptible to a number of pests and disorders. Most of these problems can be prevented by following the suggestions given here. Bear in mind that methods and varieties used in commercial production are not always suitable for home gardens.

Selecting a Variety

Selecting the proper variety is important since varieties differ in yield, cooking characteristics, time of maturity, skin color, and storage life. Varieties are classed as *white*, *red*, or *russet*, based on skin color and texture. Tubers of white and red varieties are generally round to oblong and relatively thin-skinned compared to russets. Russet tubers usually are relatively dark and thick-skinned at maturity, and those of the leading variety, Russet Burbank, are somewhat elongated. Because of their thick skins, russet varieties are less susceptible to skinning during harvest than reds or whites.

Consider the time span from planting to maturity when selecting a variety. Norland, for example, may mature in 80 to 90 days, compared to 120 or more for Russet Burbank. Early-maturing varieties are a better choice for "new" potatoes, but late maturing varieties are better for winter storage, since they are more resistant to sprouting and shrivelling than early types.

Select a variety suited to the method of cooking you prefer. While Russet Burbank is excellent for frying and baking it is often inferior to Kennebec or Pontiac for boiling. Many home gardeners prefer to grow an all-purpose variety such as Kennebec, while those with more space grow several varieties for specific uses.



The following varieties are satisfactory for Oregon home gardens. You may want to try more than one.

Early maturing varieties

- *Norland*—Red. Produces low to medium yields of average-sized tubers. Tuber shape and appearance are usually excellent. The earliest variety currently grown in Oregon. Good for boiling and frying, fair for baking. Somewhat resistant to common scab.

- *Norgold*—Russet. Yields slightly higher than Norland but also matures slightly later. Susceptible to blackleg and hollow-heart of tubers. The leading early-maturing variety in Oregon. Fair to good for baking, french-frying and cooking.

- *White Rose*—White. Tubers generally long, thin-skinned and deep-eyed. Good yields. Will not bake well early but satisfactory for most other uses. Flavor and texture generally not as good as Kennebec. Slightly later-maturing than Norgold.

Mid-season varieties

- *Kennebec*—White. An excellent all-purpose potato. High yields of large tubers. Susceptible to scab and greening when not hilled properly. Kennebec boils, bakes and fries satisfactorily. Excellent for french-frying. A good choice.

- *Red LaSoda*—Red. Yields higher than Norland. Bright red skins, smooth tuber shape. Widely grown in home gardens. Satisfactory to good for most home uses. Susceptible to common scab.

- *Red Pontiac*—Red. Midseason to late. Extremely high yields of large, deep-eyed potatoes. Good cooking quality for most uses. A good red storage potato. Generally too late for “new” potatoes.

Late-maturing varieties

- *Russet Burbank*—Russet. Also known as “Netted Gem,” the “Idaho Baker” and “Russet.” Leading variety in Oregon. Medium to high yields of large, long and sometimes knobby tubers. Excellent for baking and french-frying, fair for cooking. Stores extremely well.

- *Nooksack*—Russet. Smooth, large and oblong tubers. Outstanding for baking, excellent for french-frying. Very resistant to sprouting in storage. Yields lower than Russet Burbank.

Cutting and Handling Seed

Plant only *certified seed* potatoes which are relatively free of diseases and produce healthy plants. Never plant left-over supermarket potatoes since they may have been treated with a chemical to prevent sprouting and are usually diseased. Most gardening centers stock certified seed of several common varieties.

Tubers should be cut into several seed pieces depending on size. The ideal seed piece is blocky in shape, weighs between one and two ounces (slightly larger than a golf ball) and must have one or more “eyes” or buds. When cut properly, ten pounds of seed potatoes will produce about 100 seed pieces or enough to plant around 100 feet of row. A 100-foot row should yield at least 150 to 200 pounds of usable potatoes.

