

# Department of Plant Sciences

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## SWEETPOTATOES FOR THE TENNESSEE VEGETABLE GARDEN

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### Crop Description

Sweetpotatoes (*Ipomoea batatas*) are not closely related to Irish potatoes, but they both originated in the Americas. They have long been grown in South and Central America as well as the South Pacific. And they fit well in the warm and often moist summer seasons that we have in Tennessee. While they are perennial in the tropics, we grow them as a warm-season annual in temperate regions because they are very cold sensitive.

Probably the most confusing thing about sweetpotatoes is the issue of whether or not they are yams. So, let's be clear — they aren't. Yams (several species in the *Discorea* family) are not even closely related to sweetpotatoes. Yams are from Africa or Asia and are grown in the Caribbean, but not in the US. Yams have starchy, dry white tubers that are much different in texture than the sweeter, moister, and often orange flesh of sweetpotatoes. Sweetpotatoes are not only a valued carbohydrate in many regions, but also are rich in vitamin C and provitamin A (beta carotene).



Figure 1. Recently dug sweetpotatoes. (Shutterstock image)

### Planting and Growing

Sweetpotatoes do well in warm climates with long days in the growing season. They can be a crop suitable for moderately fertile sites as they aren't heavy users of nitrogen and phosphorus. Deep soils of moderate texture (sandy loam with clayey subsoils) are best for growth, drought tolerance and production. Being well drained is most important for the site, and heavier soils can be used if well aerated. However, heavy soils can lead to smaller roots with rougher skin, and rocks or clods can lead to misshapen roots.

## Sweetpotatoes for the Tennessee Vegetable Garden

Types	Cultivars Notes and Resistances
White flesh	O'Henry — Tan, white flesh, blight, soil rot, Fusarium wilt and root rot, Rhizopus resistance.
Orange flesh	Beauregard — 105 days, red skin, orange flesh, soil rot, Fusarium wilt and rot, Rhizopus resistance. Carolina Ruby — 90 days, red skin, orange flesh, soil rot, Fusarium wilt resistance. Centennial — 95 days, red skin, orange flesh, stem rot, internal cork resistance. Jewell — 105 days, red skin, orange flesh, root knot nematode, Fusarium wilt and rot, soft rot, Rhizopus resistance.
Novel/colored flesh	Murasaki — Purple skin, white flesh, soil rot, root knot nematode, Fusarium wilt and root rot, Rhizopus resistance.

Make sure to use a rotation that only has sweetpotatoes in the same spot every three or four years. Also, don't grow sweetpotatoes in a site that has just been transitioned from grass (wireworm and grub issues) or one that is very high in organic matter (increased risk of scurf disease). Take a soil test, and manage the pH to between 5.8 and 6.2 ideally. Be certain to address any potassium needs as sweetpotatoes are a moderately heavy K feeder, and low K can lead to low-quality roots. Banding is a fertilizer method that works well for sweetpotatoes.

In East Tennessee, planting is usually done between May 15 and June 30 with planting between May 1 and June 15 in West Tennessee. Four to five months of frost free growing season is needed. Optimum growth occurs at 75-85 F, and little growing occurs when the temperature is below 60 F. So, sweetpotatoes are often one of the later warm-season crops planted in the garden.

Because of their genetic makeup, sweetpotatoes don't grow true to seed, so they are propagated vegetatively. Shoots (called slips) are purposefully sprouted from storage roots. Slips also produce roots, so sweetpotatoes are planted in the garden essentially as barefoot plants. It is best to begin with certified disease-free slips. They can also be purchased by mail or from many garden centers in the late spring.

Place slips in friable moist soil. Often hills or raised planting areas (6-8 inches high) are made to increase aeration and drainage. Typically, the slips are placed 8-15 inches apart in rows that are 3 to 4 feet apart. Sweetpotatoes can be grown under mulch with irrigation as well. Keeping the young plants well-watered to get them established is important. While they are often referred to as drought tolerant, very dry seasons that have less than 1 inch of moisture per week will reduce growth. So, having irrigation nearby is useful for establishment and in case summer droughts occur. A fertilizer sidedressing is often applied about a month after planting, but be careful because too much nitrogen fertilization will mainly encourage shoot growth.

## Harvesting and Storage

The storage roots of sweetpotatoes will continue to grow as long as the leaves are intact to produce sugars. So, let the vines keep growing through the season, but be careful not to leave them in the ground when fall turns cool or moist. It is best to harvest before the soil temperature is consistently lower than 55 F. Sometimes frost that kills leaves can also damage roots, so make sure to dig before hard frosts and freezes.

After digging, cure the sweetpotatoes at 80-85 F at high humidity (90-95 percent) for about a week to heal any damage from digging and convert some starch to sugar to enhance the quality for eating. Once cured, keep the sweetpotatoes at 55-60 F where they can be stored for 9-12 months. Storing below 55 F can cause chilling injury.



*Figure 2. (Left) Sweetpotato slips showing the roots on the young shoots that were spouted from storage roots. These will require moist soil and irrigation or rainfall after transplanting to establish well. Figure 3. (Right) Wireworm (immature click beetle) feeding damage on a sweetpotato root. (Both images: Gerald Holmes, California Polytechnic State University at San Luis Obispo, Bugwood.org).*

## Common Pests, Diseases and Issues in Potato Crops

Description	Possible Cause(s), Signs	Prevention/Control Steps
Wilting, poor growth, yellowing between leaf veins, leaf drop	<ul style="list-style-type: none"> <li>Fusarium (fungal) — Wate-soaked, dark or sunken areas at base of plant. Can also cause tuber rot.</li> </ul>	<ul style="list-style-type: none"> <li>Rotation, use resistant cultivars. <b>It is best to get a lab analysis of many of these diseases to ensure proper management.</b></li> </ul>
Black/brown spots or lesions on roots	<ul style="list-style-type: none"> <li>Black rot — Circular brown to black firm and dry spots, bitter taste.</li> <li>Pox (bacterial) — Soil bacterium that lasts for many years, produces dark brown tissue that is corky, distorted roots.</li> </ul>	<ul style="list-style-type: none"> <li>Rotation, use clean, disease free slips.</li> <li>Long rotations, resistant varieties.</li> </ul>
Feeding damage on roots	<ul style="list-style-type: none"> <li>Wireworms (immature of several click beetle species- see image above). Can lead to secondary infections.</li> <li>Nematodes — Dark, sunken areas, dark/long cracks, gall appearance, deformation (high moisture can also cause cracking).</li> </ul>	<ul style="list-style-type: none"> <li>Don't plant sweetpotatoes after turf, control weeds.</li> <li>Resistant cultivars.</li> </ul>



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