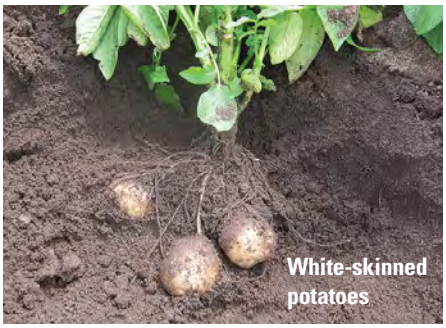

Red-skinned potatoes


Potato flowers


White-skinned potatoes

Potatoes

The potato (*Solanum tuberosum*) is one of the most important vegetable crops in the world. The edible part of the potato plant is the underground swollen stem known as a tuber. The tubers of potato cultivars vary in size, shape, color, storability, and culinary uses.

Cultivars

Numerous potato cultivars are available. Commonly grown potato cultivars that perform well in Iowa are listed in the chart below. The chart includes characteristics of each cultivar, such as maturity, color, and storability.

While the standard potato cultivars listed in the chart perform well in Iowa, there are other cultivars with unusual colors and shapes. For example, 'All Red' is a mid-season cultivar that produces medium-sized tubers with a red skin and pale pink flesh. 'Russian Banana' produces small, banana-shaped tubers which are excellent in salads. The oblong tubers of 'Purple Majesty' have purple skins and flesh. Heirloom and novelty cultivars are tasty and fun additions to the vegetable garden.

Planting

Potatoes prefer loose, fertile, slightly acidic soils. Do not amend the soil with large amounts of manure or other types of organic matter. The addition of organic matter may increase the occurrence of potato scab. This disease may also be a problem in alkaline soils.

If a soil test has not been conducted, an application of 1-2 pounds of an all-purpose garden fertilizer, such as 10-10-10, per 100 square feet should be adequate for most home gardens. Broadcast and incorporate the fertilizer into the soil shortly before planting.

Cultivar	Maturity	Skin Color	Flesh Color	Tuber Shape	Storage	Culinary Use
Red Norland*	Early	Red	White	Oblong	Good	Boiling
Russet Norkotah*	Early	Russet	White	Oblong	Good	Baking
Superior*	Early	Buff	White	Oval	Good	Boiling
Yukon Gold	Early	Yellow/Buff	Light Yellow	Oval	Excellent	Baking Boiling
Gold Rush	Mid	Russet	White	Oblong	Good	Baking Boiling
Katahdin	Late	Buff	White	Round	Excellent	Baking Boiling
Kennebec	Late	Buff	White	Oval	Excellent	Baking Boiling
Red Pontiac	Late	Red	White	Oblong	Very Good	Baking

* Possess good resistance to potato scab.

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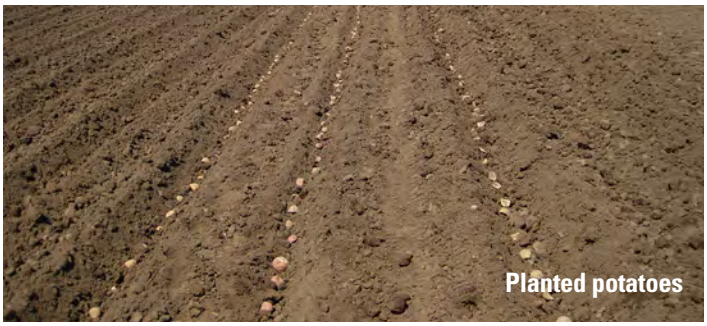

Planted potatoes

Potatoes are susceptible to several serious diseases. Therefore, purchase certified, disease-free potatoes at garden centers and mail-order nurseries. Potatoes that remain from last year's crop may carry undetectable diseases. Potatoes purchased at supermarkets (for table use) may have been treated to prevent sprouting. Best results (excellent quality and high yields) are obtained with certified seed potatoes.

Gardeners can purchase seed pieces (tubers that have been cut into sections) and whole potatoes. Small potato tubers may be planted whole. Large potatoes should be cut into sections or pieces. Each seed piece should contain one or two eyes or buds and weigh approximately 1.5-2.0 ounces. After cutting the tubers into sections, place the freshly cut seed pieces in a humid, 60-70°F location for 2-3 days. A short healing period allows the cut surfaces to callus or heal over. Callused seed pieces are less likely to rot in cool, wet soils.


