

Food Plants of Solomon Islands

A compendium

by B. Reg French



LEARN
GROW™



A Project of the Rotary Club of Devonport
North, District 9830, District 9600
& Food Plants International

Helping the Hungry Feed Themselves

www.learngrow.org

This is one of a series of publications produced for the Learn♦Grow™ Solomon Islands project.

Other publications in the series are:

- Food Crops of Solomon Islands – A Brief Introduction to the Crops (to be published). A book on the growing practices and food value of crops of potential in Solomon Islands.

Three field guides:

- Good Gardening and Growing Root Crops in Solomon Islands (published July 2010)
- Leafy Greens and Vegetables in Solomon Islands (published July 2010)
- Fruit and Nuts in Solomon Islands (to be published)

All publications will be printed in paperback, and will be made available as pdf books on the Learn♦Grow™ website (www.learn-grow.org) and the Food Plants International website (www.foodplantsinternational.com)

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District 9600 & Food Plants International

Food Plants of Solomon Islands

A compendium

By B. Reg French

Dedication

*This book is dedicated to our Creator
for the amazing provision and fascinating variety
of food plants that He has provided.*

It is also dedicated to
the late Joini Tutua, an inspiring leader who strived to assist
his fellow Solomon Island people in sustainable food production

and

to the 3 billion hard working farmers and families around the world
who cultivate these, and other, food plants for their own subsistence,
and who help conserve them in their rich diversity for other people to enjoy.

Acknowledgements

This compendium is the lead publication in a series developed by the Rotary District 9830 Learn Grow™ project. The production of this series would not have been possible without the support of the team at Food Plants International, the Rotary Clubs of District 9830, particularly the Rotary Club of Devonport North who founded the project, and the Rotary Clubs of Launceston West and Hobart for the contributions they have made.

The development and implementation of the program in Solomon Islands would not have been possible without the support of Rotary District 9600 and the Rotary Clubs of Honiara and Gizo, and this is gratefully acknowledged.

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Nothing would have been possible without the commitment and support of the volunteers, some affiliated with Rotary Clubs, and some not, who have shared the vision, and unselfishly given their time and energy over several years to support this project.

About Learn♦Grow

Learn♦Grow was initiated by the Rotary Club of Devonport North to assist in creating awareness of the edible plant database developed by Food Plants International, and its potential in addressing malnutrition and food security in any country of the world. In June 2007, Learn♦Grow was established as a project of Rotary District 9830. Food Plants International is pleased to be working with the Rotary Club of Devonport and Rotary District 9830 in the Learn♦Grow project. The primary objective of the project is to increase awareness and understanding of the vast food resource that exists in the form of local plants, well adapted to the prevailing conditions where they naturally occur, and how this resource may be used to address malnutrition and food security. For more information, visit the website www.learn-grow.org.

Using this information and finding other information

It remains the author's desire
that the information in this book
be used or copied wherever appropriate
to increase interest in, knowledge of, and pride in
food production in the tropics, especially in Solomon Islands.

There are at least 2200 edible plants in the Pacific region. For information about them you will need to look at the Food Plants International (FPI) Food Plants of the Pacific **database**. The database for the Solomon slands also lists all the alternate scientific names and many other local language names, and has coloured photographs and references for where to find other information. For the other thousands of edible plants, many of which are suitable for the tropics, including Solomon Islands, you will need to look in the FPI Edible Plants of the World database at www.foodplantsinternational.com.

If you want additional information about the insects and diseases, they are not mentioned in this book and you will need to look at the books, "**Insect Pests of Food Plants of Papua New Guinea**" and "**Diseases of Food Plants of Papua New Guinea**" as many of the same plants and similar pests and diseases occur in that country. These are available as pdf books which can be read on computer (or printed out). These will explain how to find out about the insect or disease you want. The "**Insect Pests of Food Plants of Papua New Guinea**" **database** has coloured photos.

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30/09.09

To Whom It May Concern

LETTER OF SUPPORT for LEARN GROW

As a former member of the Solomon Island government I am very aware of the plight of the people of my country. Our village people have no money and no access to information. The garden areas are getting smaller and so to encourage people to stay on the same piece of land year after year, and so they and their children and grandchildren can use the same piece of land, they need to learn how to grow natural foods in a natural way. That is why I established Zai Na Tina Organic Research and Demonstration Farm and co-founded Kastom Gaden Association to help people in remote communities improve their food futures through training in small scale village agriculture using organic principles. Food production is the key factor to life and health and so that is why I set out to encourage organic naturally growing food.

While it is a challenge to get information to remote villages, we encourage other people to take this message to the rural areas. It is not really hard to reach the rural people if that network is functional. We have worked hard to make sure that it is functional, because any structure depends on the operators and this is what we have strived to manage. Kastom Gaden was established to train the trainers and they take this message right back to the villagers. That is what we are now doing.

I consider the Learn Grow program to be very, very important. People get more information by what they see. Pictures tell a lot more than words and the publications that Learn Grow has developed include many very good pictures of local food plants and how to grow them. These publications will give the people of my country access to very valuable information that they have never had access to before. I believe this work is very, very important and I strongly support it.

Yours faithfully

Joini Tutua

**Former Member of Solomon Islands Parliament
Co-Founder and Chairman Kastom Gaden Association
Founder of Zai Na Tina Organic Research**

THE ROTARY FOUNDATION



Learn*Grow

Hunger and malnutrition are amongst the greatest of killers and every night millions of people go to bed hungry and malnourished. There is no one simple answer to eradicating hunger and its side effects yet the most obvious answers are often overlooked due to a lack of knowledge.

Bruce French has addressed this need by building a huge database of edible plants from around the world that can lead to the use and cultivation of edible plants particularly suited to the local environment. Too often the obvious is overlooked and encouragement is given to use "fashionable" crops that are not the best suited to the conditions nor the greatest value in providing a healthy diet.

