

PUMPKIN & CHOKO TIPS

FACTSHEET no: 7



• Pumpkin tip for harvest



• Choko tips ready to eat

Botanical name: Pumpkin *Cucurbita* spp.
(Cucurbitaceae)

Choko *Sechium edule* (Cucurbitaceae)

Location specific common names for pumpkin:
squash, gramma

Location specific common names for choko: chayote

Plant characteristics: There are numerous pumpkin types. The true pumpkin, *Cucurbita moschata*, is best for most tropical conditions and provides tender, sweet tips. Under good growing conditions pumpkin and choko are fast growing vine-like plants that spread along the ground and are able to climb. Choko vines need trellis support.

Uses: The tender growing tips of choko can be used fresh in salads or lightly steamed. Pumpkin tips are covered in fine hairs that can be peeled from the thicker end. Older tips are best cooked by steaming, boiling, frying or baking.

Availability: Most pumpkin types grow best in the cooler months in tropical areas but gramma types are often grown year round. Once established, choko vines can produce all year if well watered.

Propagation methods: Pumpkin plants can be grown from seed which has been purchased as packaged seed, self-saved or taken from shop fruit. Choko is grown from sprouted fruit planted in the soil with the sprout above the surface. The sprouted fruit should be protected from sun and weeds.

How to grow: Pumpkins and choko are not difficult to grow providing the soil is rich in organic matter and water is readily available. Plants will spread over poorer soils, which can encourage fruiting. They can be grown all year in most tropical locations, including those with full sun. Soils of poorer fertility and insufficient water will produce slower-growing plants with thinner stems, and smaller leaves with a stronger, bitter flavour. The area around the plants should be kept moist and free of grass and other weeds.

Threats: Some pests and diseases can be limiting factors in growing pumpkins and chokos. Leaf diseases like downy and powdery mildew can cause problems at various times of the year. Root nematodes can limit plant growth. Providing good growing conditions, wide plant spacing and rotating crops can reduce the occurrence and extent of these problems.

Harvesting: Under good growing conditions, harvesting can be carried out daily. Up to 200 mm of the tips can be picked, ideally in the cooler part of the day to prevent wilting. The tips can be stood upright in a bucket or container with some clean water. Where a tip has been harvested that runner should produce one or more new tips suitable for picking in a week.

Post harvest and storage: Tips should be washed carefully with water of drinking quality or clean seawater. They can be loosely bundled with their stems trimmed and stood upright in a small amount of clean fresh water, and if covered with a clean plastic bag, and kept cool, they should store for a day. If placed in an airtight container in a cool room or refrigerator, they can last two or three days.



• Choko plant growing along a support fence

• A. Choko fruit

• Pumpkin plants under cultivation in northern Australia

• B. Pumpkin fruit

Project findings/nutritional value: Samples of pumpkin and choko tips were collected for analysis from north Queensland, Torres Strait Islands, Samoa, Tonga and Solomon Islands. Around 100 grams of fresh vegetable (about 3 handfuls) per person for a meal serving will provide useful nutrition. Pumpkin and choko tips were particularly rich in protein and phosphorus, and also good sources of zinc and copper.

Protein: This is important in forming muscle, cell membranes, enzymes, blood components, antibodies, DNA and RNA. The nitrogen analyses of our samples indicated a protein range of 18 - 30 %. The higher samples had more protein than many legumes.

Phosphorus: Component of genetic material (DNA and RNA) and various fats and proteins; important role in energy production.

Zinc: Important for immunity, growth, carbohydrate metabolism, and DNA and protein formation. Humans have around 600 different Zn-containing enzymes/proteins.

Copper: Component of enzymes, involved in iron metabolism, therefore supports production of healthy blood and generation of energy.

This table compares selected mineral nutrients and carotenoids¹ in young leaves of pumpkin, choko and kangkong grown together near Cairns, Queensland, Australia in 2012 and English cabbage (average of samples bought from Honiara market, Solomon Islands and Nukualofa market, Tonga in 2012) (concentration in mg/kg dry weight, except N: % dry weight).

	Cu	Zn	Ca	Mg	K	P	N %	lutein	alpha carotene	beta carotene
Pumpkin	17	72	8800	5500	44000	9500	5.1	288	0	117
Choko	17	90	5700	3100	44000	10100	5.9	249	5	84
Kangkong	10	33	5400	3200	43000	5300	4.0	263	0	169
Cabbage	23	20	5700	1450	29000	3750	2.8	5	0	2

Cu: copper; Zn: zinc; Ca: calcium; Mg: magnesium; K: potassium; N: nitrogen.

Analyses conducted by Waite Analytical Services and the Mares Laboratory, University of Adelaide, South Australia

¹Carotenoid levels in pumpkin leaf samples in Cairns were similar to those in *Leulumoega-uta* (Upolu, Samoa) and Thursday Island (Torres Strait Islands, Queensland, Australia) (average 291, 5, 105 mg/kg for lutein, a-carotene and b-carotene, respectively) but lower than those in Burns Creek and Aruligo (Guadalcanal, Solomon Islands) (average 887, 17, 272 mg/kg for lutein, a-carotene and b-carotene, respectively), illustrating the effect that soil and microclimatic variation can have on carotenoid content in leaves.



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The factsheets are intended to provide information on some of the most nutritious leafy green vegetables suitable for growing in tropical areas.