Potatoes cut suberized

Plant potatoes in early spring (early to mid-April in the southern half of Iowa, mid- to late April in the northern half of the state). Plant seed pieces (cut side down) and small whole potatoes 3-4 inches deep and one foot apart within the row. Rows should be spaced 2.5-3 feet apart.

Care during the growing season

Potatoes prefer soils that are consistently moist. Plants need one inch of water (either from rainfall or irrigation) per week. Water potatoes once a week during periods of dry weather. Water stress can lead to tubers that are knobby, have internal necrosis, or hollow heart.


Potatoes after hilling

Mound several inches of soil or straw around the base of potato plants as they grow. This produces hills or mounds that encourage additional tuber development and also help prevent green potatoes.

Potential problems/concerns

Green skin - Potato tubers will turn green when exposed to light (either in the garden or during storage). The affected tissue is bitter and inedible; it should be cut away and discarded. The unaffected portion can be eaten. To reduce incidence, hill soil around the potato plants so developing tubers are not exposed to light. After harvesting, store potatoes in a dark location.

Knobby potatoes - Fluctuations in soil moisture levels during tuber development may cause knobby potatoes. Regular irrigation during dry periods will help prevent this problem.

Hollow heart - Large tubers may develop discolored cavities as a result of rapid growth during the growing season. Remove the discolored tissue; the remainder of the potato is edible. To reduce incidence, avoid over fertilization of potatoes.


Potatoes with hollow heart


Potatoes with scab

Rough or scabby tubers - Rough, corky patches on the surface of potato tubers is due to potato scab. Potato scab is caused by the bacterium *Streptomyces scabies*. Though unsightly, scabby potato tubers are still edible. Simply peel the potatoes before use.

Potato scab is most common in alkaline soils (soil pH above 7). However, altering the soil pH is difficult and not a practical option for most home gardeners. The incidence of potato scab can be reduced by selecting and planting certified, disease-free potatoes in spring. Choose cultivars, such as 'Superior' and 'Red Norland', that possess good resistance to potato scab. Also rotate the placement of potatoes in the garden. If possible, plant potatoes in the same area of the garden only once every three or four years.

Tomato-like fruit - Gardeners are occasionally surprised to find small, round, green, tomato-like fruit on their potato plants. These fruit are not the result of cross-pollination with tomatoes. They are the true fruit of the potato plant.


Tomato-like fruit

Tomatoes and potatoes belong to the *Solanaceae* or Nightshade family. Plants within a family share certain morphological characteristics. The flowers on tomatoes and potatoes are similar in appearance. Potato fruit are similar in shape (though much smaller in size) to those on most tomatoes. Most flowers on potato plants dry up and drop from the plant and don't develop into fruit. The fruit that do develop are relatively small and inconspicuous and often go unnoticed by most gardeners. The cultivar 'Yukon Gold' fruits more heavily than most other potato cultivars. Potato fruit are not edible.

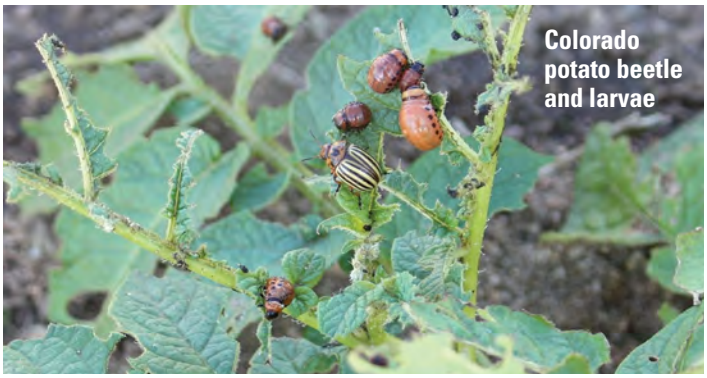
Sugary potatoes - Potatoes stored at temperatures below 40°F may develop a sugary taste because the respiration rate is decreased more than the conversion rate of starch to sugar. Thus, sugar accumulates in the potato. The sugary potatoes may be reconditioned by placing the potatoes at room temperature for approximately one week. This procedure, however, is not successful for all cultivars.

