DIVISION OF AGRICULTURE
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Home Gardening Series

Sweet Potatoes

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Environment

Light – sunny
Soil – well-drained sandy loam
Fertility – light to medium
pH – 5.7 to 6.7
Temperature – warm
Moisture – uniform

Culture

Planting – slips
Spacing – 12 x 36 inches
Hardiness – warm season, tender
Fertilizer – light to medium

Sweet Potato – *Ipomea batatas*

The sweet potato is a warm-season vegetable of tropical origin and is one of the most nutritious vegetables that can be grown in the garden. The orange- and red-fleshed varieties are rich sources of beta-carotene, which is the precursor to vitamin A. The combination of vitamins with a nutritious carbohydrate source makes the sweet potato a significant staple in any garden.

They are native to tropical America and were cultivated from Peru to Ecuador at the time the Spanish explorers reached South America in the 17th century. In the United States, sweet potatoes are often called yams and the words are used interchangeably; however, this is not botanically correct. The true yam is a tuber of West African origin and is a member of the species Dioscorea.

Sweet potatoes are enlarged storage roots. Maximum root formation occurs in well-aerated soils. Since this is a warm-season plant of tropical origin, it cannot withstand any frost or prolonged exposure to temperatures below 55 degrees F in spring. Sweet potatoes can be grown throughout Arkansas.

Cultural Practices

Planting Time

Plant sweet potatoes when the danger of frost is past and the soil temperature is above 60 degrees F. Early planting is the most important single factor responsible for high total yields. The time between slip pulling

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Cultivars

Cultivar	Days to Maturity	Plants/ 100 Ft of Row	Disease Resistance or Tolerance	Remarks
Beauregard	90	100	White grub, soil pox	High yielding; stores well.
Vardaman	95	100		Deep orange flesh, compact type.
Jewel	105	100	Root-knot nematodes, internal cork	One of the standards of cultivars.
Porto Rico	110	100		Good baker with rose-pink skin and mottled orange flesh.
Covington	100	100	Fusarium, root-knot nematodes	Rose skin, orange flesh
Centennial	95	100	Fusarium, internal cork	Old cultivar, orange skin, orange flesh
Georgia Jet	90	100		Rose skin, orange flesh
Nancy Hall	110	100		Pale skin, pale flesh cream to light orange, old time favorite.

or buying slips and transplanting should be kept to a minimum. If plants are received during bad weather, leave the plant bundles tied and heeled in a furrow to the depth of the bare roots until weather permits field setting. Planting dates for the sections of the state are as follows:

South Arkansas – from April 15 to May 15
Central Arkansas – from April 20 to May 20
North Arkansas – from May 1 to May 20

The latest planting date is determined by the length of time the cultivar needs to produce storage roots before a frost, which is 90 to 110 days in most cases, and the availability of adequate moisture if you depend only on rain. Some of the newer short-season varieties can be planted later and still make a good crop of roots.

Seed Stock and Plants

Sweet potatoes are grown from “slips” which are shoots that sprout from the storage roots when they are placed in a moist bed of sand. The slips produce a healthy supply of adventitious roots and are ready to be planted when they are “pulled” from the bed.

Sweet potatoes may be affected by several diseases and insects which can be carried on roots or slips. Use only certified seed sweet potatoes to produce plants or purchase inspected plants. This is the simplest way to prevent the diseases scurf or black rot from infecting your sweet potatoes. If a grower saves seed from his own crop, he should be certain to choose seed only from disease-free vines. Hill selection at digging time – with seed roots taken only from hills producing at least four No. 1 potatoes – should maintain high production and plants which are true to type. Every three years, you should replenish your “seed” roots used for slip production with new certified root stock. This will minimize the buildup of diseases and ensure plants producing roots true to type.

You may wish to produce your own slips. Each sweet potato root will produce 12 to 20 slips over a three- to four-week period. Sweet potato plants are often produced in open beds. Choose a location that is well drained and, if possible, protected from north winds. The pit for the bed may be dug 6 inches deep and as long as desired. Place 5 or 6 inches of sand in the bottom of the pit. Place the potatoes on the sand as closely as possible without touching. The potatoes then should be covered with sand to 1 inch above the potatoes. Add an additional 2 or 3 inches of sand after the plants (slips) appear to produce a better root system. Roots of the same size should be bedded together so that the covering will be of equal depth. Sand is the best media for the production of strong, stocky slips.

To increase soil temperature in the beds, place a black plastic film on the bedding material and leave until slips start growing. It is advisable to have a cloth or polyethylene cover to place over open beds during cold spells.

A pre-bedding heat treatment of seed root stock increases slip production. Seed stock should be held in storage for three to four weeks before bedding at a temperature of 85 to 90 degrees F with humidity at 85 percent. All varieties respond to the heat treatment, and with poor slip-producing cultivars such as

Centennial, preheating of seed stock is almost a necessity. In heated plant beds, keep the temperature of the sand about 80 degrees F when the roots are bedded. Keep soil temperature between 75 and 80 degrees F after bedding and lower to 70 degrees F when the roots begin to produce slips. When the plants appear above the ground, the air temperature should not be allowed to go above 85 degrees F. Ventilation of covered beds will be necessary on warm, sunny days. Leave the plant bed uncovered unless the weather turns unseasonably cold for a period of ten days before pulling. The sand in the beds should be kept moist but not waterlogged. Lack of aeration and excess moisture also contribute to decay of the seed roots.

When to Pull Plants (Slips)

Sweet potato plants should be from 8 to 10 inches long when pulled. Do not wait a long period of time to plant the slips. If the weather is too cold or the garden site is not prepared, heel the plants into the soil and cover the roots so they will not dry out.