Plant immediately after cutting when possible. If planting must be delayed a few days, hold seed pieces at room temperature to promote sprouting and healing of wounds. The seed pieces should be held at high humidity but do not use airtight containers. Some sprouting is normal and desirable for rapid emergence through the soil, but sprouts should not be so long that they break off during planting.

If the weather is cold and wet at planting, it is desirable to treat seed pieces with a fungicide such as Captan 7.5 percent dust before planting to reduce decay. A popular method with home gardeners is to place freshly cut seed pieces and a small amount of dust in a closed bag and shake the contents vigorously. Treatment should be done outside or in a well-ventilated area since fungicide dusts can irritate the skin, nose and throat. Read the label carefully for precautions and rates of application.

Soil and Fertility Requirements

Potatoes do best on fertile, well-drained loamy or sandy soils but can be grown on virtually any soil if high yields and smooth appearance are not essential. Work the soil to a depth of six to eight inches before planting. The seed bed does not need to be perfectly smooth.

Fertilizers are normally applied at or shortly before planting. Most home gardeners prefer to hand broadcast the entire amount and work it into the top three or four inches of soil by rototilling or raking. A more effective but time-consuming method is to place all or part of the fertilizer in a band three inches to the side and one inch below the seed pieces. A combination of broadcasting half and banding half of the fertilizer is usually the most effective method. Never place fertilizer on or directly above the seed pieces since the salt content will damage or kill the developing plants. Some gardeners band or “side-dress” additional fertilizer beside the rows when plants are about six inches tall. As a general rule, do not side-dress more than about half the amount that was used at planting.

Fertilizer and lime rates should be based on soil tests for best results. Information for soil testing is available from county extension offices. The following recommendations are general in nature and may not apply in your particular situation. *Never use “weed and feed” types of fertilizer on the vegetable garden.*

Central and Eastern Oregon soils

A 16-20-0 (16 percent nitrogen, 20 percent phosphorus, 0 percent potassium) or similar fertilizer is suitable for most central and eastern Oregon soils. In certain areas potash may also be required. In these instances, use fertilizer suggestions for western Oregon. In actual practice, any good complete garden fertilizer such as 12-12-12 or 10-20-20 is usually satisfactory when used at rates supplying suitable levels of nitrogen and phosphorus. The extra potassium ordinarily does not hurt yield and quality. If in doubt, check with your local county extension agent.

Apply the 16-20-0 or equivalent at a rate of 15 pounds per 1,000 square feet, or about five pounds per 100 feet of row. Lower analysis materials should be applied appropriately higher rates.

Western Oregon soils

A 10-16-8 fertilizer (10 percent nitrogen, 16 percent phosphorus and 8 percent potash) is suitable for most western Oregon soils. Apply at a rate of 20 pounds per 1,000 square feet or six pounds per 100 feet of row. Any similar fertilizer, used in amounts adjusted to this rate, would work equally well in most situations. Some western Oregon soils are low in sulfur and may require up to one pound per 1,000 square feet each year. Magnesium may also be low in some instances. Soil tests are particularly useful in detecting shortages of these elements. Your county extension agent will recommend materials and rates on the soil test report.

Liming

Heavy liming is not recommended for potatoes in most cases since it increases the soil pH, often causing scabby tubers. The pH should be held between 5.2 and 5.8, slightly acid, if scab has been a problem. Otherwise it should be around 6.5 since other vegetables do best at pH 6.5 to 6.8. The soil test report will recommend any needed liming.

Planting

Potatoes can be planted from March until mid-June, but most gardeners prefer May. Western Oregon gardeners normally do not plant before late April or early May due to wet weather. Planting early and using early varieties will allow early harvest but may also cause some missing plants due to seed piece decay. You might put in a few hills early for new potatoes and more later for fall and winter storage.

Space seed pieces 10 to 12 inches apart in furrows and cover with about four inches of soil. Deeper covering is permissible on dry or sandy soils in eastern Oregon but be sure not to cover more than about four inches deep on heavy clay soils or in wet situations. Also, be sure that the furrow is slightly mounded in western Oregon to prevent water standing in the rows and drowning the plants. Rows should be spaced about three feet apart for easy cultivation and hilling. Closer rows will produce more potatoes per acre but are harder to work and will reduce tuber size.