White, raised spots - White, raised spots on potato tubers are due to wet soil conditions. Potato tubers are enlarged underground stems. Lenticels are small openings in the tuber surface that allow for gas exchange. Saturated soils cause the lenticels to swell as gas exchange is impeded. Affected potatoes may not store as long as normal, but are safe to eat.

Holes in tubers - Wireworms (the larvae of several species of click beetle) and white grubs (the larvae of May/June beetles) occasionally feed on potato tubers. Wireworm feeding results in small, round holes in tubers, while white grub damage appears as shallow, irregular gouges in tubers. Wireworm and white grub damage most often occurs in gardens that were lawns or pastures in the previous year. Little can be done to control wireworms and white grubs in home gardens. Fortunately, these insect pests rarely cause widespread damage to the potato crop.

Colorado potato beetle

The Colorado potato beetle is the most common and destructive pest of potatoes. Adults and larvae feed on plant foliage. Adults are yellow and black striped, oval beetles. Larvae (immature stage of the insect) are reddish brown with two rows of dark spots on each side of their bodies. Control with insecticides is possible, but difficult, as Colorado potato beetles have developed resistance to many of the commonly available insecticides.


Colorado potato beetle and larvae

Estimated yield

Average yield with good management practices should be 20-30 pounds per 10-foot row.

Harvest and storage

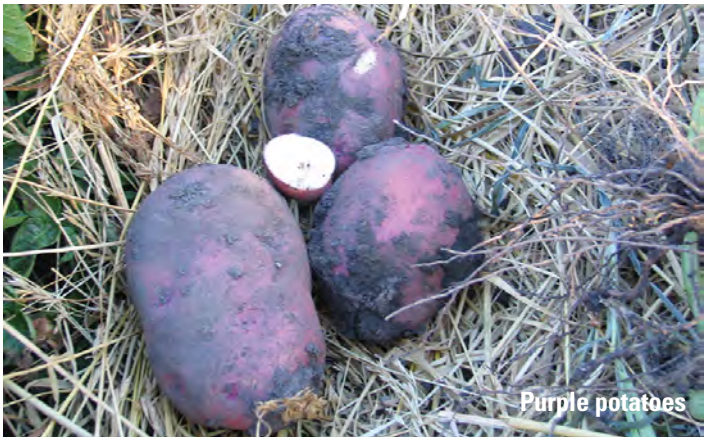
Potatoes can be harvested when the tubers are small and immature or when the crop is fully mature. New potatoes are harvested when the vines are lush and green. The small, immature potatoes have thin skins and do not store well. Refrigerate new potatoes and use within 10 days.

Potatoes grown for fall and winter use should be carefully dug after the plants have died (turned brown) and the crop is fully mature. Most potato cultivars mature 90-120 days after planting. To check crop maturity, dig up one or two hills after the plants have died. If the skin is thin and rubs off easily, the potatoes are not fully mature and will not store well. Allow the crop to mature in the soil for several more days before harvesting the rest of the hills. When harvesting, avoid cutting or bruising the potatoes. Use damaged tubers as soon as possible.

Before placing the potatoes in storage, cure the tubers at a temperature of 45-60°F and relative humidity of 85-95 percent for two weeks. Curing promotes healing of minor cuts and bruises and thickening of the skin.

Once cured, sort through the potatoes and discard any soft or shriveled tubers. These potatoes may spoil in storage and cause other potatoes to spoil as well.


Gold potatoes


Purple potatoes

Potatoes should be stored in a dark location with a temperature of 38-40°F and a relative humidity of 90-95 percent. Potatoes will sprout if temperatures are too warm, while they will taste sweet if temperatures are too cool. Do not allow potatoes to freeze.

Do not store potatoes with apples or other fruits. Apples and many other fruits produce ethylene gas that promotes sprouting of potatoes.

Revised by Cindy Haynes, Ajay Nair, and Richard Jauron, extension horticulturists. Originally prepared by Cindy Haynes, Eldon Everhart, and Richard Jauron, extension horticulturists.

Photos by Ajay Nair and Cindy Haynes.