

Sweet Potato

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The sweet potato is one of the world's most significant food crops with both the tubers and foliage finding their way into the traditional dishes of many countries.

Experts still cannot agree on exactly how a crop of Central American origin found its way to places like Taiwan, Hawaii, Papua New Guinea and New Zealand. But some argue that the keeping qualities of this versatile, portable and highly nutritious tuber helped shape some of the most significant human migration patterns across the globe.



China is the world's largest commercial producer of sweet potato with most production there is used as animal feed or in processed products. The Japanese consume an estimated 1 million tonnes of sweet potatoes annually. Industrially, sweet potato tubers are used to make starch, alcohol and ethanol.

Australia is a comparatively small grower, producing around 32,000 tonnes of sweet potatoes annually. Most of these are sold as fresh tubers. Almost 80% of Australian sweet potato production takes place in Queensland, with northern NSW and Western Australia making small contributions to the annual total. In New Zealand the sweet potato is known by the traditional Maori name of kumara.



Fact File

Common Name: *Sweet Potato or kumara*

Botanical Name: *Ipomoea batatas*

Family: *Convolvulaceae*

Origin: *Central America*

Description: *This perennial groundcover bears foliage that may resemble the large heart shaped leaves of its weedy relative morning glory (Ipomoea purpurea) or form leaves with narrow, deeply fingered lobes. Foliage and leaf stalks often exhibit purple/red tinges. Flowers are funnel-shaped and white. The tubers resemble the common dahlia in shape. The skin may be white, orange, pink, yellow, purple or red. The flesh comes in an equally diverse colour range. Both the tubers and foliage are edible.*

Climatic Range: *Sweet potatoes require a long, warm growing season. Your ability to produce a good crop is determined by the length of the spring, summer and autumn growing seasons and presence or absence of frost. Sweet potatoes can be grown year round in tropical and subtropical regions and with some success in inland and coastal temperate areas. Spring and summer plantings provide a productive autumn and winter harvest.*

Varieties

Sweet potatoes vary in flavour and texture from dry, starchy, fibrous tubers to those with a sweet, buttery appeal. Sweet, moist tubers are best for steaming, boiling, soups and stir fry dishes. You can even make wine or jam from them. Drier, nutty tasting types are more suited to roasting and frying. The tender green tips and leaves of sweet potato vines can be used as a spinach.

Orange fleshed selections are the most popular with both Australian growers and consumers. Growers appreciate their faster maturity and consumers favour their sweet, smooth taste and attractive colour.



Beauregard	Pink to orange skin with uniform bright orange flesh, this variety accounts for 95% of Australian's sweet potato production. Roots are moist and very sweet. Fast maturing. Ideal for steaming.
Beerwah Gold	An older orange variety now superseded in commercial production by the faster maturing Beauregard. Roots are moist and sweet making them ideal for steaming.
Kestle	Pale cream to white skin with pale yellow to cream flesh, this variety has a high dry matter content and therefore lacks some of the sweetness of other types. Ideal for roasting or frying.
Red Abundance	Older red skinned variety with cream/white flesh. Flesh tends to be dry making it suitable for roasting. Does not store well. Now largely replaced by Northern Star. Ideal for roasting or frying.
Northern Star	Purple/red skinned selection with cream/white flesh. Roots have a high dry matter content and nutty flavour, but are susceptible to cracking and do not store well. Ideal for roasting or frying.
Non-Running	A compact, non-running variety bearing sweet, small white skinned and white fleshed tubers. Widely available from organic gardening groups and community gardens in Queensland and NSW.

Commercial growers have access to virus tested, disease free stock. The Department of Primary Industries and Fisheries (DPI&F) in Queensland maintains a genebank of forty disease free tissue cultured sweet potato varieties. This material is used to supply disease free sweet potato tubers to growers from April each year. Growers sprout these tubers then take their own cuttings to plant out. Commercial orders must be placed twelve months in advance.

Home gardeners must typically rely on purchasing tubers from organic food outlets or obtain planting stock from other gardeners. Certified disease free sweet potato tubers are not generally available through mail order companies. Some nurseries sell sweet potato plants, but they are rarely available as named varieties.

Growing Your Own

Sweet potatoes are grown by planting whole tubers or stem cuttings. Both tubers and cuttings can be planted directly into the ground or established in pots.

Stem cuttings should be 20 – 30cm in length and contain at least three nodes or buds. Both tubers and cuttings may be planted vertically or horizontally. Tubers are typically planted unspouted, but some gardeners place tubers outdoors on a tray containing a few centimetres of water to encourage sprouting. Top up the water regularly. Sprouting will take place after 3-4 weeks. Space both tubers and cuttings 30cm apart with 90cm between rows.



