

Potato Production in the Home Garden

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Homegrown potatoes can provide fresh produce from early July through the following spring. This bulletin contains suggestions for successfully growing potatoes in the home garden.

Varieties

Potatoes are easy to grow in the home garden and are an excellent source of nutrition. In fact, potatoes have fewer calories and contain more nutrients than rice, pasta, or bread. Potatoes may be boiled, baked, fried, or used in many other ways. Several types and varieties of potatoes are available, each best for different culinary uses.

Red varieties are best for boiling and offer the consumer an aesthetically pleasing color contrast when served with meat and other vegetables, a choice of cooking methods, a somewhat sweet flavor (particularly after storage), and a unique texture. Seed of several red varieties is available in garden supply stores and seed catalogs.

White-skinned varieties can be multi-purpose, meaning they can be boiled or fried. Those with high specific gravity and an ability to accumulate less sugar can be processed into potato chips, giving them a lighter cooked color.

Russet varieties are characterized by their heavy, dark brown, netted skin. Most are oblong to long and are considered the best baking potato. Some russet varieties are excellent for making french fries, mash potatoes, or salads.

Consider exotic and heirloom potato varieties for some of your garden production. They add color, interest, and versatility to meal planning. Some of the specialty varieties that are available include Yukon Gold, Yellow Finn, All Blue, and All Red. Table 1 on the next page describes several potato varieties adapted to Idaho's climate. The chart lists many common varieties with different culinary uses and summarizes the strengths and weaknesses of each.

Cultural Practices

Planting

Home gardeners can grow potato plants from whole tubers, called seed tubers, or from pieces of a tuber with at least one "eye." Many garden stores carry certified seed potatoes, so seed should not be difficult to find. You may have to consult a local Extension educator to find a source for some exotic varieties. Buy your seed in early spring to be sure you get what you need. You will need 8 to 10 pounds of seed potatoes for each 100 feet of row. For best production, seed tubers and/or seed pieces should weigh about 2 ounces.

Potatoes germinate and emerge best when daytime soil temperatures are consistently higher than 50°F. Plant seed 5 to 6 inches deep. Plant the seed tubers about 10 to 12 inches apart in rows 30 to 36 inches wide.

Although potatoes can be planted on flat ground, it is better to form a hill around the plant. Hills provide room for developing tubers to grow without being pushed out of the ground, causing greening by the sun. Hilling is also important for drainage. Potato hills can be formed at planting time by mounding dirt up around the seed piece, or they can be formed after the plants are up. It is best to hill within 4 weeks of planting.

Be sure to have good soil moisture at planting. If soil moisture is inadequate, lightly irrigate before planting to ensure rapid, early plant growth. Extremely wet soils, however, will increase the possibilities of seed piece rot.

Rotation

Do not plant potatoes in the same area of the garden each year. Doing this may predispose the plants to disease problems.

Irrigation

Potatoes require good soil moisture at all stages of growth. An uneven water supply can cause tuber problems such as knobs or growth cracks. Potato plants do not use much water early or late in the season, but they need a lot of water when the foliage is fully developed (late June through July).

Table 1. Potato varieties recommended for use in Idaho gardens.

Variety	Description	Maturity	Use	Comments
Red LaSoda	High yielding. Light red skin. Oval tuber shape.	Late	Fresh table	Wide adaptability. Deep eyes may make peeling difficult. Occasional hollow heart and growth cracks.
Red Norland	Medium yielding. Bright red skin. Round tuber type.	Early	Fresh table	Common garden variety. Some resistance to scab.
IdaRose	High yielding. Dark red skin. Round tuber type.	Late	Fresh table	Good cooking quality. Resistant to most internal disorders. Stores well.
Chipeta	High yielding. White skin. Oval tuber type.	Late	Chipping Fresh table	Resistant to scab and early blight. Excellent cooking quality.
Ivory Crisp	Medium yielding. White skin. Round tuber type.	Early	Chipping	Resistant to most internal disorders. Cooks well after being stored at cold temperatures.
Kennebec	Very high yielding. White skin, Oval to oblong tuber type.	Medium	Fresh table Chipping French fries	Shallow eyes. Susceptible to scab, blackleg, growth cracks, and hollow heart.
Russet Burbank	Medium to high yielding. Medium russet skin. Long tuber type.	Late	Fresh table French fries	The famous "Idaho Potato." Susceptible to stress induced malformations and diseases. Difficult to grow in the home garden. Stores well.
Gem Russet	Medium yielding. Medium russet skin. Long, cylindrical tuber shape.	Medium	Fresh table French fries	Excellent baking quality. Resistant to stress and shape disorders.
Ranger Russet	High yielding. Medium russet skin. Long tuber type.	Late	French fries Fresh table	Resistant to internal defects. Susceptible to scab. Occasional deep eyes.
Russet Norkotah	Low yielding. Medium russet skin. Long tuber type.	Very early	Baking	Attractive appearance.
All Blue	Dark blue-purple skin. Blue-purple flesh color.	Late	Fresh table	Exotic.
All Red	Light red skin and light red tuber flesh.	Late	Fresh table	Exotic.
Yellow Finn	White skin. Yellow flesh color. Oblong tuber type.	Medium to late	Fresh table	Old garden variety. Wide adaptability.
Yukon Gold	High yielding. Buff colored skin. Yellow flesh color. Oblong tuber shape.	Medium	Fresh table	Attractive appearance. Good culinary quality.