Cultivation and Hilling

Weed control is essential for best yields and quality. The most practical method of controlling weeds in the home garden is by mechanical means—rototilling or hoeing. No chemical herbicide is labelled for all crops normally grown in the home garden. Mechanical cultivation also breaks up any soil crusts and increases oxygen availability to the roots. To reduce clods, avoid cultivating when the soil is wet. Late-season cultivation should be shallow and well away from the rows to avoid damaging potato roots.

Potatoes turn green in sunlight. The green color is chlorophyll and not poisonous. To prevent greening, keep the tubers covered by periodically hilling up or mounding soil around the base of the plants with a hoe. Avoid covering the leaves. Since hilling also controls small weeds in the row, most gardeners prefer to form hills gradually by adding a small amount of soil each time the planting is worked. Cultivation and hilling should stop shortly after bloom to avoid root damage. The hills should be about eight inches high and 10 to 12 inches across by that time.

Watering

Potatoes need one to three inches of water per week depending on the time of year. Hot, dry conditions will increase water needs. Begin irrigating shortly after plants come up and keep the soil damp, but not flooded, until the vines begin to die or until one to two weeks before harvest. An even, adequate soil moisture level will increase both yield and quality. Avoid frequent light irrigations. Thorough watering weekly on heavy soils and twice per week on sands is generally sufficient. When sprinklers are used, place open-topped tin cans through the planting to determine how much water has been applied. Run the sprinklers until an inch or so collects in the cans. Reduce water when the vines begin to die on early varieties and late in the season on late varieties to reduce tuber rotting.

Harvesting and Storing

Tubers can be harvested for immediate use as soon as they begin to size. Norland, for example, will produce “new” potatoes for cooking with peas or beans within 50 days after planting. Do not attempt to store “new” potatoes for more than a few days. Potatoes for storage should not be dug until two weeks after vines have died from frost or old age or have been cut and removed. This allows the tuber skin to toughen and resist cutting and bruising during harvest. Harvest for storage normally does not begin before mid-September in most areas. Western Oregon gardeners will want to harvest before the fall rains set in. Never store potatoes showing rots or bad cuts. To prevent excess mud and soil on the tubers, dig only when the soil is relatively dry. Do not wash the potatoes before storage since wet potatoes decay easily.

Potatoes should be stored in a *cool, dark, well-ventilated* area where there is no danger of freezing. Do not use plastic bags or airtight containers which might cause the tubers to suffocate. A root cellar or similar location generally supplies a very satisfactory storage environment for potatoes. Temperatures around 45°F are best for long-term storage. Potatoes stored below 40°F may become sweet-tasting as tuber starch is changed to sugar. Sweet tubers cause dark-colored french fries and off-flavors. Warming the potatoes to room temperature for several days before using will usually cure the problem. At storage temperatures above 50°F, sprouting, shrivelling and rotting will increase. To reduce shrivelling, potatoes should be held in a humid but not wet area. Breaking off sprouts from time to time will reduce shrivelling.

Controlling Pests

Although chemicals mentioned in this publication are relatively safe to humans, all pesticides should be used with caution. Use and store chemicals away from children. Read and precisely follow the instructions printed on the manufacturer's labels. Bear in mind that registrations may change on short notice.

Disease control

Control of certain insects such as aphids, wireworms and flea beetle larvae will reduce disease problems.

- *Seed-borne diseases*—The most serious diseases of potatoes are carried in the seed tubers. Many of these, particularly viruses, can be prevented or reduced by the use of certified seed. Do not plant seed potatoes showing any decay.