Many gardeners use sweet potatoes to break up the soil in preparation for planting trees and shrubs. Its groundcovering habit make it an ideal weed suppressant, but the harvest from these

rampant plantings is generally not as high as from well prepared soil. Once root competition and shade from upper tree cover is established the sweet potatoes will tend to die out.

Sunshine and Warmth

Select an open sunny position and plant out when the soil and air temperatures are warm. Water whenever the soil becomes dry and mulch to reduce evaporation and competition from weeds.

While a pH of 6.5 is ideal, sweet potatoes tolerate both acid and alkaline soil without a major reduction in tuber production. Soil must be well drained to prevent tubers rotting. An open friable soil that is easy to fork over will ensure unimpeded tuber growth.



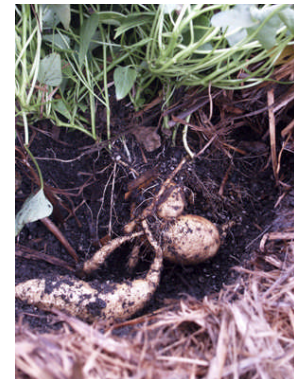
Hilling soil over tubers is practiced commercially. This involves mounding up soil from around plants to form a hill over the developing tubers. Home gardeners can mimic this technique or use compost and mulch to ensure developing tubers are not exposed to sunlight and subject to dehydration.

Crop Rotation

Avoid planting sweet potatoes in the same bed year after year. Sweet potatoes are subject to attack by root rot nematodes. Nematodes are invisible to the naked eye, but evidence of infestation can be seen in knotted roots, poor water and nutrient uptake and generally poor foliage and tuber growth.

After harvest, soil that has grown sweet potatoes should be planted with a green manure. Dig the green manure in and plant crops other than sweet potatoes for at least three seasons. Crops like lettuce, cabbage, spinach and silverbeet may be grown, but vegetables susceptible to nematodes like tomatoes, potatoes, capsicum, chilli and eggplant should be avoided.

Sweet potatoes are known to produce allelopathic chemicals that inhibit the germination of seeds in the soil around them. For this reason it is important to remove all crop residue before sowing seeds into beds in which sweet potatoes have previously been grown.



Container Plants

Sweet potatoes make good container plants. A half wine barrel, recycled wheelbarrow, concrete laundry sink or bathtub are ideal. Regularly clipping back the rampant vegetative growth around the edges of your container will encourage better tuber formation. Young foliage tips can be used as a green vegetable and any remaining stems can be added to the compost or made into liquid manure.

To harvest tubers, use your hands to feel beneath the soil and individually harvest or 'bandicoot' the largest tubers, while leaving the remaining tubers to continue to grow. Replace the soil completely and plant new sweet potatoes every 12-18 months to avoid a build up of soil nematodes. Use compost, decomposed animal manure and garden soil, mixing this with some potting mix if more bulk is required.

Nutritional Needs

Nutritional needs can be met by preparing soil with compost and well decomposed animal manure and applying liquid seaweed and using lucerne mulch. Avoid excess nitrogen application such as the use of commercial organic fertilizers as this can result in vegetative growth at the expense of tuber development.

Patience is Required

Climatic conditions and variety determine the length of time required from planting to harvest, but most commercial crops are produced in 17-21 weeks. Home gardeners may find that large tubers take up to 30 weeks to produce. Just remember that leaving tubers to grow for too long will tend to make their woody, more fibrous and less flavoursome – so be prepared to harvest them at a smaller size. Each plant should ultimately produce a harvest of 5-6 large sweet potatoes and some smaller offshoots.

Curing

Commercial sweet potatoes are cured after harvest in much the same way as pumpkins. Tubers are placed in a warm, dry environment to dry the skin and heal any wounds. Tubers can then be stored at 95% humidity for up to eight months.

Potential Problems

Sweet potatoes are subject to a range of virus diseases, the most serious of which are little leaf disease and feathery mottle virus. Both diseases are spread by sucking insects and planting infected material.

Evidence of infection by little leaf virus can be seen in both poor foliage growth and tuber development. Leaves are small and yellow while tubers are thin and fibrous.

Purple foliage discoloration on older leaves, yellow leaf spots and formation of twisted roots are characteristic of sweetpotato feathery mottle virus. Remove and burn any plants you suspect of virus infection.

Tuber Rot

Problems of tuber deterioration are most commonly caused by poor drainage or cold, wet soil conditions and prolonged rainfall. Never consume moldy sweet potatoes or feed them to stock. Tubers contaminated with fungal spores have been known to cause stock losses when feed to cattle.

Beating the Wildlife

Mice, rats and bandicoots have a remarkable ability to sense the exact time sweet potatoes are ready for harvest. Preventing such crop theft is extremely difficult. Physical barriers can help. Set rodent traps and harvest the tubers before the local wildlife gets a chance.