I commend Bruce for his work and wish him and all who are supporting him every success in encouraging the use of local resources that will improve health and diminish hunger. This is a significant humanitarian project which will save many lives and improve the quality of life for many more.

A handwritten signature in black ink that reads "Bill Boyd". The signature is written in a cursive style.

Bill Boyd
President, Rotary International 2006/2007

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School of Islands & Ocean

FOREWORD

“Health is wealth” and “we are what we eat” are age-old truths, and B. Reg French’s book, *Food Crops of the Solomon Islands: A Compendium*, is a very welcome addition to our “table”! This is especially true during 2010, which has been declared the United Nations Year of Biodiversity, with the theme “Biodiversity is Life, Biodiversity is Our Life”. I stress this because, for most Pacific Island peoples and Solomon Islanders, their most important biodiversity, in terms of their local economy, culture, health and sustainability, is their agricultural biodiversity, commonly referred to as “agrobiodiversity”. And, among the most important components of their agrobiodiversity are the wild and cultivated food plants, the focus of this book.

Solomon Islands has been recently recognised as one of the world’s “biodiversity hotspots” because of the richness of its coral reefs and associated marine biodiversity. It can also be argued, based on the incredible diversity of wild and cultivated food plants, that Solomon Islands is also among the world’s hotspots of agrobiodiversity and wild terrestrial food diversity. A case in point is the incredible diversity of figs and banyan trees (*Ficus* spp.) that have edible leaves and fruit, many of which are described in the book. This diversity was recognised by E. J. H. Corner (1967), the acknowledged world expert on *Ficus*, who suggested that the Solomon Islands were probably the global centre of diversity for figs and banyans with some 63 species, of which 23 are endemic or unique to Solomon Islands. This incredible diversity is mirrored by the diversity of the food plants discussed by B. Reg French and by the irreplaceable ethnobotanical knowledge that Solomon Islanders have for these plants.

It is this food plant diversity and associated knowledge, coupled with a rich inheritance of terrestrial animal foods, and freshwater and marine foods, and a healthy physically-active life-style that made Pacific peoples of the past some of the most nutritionally healthy people on Earth. This picture of health has, however, dramatically changed, with urbanized Pacific Island peoples, including urban Solomon Islanders, now having some of the highest rates, in the world, of premature death and non-communicable diseases, such as diabetes, stroke, heart disease, obesity, dental disease, alcoholism and a number of forms of cancer. In most cases, the main contributing factor has been the shift from the vitamin-, fibre- and water-rich and low-fat and low-salt traditional diet to a nutritionally-inferior diet of low-cost imported foods that are high in fat, sugar, salt and highly-refined carbohydrates and low in fibre, vitamins and other micro-nutrients. Coupled with this dietary transformation has been the change from an active agricultural, hunting and fishing lifestyle to a sedentary urban life style, which is increasingly divorced from, and devoid of, fresh traditional foods.

The book chronicles this rich, but disappearing and increasingly unknown and unappreciated, bounty of wild and cultivated food plants, most of which are found in the polycultural shifting agroforestry systems and surrounding fallow forests. In terms of plants types, they include a very

wide range of trees, shrubs, vines, ferns, grasses, sedges and herbs, of which the fruits, seeds, nuts, flowers, leaves, growing tips (meristems), roots, tubers, gums, bark, resins, juices or oils are consumed in some way. The described species include native species, some of which are endemic or unique to Solomon Islands; ancient aboriginal introductions to the Solomon Islands by the indigenous peoples; long-established post-European contact introductions; and some very recent introductions. Use categories vary from staple foods, raw or cooked vegetables and leafy greens, fruits, nuts and snack foods, puddings, spices, beverages, stimulants and masticants or chewing gums. Amounts consumed and frequency of consumption vary from almost daily consumption of large amounts, in the cases of staple root and tree crops, such as yams, taros, sweet potatoes, cassava, bananas and plantains, breadfruit and coconut, to infrequent consumption of very small amounts for spice or flavouring plants, snack or emergency foods and other plant products that, in some cases, verge on being as much medicines as they are foods. Compared to areas further east in Melanesia, Polynesia and Micronesia, the depth of knowledge and the high diversity of plants consumed are remarkable. In particular, the consumptions of a very wide range of leaves, fruit or other parts of figs or banyans, palms, mangroves, grasses or bamboos, ferns and a very wide range of forest plants are, within the Pacific, uniquely Melanesian.

Among of the outstanding and very useful contents of the book are the numerous excellent photographs of the plants, their fruits, leaves, tubers and other edible parts, and how they look in the field and in markets, which can assist readers in identifying these plants and plant products. The introduction to agricultural and nutritional biodiversity is also most appropriate as is his dedication of the book to subsistence farmers, because it is subsistence farming, farming for our own consumption or for sharing with our neighbours or for special occasions, that helps prevent real poverty, keeps our community links and island cultures strong and helps maintain our knowledge of our life-giving local food diversity. For most rural peoples in the Pacific islands, over 80% of their real income comes from subsistence gardening and a very large percentage of the balance comes from the sale of a wide range of local cultivated and wild food plants to ever increasing urban populations. The availability of these fresh, nutritious local foods, as well as the ability of urban Solomon Islanders to continue to identify, grow and consume many of these same plants within urban areas helps keep them healthy and from falling below the poverty line.

The book highlights the critical dietary importance of the diversity of staple root and tree crops that provide most of the dietary energy, and the wide variety of vitamin-rich leafy green vegetables, legumes, tree and non-tree fruits and nuts that are such important sources of vitamins, mineral, plant proteins, micronutrients and fibre, nutrients that are so often lacking in the low-cost highly refined urban diet. Stress is also placed on the importance of the keeping of planting materials and the continued planting of traditional varieties or cultivars that seem to have greater natural resistance to pests, disease and natural disasters.