- *Early and late blight*—Both early blight and late blight occur in Oregon. Both diseases cause dark, dead spots on the leaves. Early blight spots often look like a bullseye target when examined closely. Late blight lesions often show a white, moldy growth around the edges, particularly on the undersides of the leaves, in early morning or during wet weather. While early blight is primarily a leaf problem, late blight can cause severe tuber rots in storage and was responsible for the Irish Famine of the mid 1840's. Do not attempt to store late-blighted tubers. Since late blight prefers a cool, humid area, it is normally restricted to western Oregon and is especially troublesome in the Willamette Valley in wet, cool weather in late August and September.

Both early and late blight can be controlled by weekly spraying or dusting with maneb, Bordeaux mixture or tribasic copper sulfate. Follow instructions on the label for best results. Additional spray information is available at local county extension offices.

- *Soil-borne diseases*—Avoid growing potatoes in the same section of the garden year after year since this will cause a build-up of soil-borne diseases including Verticillium wilt and scab. Tomatoes, strawberries and eggplant are also susceptible to wilt and should not precede or follow potatoes in the cropping sequence.

Insect control

Insects other than the common ones listed below may attack potatoes. For additional information on insects and spray recommendations ask your county extension agent for Extension Bulletin #747, Vegetable Garden Insect Pests. Bulletins are also available from the bulletin clerk, Industrial Building, Oregon State University, Corvallis.

The discerning gardener will notice that one or two insecticides used as needed will control most of the insects listed.

- *Flea beetles*—Adult flea beetles are shiny, dark beetles about 1/16 inch long. They rest on tops of leaves and jump like a flea when disturbed. Damage caused by the adults is minor, consisting of small round holes slightly larger than a pencil lead in the leaves. Considerable damage can be caused by the larvae feeding on the tubers. Injured tubers show pimple-like swellings on the skin and brown feeding tunnels about 1/32-inch in diameter up to half an inch deep.

Flea beetles can be controlled by spraying or dusting with Sevin, diazinon or various other insecticides. Begin treatment when two-thirds of the plants have come up and continue through the season whenever new leaf damage is observed. Although Sevin will control flea beetles, it will not kill aphids and actually can increase aphid populations since it destroys beneficial insects that feed on aphids.

- *Aphids*—Aphids are green or pink insects about 1/16-inch long which may or may not have wings. They usually feed and cluster on the undersides of leaves and shoot tips. Vines may become covered with thick "honey dew." Aphids feed by sucking sap from the plant. They damage plants by spreading viruses and,

when present in large numbers, weakening or killing the plant. Malathion or diazinon will control them. More than one application during the season will be necessary.

- *Wireworms*—Wireworms are slick, brownish, slender, hard-bodied worms up to 1 1/2-inches long. They live in the soil. The body is segmented and three pairs of legs are situated near the front. Wireworms bore into seed pieces in the spring and later tunnel into tubers or eat out deep, funnel-shaped holes. Rot organisms often get into the wounds. Wireworms can be severe in some gardens and almost non-existent in others. Diazinon granules incorporated into the soil according to label directions will generally do the job.

- *Colorado potato beetles*—This beetle is sometimes troublesome in central and eastern Oregon. The adults are about 1/2-inch long, whitish yellow with black stripes and hard-bodied. The soft-bodied larvae are usually copper-colored. Both adults and larvae feed on the leaves. They can be controlled with Sevin and various other insecticides as directed on the labels. Hand picking the adult beetles and egg masses from the plants is effective, but not very practical in large gardens.

A regular spray program for flea beetles and Colorado potato beetles usually will reduce the incidence of spotted cucumber beetles also. They are troublesome in some areas of Oregon.

- *Blister beetles*—These are large black, shiny beetles about 1/2-inch long. They feed on the leaves, but only occasionally are a serious problem. Do not crush them because their body fluids can cause blisters. Malathion will control them when used properly.

- *Mites*—Mites are very small spider-like creatures which are difficult to see but detectable by their feeding which causes the plants to yellow and die. Webbing may be evident. Mites are usually controlled with malathion; however, mites may be resistant to this material in certain areas. Miticides are available should these insects become a problem.

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