

Department of Plant Sciences

POTATOES (IRISH) FOR THE TENNESSEE VEGETABLE GARDEN

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Crop Description

We commonly refer to white potatoes as Irish potatoes (*Solanum tuberosum*), but they were actually native to high altitude areas of South America. In the Andes Mountains, they were a staple crop used fresh, for storage and even for fermentation long before being grown in Europe. Development of a potato that could grow under longer days enhanced European production and rapid adoption in Ireland soon followed.

Potatoes are in the Solanaceae family, which are also called nightshades, as are tomatoes, peppers and eggplants. With this in mind, potatoes should not follow tomatoes or peppers in a garden

rotation due to potential disease issues. Some small scale potato growing is done in raised beds or containers (often stackable), but it is most common to grow potatoes in traditional in-ground gardens where more space is available.



Figure 1. Potatoes recently harvested. (Shutterstock image.)

Planting and Growing

While the rest of the Solanaceae family performs best under warm seasons, potatoes are a cool-season crop that can withstand light frost events (29-32 F). The growing season for potatoes is similar to spring planted cool-season crops, but is timed to avoid hard freezes after emergence. In East Tennessee, planting is usually done between March 20 and April 30 with planting between February 15 and March 31 in West Tennessee.

Potatoes are planted from seed pieces, which are cut tubers that each have two or more buds (eyes). These buds are dormant during the growth of the tubers in the ground, and this dormancy slowly fades during the next few months before sprouting begins. Often potatoes packaged for sale in stores have been treated to prevent sprouting. So, to avoid these treated tubers and to ensure disease free propagules, gardeners should buy certified disease-free seed potatoes. Seed potatoes are typically cut into 2-3 ounce pieces that contain at least two eyes. Smaller pieces might not have enough stored sugars to grow well. These pieces are then exposed to 50 to 60 F conditions with high humidity to promote healing of the cuts (two to seven days) before planting.

Types	Cultivar Descriptions
White flesh	Superior — Early, smooth oval, some scab resistance. Kennebec — Midseason, all-purpose, resistant to several viruses, late blight and blackleg.
Yellow flesh	Yukon Gold — Midseason, round to oval tubers used for a range of cooking.
Red skin	Adirondack Red — Midseason, red skin and pink flesh, high antioxidants, some resistance to scab. Red Pontiac — Midseason, susceptible to scab. Dark Red Norland — Early and some scab resistance, often used for new potatoes. Red Gold — Early with yellow flesh, good for new potatoes, resistant to potato yellows, some scab.
Novel/colored flesh	Adirondack Blue — Midseason, dark blue skin and flesh. Peter Wilcox — Purple skin with yellow flesh that is higher in phytonutrients. Russian banana — Common for fingerlings.

A range of soils can be used for growing potatoes, but well-drained, sandy and loamy soils are preferred. Soil testing will provide recommendations for applying broadcast or banded fertilizer pre-planting. To reduce issues with scab disease, maintain the pH should between 4.8 and 5.5.

Place seed pieced in rows 8-12 inches apart with rows 24-36 inches apart. Closer spacing will reduce tuber size. So, if you are planning to harvest small, new potatoes, the pieces can be placed closer. Bury the seed pieces with 3-5 inches of soil with eyes facing upward.

When the plants are 6-12 inches tall, you can pull more soil up around the plants (called hilling) to support tuber growth and prevent greening (pigment accumulation in the tuber that can make them inedible). Weed control is important, but be careful not to hoe deeply or damage tubers. A fertilizer sidedressing is often applied about a month after planting in sandy soils.

Optimum potato growth occurs at 50-60 F. Even moisture is essential for optimum tuber formation. Often deformation occurs when water is uneven. Access to irrigation will be useful to provide moisture when rainfall is less than 1-2 inches per week.



Figure 2. Potatoes are sensitive to a range of herbicides that cause distortion or bleaching of leaves along with poor growth and general plant stunting. (Jed Colquhoun, University of Wisconsin, Bugwood.org.)



Figure 3. Immature Colorado potato beetle. (Metin Gulesci, Bugwood.org.)

Harvesting and Storage

New potatoes (thin or immature skin) can often be harvested around 65-75 days after planting. Flowering is not always the best indicator of tuber development. Careful digging by hand with a shovel or pitchfork is needed to prevent damage to tubers. Little formation of tubers occurs when soil temperatures remain above 80 F. Wait until about two or three weeks after the vines die down for harvest of potatoes with thicker skin for storage. Don't let the potatoes remain in soil too long or damage can occur.

After digging, spread the tubers out to dry and cure for a couple weeks. Do not wash before storage. Proper storage conditions should be around 40 F with high humidity. If healthy and properly handled, potatoes can be stored for up to four to five months.

Common Pests, Diseases and Issues in Potato Crops

Description	Possible cause(s), signs	Prevention/ Control Steps
Wilting, poor growth, stunting or plant death	<ul style="list-style-type: none"> Blackleg (bacterial) — Water-soaked, dark or sunken areas at base of plant. Can also cause tuber rot. 	<ul style="list-style-type: none"> Use certified disease free seed potatoes, plant into well-drained soil 50 F or above. It is best to get a lab analysis of many of these diseases to ensure proper management.
Leaf spots	<ul style="list-style-type: none"> Early blight — Concentric rings on leaves or stems, often start at the bottom of plant. Late blight — Black to brown water soaked areas on leaves and stem, also whitish mold on margins. Rapid plant collapse. 	<ul style="list-style-type: none"> Fungicide sprays. Use disease free seed, remove and dispose of all infected tubers.
Brown scaly lesions on tubers	<ul style="list-style-type: none"> Scab (bacterial) 	<ul style="list-style-type: none"> pH management, cultivar resistance.
Feeding damage on tubers	<ul style="list-style-type: none"> Wireworms (immature click beetles). Can lead to secondary infections. Potato tuberworm (immature moth). 	<ul style="list-style-type: none"> Don't plant potatoes after turf or other cereals. Use hilling during growth and remove infested vines before digging.
Leaf feeding	<ul style="list-style-type: none"> Colorado potato beetle (Figure 3). Flea beetles. 	<ul style="list-style-type: none"> Insecticide sprays, hand picking, crop rotation. Insecticide sprays.



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