This diversity of food plants, and uses and the associated body of sophisticated time-tested knowledge, reflect an incredible history of thousands of years of experimentation with plants by the people of Solomon Islands, innovative people who have co-evolved for millennia with their wildland and agricultural plant diversity. The conservation of this inheritance is the basis for food and nutritional security and constitutes the people's and the nation's insurance against natural, social and economic disasters beyond their control.

However, just as many of Solomon Islands' rare and endemic plants and animals, including its rich marine biodiversity, are seriously threatened by development, Solomon Islands agrobiodiversity and wild plant diversity is also under serious threat from urbanization, industrialisation, monocultural plantation agriculture, plantation forestry and by foreign education systems, values and tastes. Just as threatened by these same forces and, perhaps, a more serious concern in the long-term for food and productive security and cultural survival, is the loss of associated traditional knowledge about this treasure chest of nutritional diversity. Today, many young Solomon Islanders

do not know the names of many food plants or cultivars and many can not recognise and/or have never eaten most of the wild foods or traditional cultivated foods.

The recording and protection of this knowledge as a basis for rebuilding an appreciation of the importance of this nutritional and cultural inheritance and its conservation is, I believe, perhaps, the most important contribution of B. Reg French's *Food Crops of the Solomon Islands: A Compendium*. As with almost all Pacific languages, the languages of Solomon Islands are oral languages. Until the bible was translated, things were not written down. As a result, the names of plants, animals and important environmental information, the detailed information about biodiversity, has in most cases, never been written down! And as the last generation of knowledgeable elders passes away, the knowledge accumulated over millennia disappears! Thus, B. Reg French's book is an important gift to future Solomon Islanders, a very important and comprehensive attempt to record the diversity of the culinary mysteries and the diversity of indigenous and exotic plants that have been central to the life, health, economies and cultures of Solomon Islands for millennia. The book provides a critically important basis for preserving this oral knowledge as a basis for preserving the food plants themselves and the associated body of cultural knowledge. I sincerely congratulate him on this immense contribution to sustainable living and development in both Solomon Islands and the wider Pacific.

Tagio Tumas

Sincerely,



Dr. Randy Thaman
Professor of Pacific Islands Biogeography
The University of the South Pacific
Suva, Fiji Islands, June 2010

(former Chairman, Fiji National Food and Nutrition Committee (1978-1986))

Contents

Introduction	1
Root crops and starchy staples	3
Beans and food legumes	41
Edible leafy greens or kumu	63
Edible ferns	105
Vegetables	123
Nuts	161
Fruit	201
Edible palms	271
Minor food plants	289
Index	395

Introduction

My experience in Solomon Islands is limited. I have lived and worked in agriculture in North Solomons Province in Papua New Guinea and have spent a short amount of time in Solomon Islands. It is therefore expected that this book will be continually revised over time. It is hoped that people who speak English as their second or third language can still understand the English used in this book.

The information in this book is taken from my database of edible plants of the world which is constantly changing as I find new information, correct errors, and revise details. It is an attempt to document any plant recorded as being eaten by people. Some may not be worth eating and some probably should not be eaten. The main focus is on the vast number of attractive, highly nutritious, and often ignored, under-exploited or poorly understood plants that offer more balanced diets and sustainable production systems, especially for those in rural villages in tropical countries.

My Motivation

My motivation comes from my Christian appreciation of God's amazing provision and my desire to see these plants grown and used to improve diets and nutrition amongst the half of the world's population who still live in rural villages, especially in the tropics.

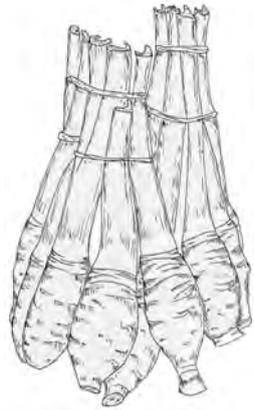
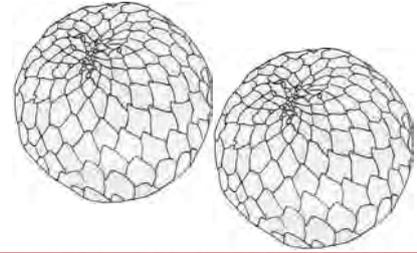
Bridging the information gap

I am trying to bridge the gap between two groups of specialists. At one end are the specialist growers and consumers of these plants in the field situations in villages in the tropical world. Much of the information still remains in the heads of the subsistence producers, but these people often don't know English names nor the scientific names. To choose between species, edible varieties and usage, including the preparation and cooking of these plants, I would suggest very strongly that you listen to, learn from and rely heavily on the vast amount of experience and information gained and retained by village farmers in their diverse field situations. Half the world's population are rural subsistence farmers. Many of these do not write written records, and it is my desire to record some of this information on their behalf and for their benefit. At the other end are the many botanical specialists and plant lovers who have carefully described and documented information of the amazing diversity of plants that are used as food. For reference lists, you will need to look at the computer database to find where some of this wealth of information is recorded. For many minor plant species, I would strongly recommend you refer to these references for more details. Often, many similar plants are known and only one or two species or varieties are used as food. Careful checking and discernment is needed when finding the right plant.