Plants take up most water from the top foot of soil. Check the soil in this part of the root zone to determine irrigation timing. If the soil looks and feels moist and forms a firm, wet ball when squeezed by hand, soil moisture is adequate. If the soil feels only slightly moist and forms a fragile ball when squeezed, apply 1/2 inch of irrigation water. Dry, loose, crumbly, or powdery soil in the root zone requires a 1-inch irrigation for sandy soils and up to 2 inches for loamy soils. Heavier soils need irrigation every 5 to 7 days, but more frequent irrigations may be necessary on sandy soils.

Sprinkler-irrigated potatoes benefit from light, frequent (3 to 5 days) water applications, especially when

temperatures are higher than 80°F. When using sprinkler irrigation, check the water application by placing a tin can near the plants, and after each irrigation, measuring the depth of the water accumulated.

Near the end of the summer, once the plants begin to yellow and the lower leaves start dying, reduce the irrigation rate. Too much water late in the season may predispose the tubers to rot. If the potatoes are to be stored, the vines should be pulled or killed to mature the tubers and to set the skin. The vines should be dead for 2 to 3 weeks before harvest. Potatoes that are to be used directly from the garden do not need to be matured.

Fertilization

Potatoes respond well to optimal levels of soil nutrients. Be careful not to overfertilize, especially with nitrogen (N). Excessive N will cause plants to produce too much foliage, and delay tuber growth. The best method to determine how much fertilizer to apply is to test the soil. (For more information, consult EXT 704, Soil Sampling.)

Part of the fertilizer should be applied before planting and part during the growing season. Broadcast about half of the total fertilizer requirement before planting when tilling the soil. Choose a balanced fertilizer, such as 5-10-10, 10-10-10, 16-20-0, or an organic form, such as compost. Potatoes will use about 0.38 total pound of N for every 100 square feet of garden space.

If using 16-20-0, for example, the fertilizer contains 16 percent N, 20 percent phosphorus (P_2O_5), and 0 percent potassium (K_2O). Therefore, for a 100 square foot area, apply 2.4 pounds ($0.38 \div 0.16 = 2.4$) of material (1.2 pounds at planting, another 1.2 pounds when the plants are about a foot tall).

Apply the preplant fertilizer uniformly across the garden area and incorporate into the top 3 to 4 inches with a rake. Broadcast the later application over the top of the plants and water it in.

Organic materials such as compost or manure can improve soil tilth and are beneficial to potatoes. Use only thoroughly decomposed or composted sources of manure because fresh manure can increase incidence of a disease called common scab. If noncomposted leaves or grass clippings are added to the soil, it may be necessary to add extra nitrogen fertilizer to help break it down. As a general rule, apply an additional 20 percent to the recommendation outlined earlier.

Pest Control

Several weed, insect, and disease pests can affect potatoes in a home garden. Examine regularly the potato plants to detect pest outbreaks before they become major problems. Many pests can be controlled without using chemicals, especially if detected early. Disease control may not be necessary in the home garden.

Weeds—The most critical period for weed competition is during early growth, from emergence until plants are approximately 12 inches tall. Control common annual weeds such as redroot pigweed, lambsquarters, and nightshade by hoeing or pulling during the hilling operation. Cultivation can actually spread troublesome weeds, such as thistle and quackgrass. (For more information on weed control, consult EXT 726, Weed Control in the Home Garden.) Once plants reach their full size, cultivation must be shallow to avoid damaging roots near the soil surface.

Insects—The most troublesome insect in the home garden is the Colorado Potato Beetle (CPB). CPB may appear as soon as the potatoes emerge (Fig. 1). The adult beetles, which overwinter in the soil, emerge in the spring to lay eggs on potato plants. Adult beetles have round, hard, yellow wings with 10 black stripes. The eggs hatch, producing larvae, which do the most damage to potato plants. Larval feeding defoliates the plants. Larvae are brick-red with two rows of black spots on each side (Fig. 2).

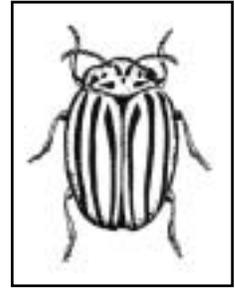


Fig. 1

To control the adult beetles, hand pick them from the potato plants before they lay their eggs on the undersides of the leaves. The eggs are a bright orange-yellow color. If the eggs hatch, pesticides are available to kill the larvae.

