Growing the Sweet Potato

Sweet potatoes need and deserve some respect due to the claim that they are the most nutritious vegetable grown on the planet.

by Rick Gush

About the Author

Rick Gush is an American small farmer and freelance writer based in Italy. Sweet potatoes are surely one of the most misunderstood vegetables. Often confused with yams, usually thought of as just a holiday-dinner side dish (never mind the degrading marshmallow accompaniment), sweet potatoes are frequently referred to as “easy house plants for kids to grow in their schoolrooms.” Hummph!

Somebody needs to hire a public relations rep for this vegetable. Somebody needs to let America know that this non-yam is one of the most versatile and nutritious vegetables in the world. Somebody needs to cultivate a little pride in the fact that this is one of the few vegetable crops actually native to our soil. And finally, somebody needs to clear up this business whereby sweet potatoes are confused, even officially, with yams. Sheesh!

Sweet Potatoes vs. Yams
Real yams are native to Africa. Sweet potatoes are native to the United States. (Actually, the vegetable’s most ancient ancestors came from South America.) People say the confusion between sweet potatoes and yams started when African slaves used their word for African edible roots, “nyami,” to describe the edible roots that were native to North America. But while both sweet potatoes and yams are edible roots, there are many differences between the two crops: Yams are a common crop in many parts of the world, and although popular in Africa, the Caribbean and Pacific islands, they are almost never grown in the United States.
Yams are monocots (grasses), of the Lily family and the genus Dioscorea. Sweet potatoes are dicots (broad-leafed plants) of the Morning Glory family and the genus Ipomoea.
Yams are dry and starchy, and far less nutritious than sweet potatoes.
The tubers known as yams are generally larger (up to eight feet long, and weighing 100 pounds) than those of sweet potatoes, which average less than one foot in length and weigh less than one pound each.
The active ingredient for many birth-control pills is derived from yams. Sweet potatoes have no such effect.

The ridiculous government labeling rule that allows some sweet potatoes to be labeled as yams came about when orange-fleshed sweet potatoes were first introduced in the 1950s. Marketers in Louisiana, where the orange-fleshed varieties were first grown, wanted to distinguish them from the traditional yellow or white-fleshed types then grown on the East Coast. The USDA was amenable, and now allows the orange varieties of sweet potatoes to be labeled as yams, although that label must also contain somewhere, at least in small print, the words “sweet potato.” In general usage, including most U.S. cookbooks, the names yams and sweet potatoes are interchangeable, and the orange-fleshed varieties are now the most popular type for home cooking.

Nutritional Value

Nutrition Facts

Serving Size -
1 Large Sweet Potato

Amount per Serving
Calories: 185
Total Fat: 0
Protein: 3 g
Fiber: 5g
sodium: 18 g
Cholesterol: 0

Carbohydrates: 43 g

Percentage of RDA
Vitamin C: 73%
Vitamin A: 785%
Vitamin B6: 20%
Calcium: 5%
Potassium: 632%
Folate: 10%
Magnesium: 9%
Iron: 4%
Copper: 20%
Niacin: 5%Sweet potatoes are an amazingly nutritious vegetable. A medium-sized sweet potato is virtually fat free, cholesterol free, sodium free and provides more than the recommended daily allowance (RDA) of vitamin A, along with high levels of protein, fiber, complex carbohydrates, vitamin C, vitamin E, vitamin B6, folic acid, potassium, calcium, magnesium, iron, copper, thiamine, riboflavin, niacin and beta carotene.

In fact, there are many who claim the sweet potato is the single most nutritious vegetable grown on the planet. While it is often ignored in the United States today, during the first two centuries of European settlement in North America, sweet potatoes were prized by colonists and European royalty alike, prescribed by doctors as a perfect food for children, and highly valued by mariners who were concerned about scurvy and food storage.

Although most nutritional calculations are based upon the measurements of cooked pulp, the edible skins of sweet potatoes are highly nutritious and are eaten with enthusiasm in many households. The skin does in fact contain even higher amounts of many of the sweet potato's legendary nutritional elements such as beta carotene.

Markets for Sweet Potatoes
Sadly, the market for sweet potatoes has been shrinking lately. However, the nutritional value of the vegetable, the relative ease of culture and the strong storage and shipping capacity of the crop, are factors that argue for a near-future resurgence of the crop. They also indicate that sweet potatoes marketed directly to consumers in non-Southern states through farmers' markets and organic produce outlets should find ready customers.

Over the last few decades a marketing push has concerned the development of new, less-sweet types of sweet potatoes that can be used for making chips and fries. But for non-agribusiness growers, the future now lies in consumer education. At farmers' markets, the farmer can talk directly to the customer about the particularly nutritious nature of sweet potatoes; this will likely be the key to future success.