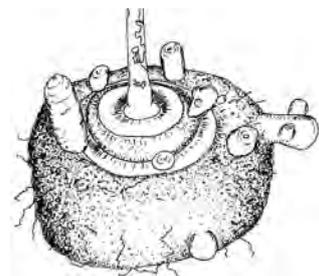
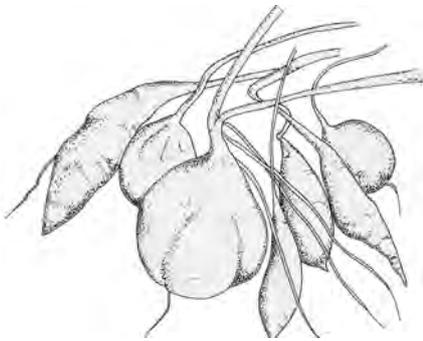
There are, in fact, very few plants that are entirely edible. Mostly it is certain parts of plants which are edible. With every food plant it is important to be sure which part is used and how it is prepared. Many, if not most plants, can be toxic to certain people. When trying new foods, exercise caution, but be adventurous. Take the advice of someone who is already using them. Bitterness is often due to cyanide, and this quickly disappears if food is well-cooked. My normal advice is to cook your food.

“Helping the Hungry Feed Themselves”

The quickest way to improve diets is to widen the range of food plants you eat. Then if something needed by our bodies to grow and stay healthy is missing in one food, it will be found in another. For example, corn is short of an essential amino acid called lysine, but this can easily be provided by adding a few beans to the pot.



Root crops and starchy staples



Names**English:** Sweet potato**Pijin:****Local:****Scientific name:** *Ipomoea batatas* (Linnaeus) Lam.**Synonyms:****Plant family:** Convolvulaceae

Description: This is a root crop which produces long creeping vines. The leaves are carried singly along the vine. Leaves can vary considerably, from divided, like fingers on a hand, to being entire and rounded or heart shaped. Trumpet-shaped purple flowers grow at the end of the vine. Fattened tubers are produced underground. There are a large number of varieties which vary in leaf shape and colour, tuber shape, colour, texture and in several other ways. Seed pods develop after flowering.



Distribution: Sweet potatoes grows in most tropical and subtropical countries. They are common in Solomon Islands. They grow from sea level, up to some of the highest gardens at about 2700 m altitude in the tropics. Plants can grow in a wide range of rainfall patterns and soils. Plants are killed by frost and don't tolerate waterlogged soil. Plants grow well with temperatures between 21 - 26°C. They can grow with a pH between 5.2 - 6.8. Sweet potato are not tolerant to shading. They suit suits hardiness zones 9 - 12.

Cultivation: Vine cuttings are used for planting. In grassland soils, plants are grown in mounds, ridges or other raised beds. In bush fallow, they are mostly planted in undug loose soils. Plants need a sunny position. Tubers won't form if the ground is waterlogged when tubers start to develop. About 33,000 cuttings are required per hectare. These weigh about 500 kg. Vine lengths of about 30 cm are best. As long as the vine is put well into the soil, the length of vine used does not improve yield. Fresh sweet potato seeds germinate relatively easily and lead to new kinds of sweet potato continually appearing under tropical conditions. Too much nitrogen produces many leaves and few tubers. Dry matter increases as the crop gets more mature. Higher dry matter tubers are normally preferred.

Sweet potatoes do not tolerate shade. Under shaded conditions, leaf growth and root size are reduced. Some cultivars, or cultivated varieties, can be selected to give reasonable yields under mild shade, but not heavy shade. Under shaded conditions, fewer cuttings survive, plants climb become more, and grow fewer, but larger, leaves. With heavy shade, fewer tubers are produced and these grow more slowly. Sweet potato grows better with potassium fertiliser. In villages, people choose cultivars that will still yield food under low soil fertility conditions.

Under lowland conditions in the tropics, sweet potato tubers increase in size from 6 - 16 weeks. Weed control is important during the early stages of growth. The rate of ground coverage by the leaves varies greatly with growing conditions and cultivar, but once the ground is covered with leaves and vines, weed control is less of a problem. Sweet potato tubers don't start to form if there is no air in the soil. A range of factors, including heavy clay soils and very wet soils can reduce the number of tubers produced. For this reason, sweet potatoes are often grown on mounded beds. In well-drained or high organic matter soils, digging or mounding is not as essential.

Production: The time to maturity ranges from 5 - 12 months, depending on the variety planted and the altitude at which they are being grown. Yields range from 6 - 23 t/ha.

Use: Tubers are boiled or baked. Leaves are edible when cooked. Sweet potato is a very important tropical root crop.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Tubers	72.0	363	1.1			1705	15	0.3
Leaves	86.3	168	3.9		2.9	1700	58	

Insects: Plants need to be mounded or have the tubers well covered with soil to reduce sweet potato weevil damage. Cracking soils can allow the weevil to access the tubers.

Cacao false looper (*Achaea janata*); Sweet potato hawkmoth (*Agrius convolvuli*); Black cutworm (*Agrotis ipsilon*); Green coconut bug (*Amblypelta cocophaga*); (*Aulacophora similis*); White jassid (*Cicadella spectra*); Corn earworm (*Helicoverpa armigera*); Cape gooseberry budworm (*Helicoverpa assulta assulta*); Seychelles scale (*Icerya seychellarum*); Migratory locust (*Locusta migratoria*); Taro beetles (*Papuana aninodalis*); Taro beetles (*Papuana woodlarkiana*); (*Planococcus pacificus*); Cacao armyworm (*Tiracola plagiata*)

Diseases: Leaf scab (*Elsinoe batatas*) can significantly reduce yield, especially in sites where leaf production is low due to low soil fertility.