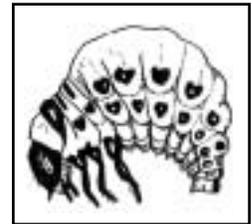


Fig. 2

Diseases—Potatoes are affected by a long list of disease problems. Fortunately, most of them are not important in the home garden. Many common seedborne potato diseases can be avoided by purchasing and planting certified seed. Included is a brief description of diseases that home gardeners frequently encounter and suggestions for control. Note that the control measures include management practices that involve the entire season, even before planting. The best strategy is to avoid conditions that favor disease development.

Common scab can be a problem on tubers harvested from the home garden. Scab is strictly an appearance problem and does not affect potato quality. This disease is caused by a bacterium and is characterized by small (generally 5mm to 8mm diameter), light, tan to brown lesions resembling small scabs on the tuber skin.

Dry soil conditions enhance scab development, especially when the tubers are small. Scab can be particularly severe in soils with a high organic matter content. For control, avoid planting potatoes in soil recently treated with animal manure. Proper water management should greatly reduce the potential for scab development. In gardens where scab has been a problem in the past, consider planting a scab-resistant variety.

Early blight is caused by a fungus and characterized by circular, brown to black dead spots (lesions) on the leaves. The shape of the spots may change from circular to angular if a large leaf vein stops the fungi progression. Early blight lesions have a bullseye appearance. Lesions usually appear on the lower leaves first and may then progress upwards on the plant until all of the foliage is affected and the plant dies prematurely.

The disease can usually be managed without fungicides by maintaining proper soil fertility and good water management. Avoid watering practices that dampen foliage for long periods of time. Early maturing varieties are more susceptible to early blight than later maturing varieties. If a fungicide application becomes necessary, consult your local Extension educator.

Late blight is one of the most destructive of the potato diseases. It is caused by a fungus and can defoliate and completely kill potatoes during extended periods of cool, wet weather. The first symptoms of the disease are leaf lesions that start out as water soaked (wet looking gray tissue that looks bruised) areas on the edges of the leaves. These lesions can be confused with early blight but usually do not take on a bullseye appearance and progress much more rapidly over the surface of the leaf. One good diagnostic symptom of late blight is the formation of a cottony mat on the underside of lesions visible in the morning after a cool, moist night.

For control of late blight, it is best to use a preventative strategy. Every few weeks, apply a fungicide to the leaves of the plants, even if no disease is visible. If the weather becomes cool and wet, apply the fungicide more frequently, possibly as often as every 5 days.

Late blight is not present in every area during any given year. If the disease is not present in the region, there may be less urgency to apply fungicides. A local county Extension educator can provide information on the presence of late blight in your area.

Pink rot, often called water rot, is caused by a fungus and is characterized by swollen, waterlogged tubers that may be partially or totally rotted. The flesh of these rotted tubers turns pink about a half hour or after they are cut open, thus the name. Pink rot occurs when plants are over-watered. Proper water management, especially late in the growing season, is the best control.

Harvesting and Storage

Potatoes can be harvested during the season and used as new potatoes, or in the fall after the plants mature. New potatoes can be harvested as soon as the tubers are

large enough to eat. Determine the size of the potatoes without damaging the plant by digging into the side of the hill. Consume new potatoes quickly because the thin skin allows rapid moisture loss and easy disease infection. For storage, dig the potatoes after they are fully mature and the skin is set. Fully mature potatoes have skin that is difficult to remove when rubbed.

Store potatoes in a cool and humid place. A root cellar with a dirt floor is ideal. Store the potatoes at 50° to 60°F with high humidity for 2 to 3 weeks after harvest. This curing period allows any bruises or wounds that occurred during harvest to heal. After curing, maintain the storage temperature near 40°F through the winter storage season. Be sure no light comes in contact with the potatoes; light causes the tubers to turn green and develop a bitter taste.

Good air circulation around the potatoes will reduce storage rots and sprouting. Use a burlap bag, slotted bin, or other similar container. Do not store potatoes with fruit. Ripening apples and other fruit give off a plant hormone, ethylene, which can make potatoes sprout prematurely.

Further Reading

To order these or other publications, contact the University of Idaho Extension education in your county, or contact Ag Publications, University of Idaho, Moscow, Idaho 83844-2240, phone (208) 885-7982, or email: agpubs@uidaho.edu
CIS 897 Herbicides for the Home Garden (35¢)
BUL 775 Planning an Idaho Vegetable Garden (\$4.00)
EXT 704 Soil Sampling (\$2.00)
EXT 726 Weed Control in the Home Garden (50¢)

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