Garden Preparation and Plant Setting

A soil test is the best way to determine the fertility needs of the garden. Plant sweet potatoes in an area of the garden that is well-drained and preferably a sandy loam that is well-aerated. One of the best ways to grow sweet potatoes is in a raised bed. Prepare a bed that is 12 inches tall and 15 to 18 inches wide at the base. This will settle to a bed that is about 8 inches tall. On very sandy soils, the height of the beds will be lower.

For each 20 feet of row, place one-half pound of 10-20-10 fertilizer in the bed. This may be followed with another application in four weeks. Using a trowel or hoe, make a hole deep enough to bury all but the upper leaves of the slip. Use a transplant starter solution to water the plants in just as is recommended for other transplants. After transplanting, apply a starter solution high in phosphorus at a rate of one cup per plant. One tablespoon of soluble fertilizer such as 15-30-15 in a gallon of water can be used in making starter solution.

Plants can be spaced as close as 6 inches apart but 12-inch spacing usually works best for the production of high-quality roots. Only use shallow cultivation near the plants to avoid damage to the shallow feeder roots. By maintaining clean middles of the rows, there is less competition with grass and other weeds for water and nutrients.

Care and Irrigation

Few pests and diseases attack sweet potatoes. In fact, it is one of the easiest vegetable crops to grow organically. The key is to start with certified disease-free seed roots or slips.

Irrigation is important in the production of quality roots. It is important to keep the soil moisture above the wilting point because soil moisture determines both the number and the size grade of the sweet potato roots. Adequate moisture is necessary during the first half of the season for the initiation of storage roots and during second half of the season to control the sizing of the roots.

Harvesting

Harvest sweet potatoes any time after the hills have produced adequately sized roots. Since the roots develop 4 to 6 inches beneath the soil surface, a spade fork is a useful tool for digging. The first sweet potatoes dug in the mid to late summer are called green or “uncured.” When the potatoes reach 2 inches or more in diameter, dig a few hills to use right away.

Later potatoes are usually dug in September or October just before a killing frost. In any case, you need to get potatoes dug before the soil temperature drops below 55 degrees F or the storage ability will be damaged. The sweet potato roots are easily bruised by rough handling.

Curing

The importance of curing sweet potatoes is to have favorable conditions for the healing of cuts, bruises and other wounds. The roots produce a corky layer of tissue over the wounds that prevents the loss of moisture and prevents infection. Curing should take place immediately after harvest. Dig your potatoes and allow the soil on the surface of the potatoes to dry. Shake off any excess soil but do not wash the roots. Roots can be cured by holding them at 90 percent relative humidity and 85 degrees F for seven to ten days. Note that even though the humidity is high, there should not be any condensation or free water on the surface of the potatoes or they may rot.

Storage

As soon as the curing is completed, the temperature of the storage can be lowered to 60 degrees F but no lower than 55 degrees F or injury will occur. Keep the humidity high without condensation to prevent moisture loss. Provide

adequate ventilation around the roots by storing them in slatted wooden crates or baskets that are not over-filled. You should be able to store the roots for six months or more.

Common Problems

diseases – scurf, black rot, soil pox and nematodes

insects – grubs and sweet potato weevil

cultural – flooding of soil or poor aeration, too high fertility, lack of water during root initiation or sizing

Harvesting and Storage

days to maturity – 90 to 110

harvest – dig early potatoes when tubers are large enough to eat. Harvest potatoes for storage before the first light frost nips the vines and before soil temperature drops below 55 degrees F. Avoid skinning tubers when digging and avoid long exposure to light.

approximate yield (per 10 feet of row) – 6 to 15 pounds

amount to raise per person – 25 to 30 pounds (plant about 12 slips per person)

storage – warm (60 degrees F), moist (85 to 90 percent relative humidity) conditions; 6 to 8 months; tissue break down at lower temperatures

preservation – usually stored in warm, moist conditions

Frequently Asked Questions

Q. Should I save some of my sweet potatoes for seed potatoes?

A. Yes, if you choose high-quality, disease-free roots to save. Every three or four years I would get certified seed roots to prevent the buildup of off types and disease.

Q. My potato plants flowered and they looked just like a morningglory?

A. Sweet potatoes belong to the same genus as morningglory, which is Ipomea.

Q. What causes silvery sunken blemishes on my potatoes?

A. This is caused by a fungus disease called scurf which attacks the roots and limits their storage life. It is carried on the slips which were produced from infected roots. Scurf disease infests the soil and carries over from one year to the next. Some solutions are crop rotation, plant in a different area and use soil solarization on the infested area of the garden to reduce the level of the disease. The best method is to prevent the disease from starting by buying only inspected slips or roots for planting.

Q. Can potatoes be left in the ground for storage?

A. No, they will rot.

Q. Can I make chips from homegrown sweet potatoes?

A. Yes. They make an impressive alternative to Irish potato chips, and they are nutritious.

Q. After harvesting, how should I handle my sweet potatoes to result in the longest storage time possible?

A. Dig potatoes when the soil is dry. Be careful not to skin or bruise the tubers. Do not wash the potatoes. Place them in crates or some suitable container and store them in a dark area for three to five days at 85 degrees F with high humidity. After this curing period, keep the potatoes at 60 degrees F with humidity near 85 percent and provide good air circulation.

Q. When I dug my potatoes, they had deep cracks running the length of the root.

A. This may be root-knot nematode damage. Control by using soil solarization of the garden site in the summer and crop rotation to a nematode-resistant crop such as sweet corn. Poorly drained soils with a high moisture level can promote misshapened and cracked roots. Use a raised bed to promote better soil drainage.

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