Names**English:** Giant taro**Pijin:****Local:****Scientific name:** *Alocasia macrorrhiza* (L.) Schott**Synonyms:** *Alocasia indica* (Lour.) Spach**Plant family:** Araceae

Description: A very large herb of the taro family. It has a stout erect trunk up to 4 m tall. This has upright leaves which are arrow-shaped. The leaves have round lobes at the bottom. The leaves are leathery and are often wavy around the edge. The secondary veins are not prominent. The leaf blade can be 1.0 - 1.2 m long. The leafy structure around the flower is yellow in the upper section. It forms a hood and drops off as the flower opens. The fruit are bright red berries. The corm is large, often curved and above the ground. It often has cormels, or small corms, at the side. Brown trailing fibres of the leaf bases often hang from the stem. The leaves and petioles, or leaf stalks, contain stinging crystals.



Distribution: It is mostly grown in tropical regions in Asia and the Pacific. It is widely distributed in open wet lands and along streams and in some types of humid forest. The plant grows wild from sea level up to 2600 m altitude in the tropics. Giant taro is a tropical plant and will not grow well below 10°C. It requires a well distributed rainfall and does not tolerate drought. Even though it grows along creek banks, it cannot tolerate wet soil. It is only used as food in a few coastal areas. Wild forms commonly seen growing are bitter and not used. It suits hardiness zones 11 - 12.

Cultivation: The top of the main corm is planted. The small round cormels can be planted, but are slow to mature. A spacing of 1.2 m x 1.2 m is suitable.

Production: Because the giant taro takes more than a year to be ready to harvest, it often ends up left growing in an old garden site without much care or weeding until the owner wants to harvest it. Corms of 8.5 - 40 kg have been harvested from individual plants of unknown age. The time to maturity is about 12 months, but plants are often left for 2 - 3 years.

Use: Giant taro is an important crop in some areas of Solomon Islands and other Pacific Islands. The stems and corms are eaten after roasting or boiling. The main corm is cooked and eaten after being carefully peeled. The young leaves are edible. The leaf stalk is also eaten.

CAUTION: The mouth can be irritated by chewing improperly cooked plant parts due to chemicals called oxalates. Giant taro contains these small needle-like calcium oxalate crystals in the tissues. It is necessary to remove these during the preparation and cooking. The method of peeling is important. Some ladies who are especially experienced at peeling normally do this job. The taro corm is often left to wilt for a week after it is harvested and before it is used. The stem is baked for a long time, or boiled in several changes of water, to help remove some of the crystals. It is also important to use the right variety of giant taro because the kinds grown in gardens have less of the chemical than wild ones.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Corm	84.0	256	0.6		1.0		5	1.5
Stalk								
Leaf								

Insects: Citrus rust thrips (*Chaetanaphothrips orchidii*); (*Eucalymnatus tessellates*); Taro beetles (*Papuana aninodalis*); Taro beetles (*Papuana huebneri*); (*Planococcus pacificus*); Cottony urbicola scale (*Pulvinaria urbicola*)



Names**English:** Taro**Pijin:****Local:****Scientific name:** *Colocasia esculenta* (L.) Schott**Synonyms:** *Colocasia antiquorum* Schott**Plant family:** Araceae

Description: This plant has large flat leaves on the end of upright leaf stalks. It grows up to 1 m high. The leaf stalk or petiole, or leaf stalks, joins the leaf towards the centre of the leaf. The leaves are 20 - 50 cm long. A thickened rounded corm is produced near the ground. Around this plant there is normally a ring of small plants called suckers. Many different varieties occur. If left to maturity, a lily-type flower is produced in the centre of the plant. It has a spathe, or large bract, 15 - 30 cm long which is rolled inwards. The flowers are yellow and fused along the stalk. Taro comes in two basic forms. The Dasheen type (*Colocasia esculenta* var. *esculenta*) and the Eddoe type (*Colocasia esculenta* var. *antiquorum*). The basic difference is the adaptation of the Eddoe type to storage and survival in seasonally dry places, while the Dasheen type needs to be maintained in a more or less continuously growing vegetative stage.



Distribution: It is grown in most tropical countries including Solomon Islands. It is a tropical plant. Taro grows from sea level up to about 2300 m altitude in the tropics. It grows well in humid places. It can tolerate damp soil and grow under light shade. In Nepal, it grows up to 1300 m altitude. It suits hardiness zones 9 - 12.

Cultivation: Taro can be planted from small corms or from the top of the central corm. Other sections of the corm could also be used, but this is not commonly done. Flowering of taro and seed production can lead to new cultivars, or cultivated varieties. Flowering can be promoted by the use of a chemical called gibberellic acid. The general growth pattern is for an increase in top growth, in the number of leaves, the leaf size and the length of the leaf stalk. This growth continues for about 6 months under tropical lowland conditions, then the number and size of leaves gets less and the storage tuber continues to get larger. The corm weight continues to increase from 5 - 11 months. The starch content also increases with time, but the protein content gets less as corms get older. Taro can be grown under flooded conditions, but root rots develop if the water becomes stagnant. For flooded cultivation, the land is cleared, ploughed, cultivated and puddled. The aim is to get a field that is flat with banks that allow water to be stored. Planting is done into 2 - 5 cm of standing water. For dryland taro, the soil is prepared by digging, unless a fresh bush fallow is used where the natural friability of the soil allows plants to be put into the undug soil in a small hole that is prepared. Plants are put into a hole 5 - 7 cm deep or deeper. Putting mulch around the plant to keep the soil moist and reduce the growth of weeds is a good method. Taking planting setts from corms normally gives a higher yield than that from the small side corms. Setts of about 150 g are best. Taro is planted when there will be enough rain for growth. Planting is done shortly after the rainfall has become regular if seasonally distinct wet and dry seasons occur. Higher rainfall, higher temperatures and longer hours of sunlight improve production, and people use this to decide when to plant. Irregular rain can result in irregular shaped corms. Taro does not compete well with weeds throughout most of its growth, so it is more important to weed crops during the early growth up to 3 - 4 months. About 7 - 9 weedings are required to keep the crop clean under tropical lowland conditions where flooding is not used. Mechanical weeding needs to be shallow to avoid damaging the taro roots that are near the soil surface. Herbicides have been recommended in various situations.