Growing Sweet Potatoes
American Indians on the Eastern coastal plains and the Mississippi River delta were growing sweet potatoes when Columbus discovered the New World, so it's no real surprise that North Carolina and Louisiana are now the leading producers in the United States. But Mississippi is a large and proud contributor, Georgia grows a hefty amount, and as usual, California produces a fair share too.

Growing Sweet Potatoes in Developing Countries
There are 850 million people that are undernourished worldwide; over 60 percent live in rural environments where intensive western-style agriculture is not possible. One ray of hope is the sweet potato. Sweet potatoes can produce more useable calories per acre than any other major food crop. All parts of the plant are edible, and the crop can be used for feeding both farmers and livestock. The plants survive weather calamities like typhoons, and the roots store well underground until harvested. With 133 million tons in annual production, the sweet potato now ranks as the fifth most important food crop in developing countries. There is great hope and expectation that consumption of more sweet potatoes could alleviate or reduce the chronic vitamin A deficiencies in the diets of many poor people in Asia and Africa. China grows about 85 percent of the world production of sweet potatoes, while the United States only produces about one percent. The sweet potato is an important secondary food crop for many Kenyans, and is an important security crop during frequent maize-crop failures. The rural Vietnamese consider sweet potatoes their third most important staple crop, after rice and maize. The greens are usually used as feed for pigs, the tubers are eaten fresh, and dried chips are stored for future consumption. Sweet potatoes like warm weather, sandy soil and a long growing season. They are planted around May and harvested in October. The tubers form best in loose, well-drained soils. The crop has a relatively low nitrogen requirement, as excessive nitrogen fertilization produces heavy top growth but less underground tubers.

In most commercial operations sweet potatoes are not irrigated often, but depend on regular rainfall during the growing season. Well-drained soil is essential, as soggy soils will not produce good tubers.

Most sweet-potato growers produce their own transplanting cuttings from seed potatoes selected from the previous year's crop. The small seed potatoes are planted about two inches deep in the seeding beds when the soil temperature reaches 65 to 70 degrees F, usually sometime in March. Some growers cover the rows with plastic film to warm the soil and encourage earlier sprout production.

By April, the sprouts are large enough (12 to 14 inches tall) to take the cuttings. Cuttings should be taken at least two inches above the soil; using "clean" cuttings (instead of rooted cuttings) helps guard against the spread of diseases from the seeding bed to the field. These rootless cuttings will develop roots quickly when planted four or five inches deep in warm soil. Growers often continue taking cuttings and transplanting them to the fields throughout April, May and June. Plants are planted a foot apart in the fields, with rows being constructed on slightly raised beds about three to four feet apart.

Weeding, Feeding and Watering
As the crop starts to grow, farmers usually need to do some surface weeding in the rows before the vines cover the beds and shade out the weeds. If any irrigation or fertilization is done, it is usually performed during the early stages of crop growth to encourage a robust young root system and thick vines. When the plants start getting larger, growers often pile soil up around the stems, in much the same manner as regular potatoes are "hilled." This practice goes well with later weeding work, provides more loose soil for tuber formation, and also seems to help reduce sweet-potato weevil problems.

Sweet Potato Pests
The main pests of sweet-potato crops are insects, nematodes and diseases that affect the roots. Fusarium wilts cause vascular systems to collapse and become unable to transfer water and nutrients up from the roots. Root-knot nematodes cause deformed roots and tubers. The sweet potato weevil is an insect whose larvae can feed inside stems, where damage is relatively minimal, but they can also infest tubers, which is a serious problem. Weevil-damaged tubers develop bitter substances that prevent the tubers from even being used as animal fodder.

Chemical control of these pests is difficult, as active chemicals can seldom reach pests living within the soil. But most of these sweet-potato pest problems can be overcome by good sanitation and cultural practices, including the use of disease and weevil-free seed potatoes for transplants, rotating fields planted to sweet potatoes to discourage yearly pest carry-over, and using rootless cuttings for transplants.

Sweet Potato Pride

Many regions of the world are particularly proud of their contributions to the art and science of growing sweet potatoes.

The National Sweet Potato Information Center at Tuskegee University in Alabama is a monument to the incredible work of George Washington Carver, who encouraged Southern farmers to plant sweet potatoes because the roots help restore nitrogen levels in the soil. He also developed 108 ways to use the crop, including the production of vinegar, starch, flour, molasses, ink, laundry starch and shoe polish.
Sweet potatoes are recognized as North Carolina's state vegetable. The website (www.ncsweetpotatoes.com), which boasts of this fact and North Carolina's preeminence in the field, recently won first place in the National Agri-Marketing Association's annual competition.
Vardaman, Mississippi, calls itself "The Sweet Potato Capital of the World." A huge Sweet Potato Festival is held each November there to celebrate the root and local producers.
The sweet potato gave its South American name to a musical instrument, the ocarina, which is a small hollow wind instrument shaped like a sweet potato.
The adventurer Thor Heyerdahl was one of many who theorized that Polynesian seamen reached Peru in balsa rafts. Heyerdahl built and sailed the Kon Tiki to prove that Polynesians had carried sweet potatoes back to the Pacific islands.
In New Zealand sweet potatoes are considered a local native crop. The Maori people are particularly proud of their sweet-potato heritage and cultivate several hundred different ancient varieties of what they call Kumera.
Japan has been growing sweet potatoes for more than 250 years now, and many annual festivals commemorate this notable vegetable. Roasted sweet potatoes are often sold on the streets and many unusual products are made from the