Production: Taro produces the highest yield under full sunlight, but it can still grow under moderate shade, where it grows more slowly and develops fewer side corms. Taro requires good moist conditions and does not survive well in drought. The rubbish of taro plants has a chemical that can slow down the growth of other plants, such as beans. Taro needs a good fertile soil and it will grow better if NPK, or mixed fertiliser is added. Higher doses of N increases protein content and higher doses of K increases starch content. Both N and K fertiliser applications increase the oxalic acid content of the tubers. These are the crystals that burn your throat! Spacing affects both the total amount of food produced and the size of the corms. Close spacing gives more food per area, but less per plant. Where spacings of 30 cm x 30 cm are used, a very large amount of planting material is required. A spacing of 60 cm x 60 cm is more common. Wider spacings of 90 cm x 90 cm give less total food. Crops mature in 6 - 18 months. Yields of 5 - 15 tonnes per hectare are probably average. This is a popular and important crop, but can be affected by fungus and virus diseases.

Use: The corms, petioles, or leaf stalks, and leaves are all edible after cooking.

CAUTION: Some varieties burn the throat due to oxalic acid crystals.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Corm	66.8	1231	1.96		0.68	3	5	3.2
Stalk								
Leaf	92.2	100	2.7		1.2	424	35.5	0.2

Insects: Taro beetles are a serious pest problem.

Sweet potato hawkmoth (*Agrius convolvuli*); Orchid thrips (*Chaetanaphothrips orchidii*); (*Eucalymnatus tessellates*); Coffee root mealybug (*Geococcus coffeae*); Corn earworm (*Helicoverpa armigera*); Cape gooseberry budworm (*Helicoverpa assulta assulta*); Seychelles scale (*Icerya seychellarum*); Asiatic rhinoceros beetle (*Oryctes rhinoceros*); Taro beetles (*Papuana aninodalis*); Taro beetles (*Papuana biroi*); Taro beetles (*Papuana huebneri*); Taro beetles (*Papuana japonensis*); Taro beetles (*Papuana laevipennis*); Taro beetles (*Papuana semistriata*); Taro beetles (*Papuana szentivanyi*); Taro beetles (*Papuana trinodosa*); Taro beetles (*Papuana uninodes*); Taro beetles (*Papuana woodlarkiana*); (*Paraputo leverii*); Banana aphid (*Pentalonia nigronervosa*); Yam mealy bug (*Planococcus dioscoreae*; (*Planococcus pacificus*); Green shield scale (*Pulvinaria psidii*); Cottony urbicola scale (*Pulvinaria urbicola*); Taro leafhopper (*Tarophagus Proserpina*); Cacao armyworm (*Tiracola plagiata*)

Diseases: Taro blight is one of several fungus diseases that can affect taro.



Names**English:** Chinese taro, Tania, Cocoyam **Scientific name:** *Xanthosoma sagittifolium* (L.) Schott**Pijin:****Synonyms:****Local:****Plant family:** Araceae

Description: A herb up to 2 m tall. It has a short stem and produces large leaves at the top of the stem. A corm is produced at the base of the plant. It produces about 10 cormels on the underground corm. These are about 15 - 25 cm long and flask shaped. They get wider towards the tip. Leaves are large and the stalk joins to the edge of the leaf. The leaves stand erect on stout petioles, or leaf stalks. There is a vein around the edge of the leaf. The leaf stalks can be 1 m long. The leaf blade is oval and 50 -75 cm long. The leaf has triangular lobes at the bottom. The flower is produced below the leaves. The large bract around the flower is pale green and about 20 cm long. The bases of this bract overlap. The closely arranged spike of flowers is about 15 cm long. The smaller female section is at the bottom of the spike and the larger male section towards the top.



Distribution: It is grown in many tropical countries, including Papua New Guinea and Solomon Islands. It suits tropical rainforest regions. It grows well in hot, humid tropical areas. It can tolerate high rainfall and light shade. It does well in regions with an annual average temperature of 26°C. It grows from sea level up to about 2000 m. Soils need to be well-drained, but should be moist. It needs a well distributed rainfall of 1400 - 2100 mm during the growing season. The best pH is 5.5 - 6.8.

Cultivation: Xanthosoma taro is normally grown by planting the top piece of the main central corm or stem. Pieces weighing 1.5 kg are often used. It can also be grown by using the small side corms, which may weigh 0.3 kg; or pieces of the corm can be used as long as they have some buds on them. These are often sprouted before planting. Using sections of the main corm provides large amounts of planting material and still achieves good yields. In crop growth, an axillary bud is produced in the axil of each leaf (where the leaf joins the stem), but only some of these develop into cormels. Often 10 or more cormels develop per plant, and these grow into cormels 15 - 25 cm long. Plants are spaced at varying distances but a common spacing is about 0.9 m x 1.5 m between plants. A closer spacing of 0.5 m x 0.6 m, giving a plant density of 36,800 plants/ha, has given high yields. Closer spacing uses more planting material but needs less weeding.

Production: The crop grows for about 9 months, although crops are often left for 12 months before harvesting. Plants are often planted to make the best use of natural rainfall. They can be planted at any time of the year, but the middle of the dry season should be avoided in dry areas. Hard soils reduce the yield. Plants are small and there are fewer side corms. Therefore, either naturally loose soils from uncultivated land or well cultivated soils are needed. The free water table must be at least 45 cm below the soil surface for plants to grow properly. Xanthosoma taro grows better in good soils, especially ones with plenty of nitrogen. It can be grown in relatively poor soils and still give a satisfactory amount of food. It is best suited to soils along valleys with a well distributed rainfall. It can grow in shade and is therefore used in inter-cropping under cacao and coconuts. Less food is produced, but it is still worth doing where other land is unavailable. Plants short of nitrogen give stunted growth, have small pale green leaves and short leaf stalks. Potassium deficiency produces dead edges around the sides of the leaf. Magnesium deficiency gives a bright orange colour between the veins. Where plants are on hillsides, the corms are often harvested without actually digging out the whole plant. The soil is carefully dug away from the plant and the

small corms are broken off the parent plant. The main stem is then covered to produce a new crop. Weed control is important and it is possible to use herbicides for this. The corms will store reasonably well under dry, cool, well-ventilated conditions. They can be stored for 8 weeks at 7°C with a relative humidity of 80%. The corms will also remain in good condition if they are left growing in the ground and just harvested when needed. Chinese taro is becoming a more common taro crop because it is easier to grow and has less disease.

Use: Cormels, or small corms, are eaten roasted or boiled. Main corms are often fed to pigs. Young leaves can be eaten after cooking.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Corm								
Leaf								

Insects: Seychelles scale (*Icerya seychellarum*); Taro beetles (*Papuana aninodalis*); Yam mealy bug (*Planococcus dioscoreae*); (*Planococcus pacificus*)



Names**English:** Swamp taro**Pijin:****Local:****Scientific name:** *Cyrtosperma merkusii* (Hassk.) Schott.**Synonyms:** *Cyrtosperma chamissonis* (Schott) Merr.**Plant family:** Araceae

Description: A large perennial taro family plant usually up to 2 - 3 m high, although some plants can grow 4 m. The leaves are very large, upright and with points on the bottom lobes. The leaf stalks are up to 2.5 m long and 10 cm across. The leaves are 1.5 m long. Other aspects of the plant can vary, for example, some types are more spiny on the leaf stalks than others. There is a large fattened rhizome, or corm, under the ground. This is shaped like a cylinder and can be up to 70 kg in size. The plant produces a large purple lily-type flower which then produces a group of seeds which are orange in colour. The plant produces suckers. The number of suckers varies with varieties.



The plant produces suckers. The number of suckers varies with varieties.

Distribution: Swamp taro grows in Asia and most Pacific countries including Solomon Islands. It is a tropical plant and grows from 18°N - 20°S. It grows in fresh or brackish swamps up to 150 m altitude. Water 0.6 - 0.9 m deep and rich in humus is the environment used. It can tolerate shade. It can withstand flooding. It is found in valleys in central and southern parts of the Philippines. It is grown in Visayas and Camarines in the Philippines. It is an important plant in Bougainville. It grows in fresh or brackish swamps up to 150 m altitude. It occurs on atoll islands.

Cultivation: Plants are normally put in swamps or ditches. Parts of the main corm, or suckers, can be used for planting. It can be intercropped with Colocasia taro. A spacing of 1.2 m x 1.2 m is suitable. It normally receives little management. It is known to respond to organic matter.

Production: Yields of 10 - 15 tonnes/ha/year have been recorded. It takes 2 - 6 years to mature. Tubers become more fibrous with time, so 2 years is a suitable harvesting time. Individual corms can weigh 2 - 50 kg.

Use: The corms are peeled and boiled or roasted. They are also used to make flour. Leaves and young flowers can be eaten. Swamp taro is an important reserve food in damp areas of Solomon Islands.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Corm	72.4	343	1.1		1.3	5	15.7	0.11
Leaf								

Insects: *Planococcus pacificus*

Names**English:** Elephant foot yam**Pijin:****Local:****Scientific name:** *Amorphophallus paeonifolius* var. *campanulatus* (Decne.) Sivadasan**Synonyms:** *Amorphophallus campanulatus* (Decne)**Plant family:** Araceae

Description: A taro family plant, but with a very divided leaf. It grows 0.75 - 1 m high. It is a soft and leafy plant with rough and mottled leaf stalks. It has a straight stem and the leaf is divided into leaflets. The leaves can be 1 m wide. The leaves usually come singly from the ground. The leaf blades are divided into many lobes. The leaflets can be 3 - 35 cm long and 2 - 13 cm wide. The flower stalk can be 3 - 20 cm long. The bract around the flower is bell shaped and fluted. It can be 60 cm across. The edge is curved back and wavy. The flower is dull purple and up to 30 cm across. It can be 70 cm long. The flower gives off a smell like rotting meat and this attracts flies. The flower only develops after the leaves have died off. The leaves and corms, especially in the wild varieties, contain many stinging crystals. Edible kinds have a smooth petiole, or leaf stalk. It has a large round tuber up to 25 cm across. The large round underground corm produces small corms around the side. These can be 10 cm long. These are usually used for planting.



Distribution: It occurs mainly in seasonally dry areas and grassland up to 800 m altitude in equatorial zones. It requires an average temperature of 25 - 35°C and rainfall of 1000 – 1500 mm during the growing season. Soils need to be well-drained as it cannot tolerate water-logging. It occurs widely around the Philippines in low altitude places, especially where people have cleared the forest. It is common in Indonesia and Vietnam.

Cultivation: Small corms from around the side are the normal part planted. Seeds will grow, but the flowers need hand-pollination. If a very small corm is planted, the plant may need to grow for several seasons to produce a large yield. Setts or small cormels of 200 g are suitable for use and are planted at 30 cm x 30 cm spacing and produce seed corms of about 500 g. Larger corms take 3 - 4 years to produce. This is achieved by digging up corms and replanting next season. Each crop takes about 8 months to mature. Corms are planted 15 cm deep. The space between each plant should increase each year. After harvest, the corm needs to be kept for a few months before it is ready to produce a new shoot and regrow.