tubers, including jelly, ice cream and beer. Moving sweet-potato cuttings and seed potatoes from one county to another in sweet-potato growing areas (particularly within Louisiana and North Carolina) is often illegal, due to the high value placed upon preventive practices. Keeping pests out of a growing region has proved to be a far more successful strategy than any post-infection treatments.

Varieties
There are two main types of sweet potatoes: dry flesh and moist flesh. In general, the older varieties on the East Coast are of the yellow, dry-flesh type, whereas, the newer varieties grown in Louisiana are of the orange-flesh, moist type.

Beauregard is the predominant variety now grown in Louisiana, and will produce satisfactory yields over a wide range of soil types. Another popular variety of the moist-fleshed type is the Centennial, which was also developed in Louisiana.

The Jersey and Jewel varieties are representative of the drier yellow-fleshed types, and are still commonly grown in North Carolina and other eastern areas. In the 1960s, California growers faced a serious virus problem called Russet Crack Disease. The University of California at Davis started a breeding program and now provides virus-free stock to growers. Most Southern states have similar university-based sweet potato breeding programs.

As is the case with many other crops, new sweet potato varieties appear frequently and take the place of older favorites. New growers will want to contact local extension and university programs to get the latest variety news. Older varieties are not only difficult to find, they usually have less resistance to pests and disease and frequently produce lower yields.

Harvesting Sweet Potatoes
Healthy sweet-potato vines should produce a bushel of sweet potatoes from a row 25 to 30 feet long, with an average yield of 320 bushels per acre. The first tubers should be ready for harvest in late August, and the harvest usually continues until early November.

Most of the increase in tuber size occurs during the last three or four weeks before harvest. Potatoes that remain in the soil continue to grow and increase in size until the weather cools. Surprisingly, one problem new growers sometimes have is that they fail to harvest before the potatoes become too large for market preferences.

During the actual harvest, it is important to make every effort to minimize injuries to the tender skin on the roots. Undamaged potatoes will sell better and have a much longer storage life. Automatic harvesters are sometimes used, but they cause excessive skin injuries, so a majority of the sweet potato fields are ploughed and then the tubers are harvested by hand.

One harvesting key is to not allow freshly harvested sweet potatoes to be exposed to the sun for more than an hour. Growers often shade the harvested boxes of potatoes with cut vines while they remain out in the fields. At the late end of the season, growers are careful to harvest before frost kills the vines, because if the crop remains in the field after a frost, the roots may begin to decay.

Newly harvested sweet potatoes are not very sweet. They require one or two months of storage and curing before they will develop the sweet, moist taste customers expect. Freshly harvested sweet potatoes can, however, be candied or made into pies, and many growers sell part of their crop in this uncured green state.

Sweet potatoes are best cured by storing them in a humid, dark and warm (80 to 90 degrees F) room for a week or so before being moved to temperature-controlled (ideally, 60 degrees F) long-term storage. If the temperature in the storage area is too cold, the tubers will develop a hard center, but if the temperature is too hot, the tubers may shrivel and sprout.

The Future of Sweet Potatoes
Although fresh, home-baked sweet potato consumption is decreasing, scientists are not ready to give up on this vegetable, and are trying to find new varieties that will fit better into our modern, fast-paced lifestyle. The U.S. Vegetable Laboratory, among others, is developing light orange, yellow and cream-colored sweet potato breeding lines for new uses. These new varieties are bland in flavor and lower in sweetness, but they are perfect for making potato chips and french fries.

But purists among us continue to bemoan the dwindling popularity of a vegetable that is so obviously good for us. In 1992, there were perhaps 130,000 acres planted to sweet potatoes in the United States. Of that acreage 50 percent of the crop went for processing, 25 percent was used for making french fries, 12 percent went toward production of potato chips, and the remaining 13 percent was targeted for the table-eating market. Since that time, the table-eating fraction and overall acreage has dropped further. For instance, in Alabama there were over 5,000 acres planted to sweet potatoes in 1990,

but by the year 2000 that figure had dropped to less than 3,000 acres. Surely it is darkest just before the dawn.

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