Production: The stalk dies back when the plant is mature. The corm will keep for several months. An individual corm can finally weigh 8 kg. When it is planted, a single leaf stalk is produced and the irregular shaped leaf is produced at the top of the stalk. Eventually, the corm under the ground increases in size, then the leaf dies back. The corm could be harvested and stored, or eaten at this stage. If it is just left, a very large flower is produced. This type of growth pattern, where vegetative growth is followed by a storage organ that becomes dormant, is the type of growth that suits areas with a distinct wet and dry season. It has the advantage that the corm will store well after harvest and can be eaten in the dry season when food is short.

Use: The corm is cooked and eaten. The leaves are edible. The young petioles (leaf stalks) are eaten cooked. Elephant foot yam is a common wild plant not used for food, but some varieties are grown and used.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Corm	78.0	340	2.0		2.4	0	6	1.1
Stalk								

Insects:



Elephant foot yam



Names**English:** Greater yam**Pijin:****Local:****Scientific name:** *Dioscorea alata* L.**Synonyms:****Plant family:** Dioscoreaceae

Description: A long angular vine. The stems are square and twine to the right around support sticks. The stem does not have spines. It is often coloured green or purple. The leaves are heart shaped and borne in pairs along the vine. The leaves vary in shape, size and colour with different varieties. Leaves can be 10 - 30 cm long by 5 - 20 cm wide. The leaf stalk is 6 - 12 cm long. The flowers occur in the axils (where the leaf joins the stem) of the upper leaves. The male flowers are in small heads along branched stalks. These can be 25 cm long and green. The female flowers are in shorter spikes. Many cultivated varieties do not produce fertile seed. The fruit are 3-winged and 2.5 cm long by 3.5 cm wide. The seeds, when they occur, have wings right around them. One large, but often irregular-shaped, tuber occurs under the ground. A very large number of different varieties occur. The tubers can vary in shape, size, colour, texture and other ways. Some varieties produce bulbils, or small bulbs, along the vine.



Distribution: It grows in many tropical countries, including Solomon Islands. It grows from sea level up to about 1800 m in the tropics. Yams are most important in seasonally dry areas. They need a well-drained soil with reasonable fertility and are, therefore, often planted first in rotations. The maximum temperature is $>30^{\circ}\text{C}$ while the minimum is 20°C . The best temperature range is $25 - 30^{\circ}\text{C}$. Rainfall is often seasonal in yam areas and the maximum needs to be 14 - 20 weeks rain, with the best being 1,150 mm during the growing season. Yams can tolerate drought, but give best yields with high rainfall. The critical rain period is during the first 5 months. Light influences the growth of the tubers. If the tubers have light on them often, due to cracks in the soil on hillsides, tubers are smaller. Yams are influenced by the number of hours of sunlight. Short days (less than 10 - 11 hours of sunlight) favour tuber development. Yams suit hardiness zones 10 - 12. They cannot tolerate water-logging. Compact soil, hard pans (layer) or stones means the tubers may be exposed to sunlight. This needs to be avoided as it reduces yield. Yams must have plenty of air in the soil, so they will not normally grow on heavy clay soils or in areas with a lot of soil moisture. The soil can be improved for yam growing by putting leaves and other plant material in the planting hole, by making a mound above the hole, or by planting on a hillside. In some very loose sandy soils, yams can just be planted in flat unmounded soils without digging a special yam hole, but these situations are not common.

Cultivation: There are many different kinds of greater yam. Ceremonial yams have very specialised production techniques. For general food production, use top pieces of the tuber after they have sprouted, use a branched stick for supporting the vine, space plants about 1 m apart and choose a smooth round variety of yam. This makes harvesting easier, and peeling and food preparation quicker. Varieties that get less leaf spot disease and are less damaged by virus diseases give a more reliable yield. Varieties are chosen where the colour, cooking quality, storage ability, texture and other qualities suit what the grower wants. Tubers which are cut and stored in shady places until they form sprouts give improved yields over tubers that are left whole then cut into setts at planting. Because yam tubers have a period of dormancy, tubers do not normally commence regrowth for up to 5 - 6 months. This means they store, but cannot easily be used for out of season replanting. Dormancy, or inactivity, of the yam tubers can be broken using Calcium Carbide treatment for 5 hours, or by covering tubers with leaves of *Croton aromaticus* or *Averrhoa bilimbi*.

Greater yam is normally grown from sections of the tubers, especially the top pieces. In some kinds, the bulbils that grow along the vine can be used for planting. By using staggered plantings of male and female plants, and then hand-pollinating the flowers, it is possible to get seeds to develop and these can be used to establish new plants. It is common practice in many areas to plant the yam piece upside down. The probable reason for this is to give the shoot and roots time to develop and get established away from the sun and wind so that the plant does not dry out. People in yam areas have their varieties classified as to whether they are planted at the top or the bottom of the hole, and whether the shoot is pointed up or downwards. This is because they understand the needs of the different varieties. A planting depth of 15 cm is best. Normally top pieces give a higher yield than middle pieces of the tubers and these are better than bottom pieces. Top pieces of the yam tuber give earlier and more reliable shoots and the yams mature earlier. These top pieces are also the less attractive part of the tuber for eating, so they are preferred for planting. The larger the sett, the earlier it develops shoots and the larger the yield. Putting plants more closely gives smaller yams, but more total food. Closer spacing is normally used on lighter soils. Yams should also have sticks to climb up. It is best to have a stick that is twisted or branched because the vine can slip down a very straight stick. Normally, a stick 2 m tall is sufficient. It needs to be a strong stick, firmly fixed in the ground. Yam varieties have varying types of vine growth. This affects where the stick needs to be placed. The fat, irregular yams can have the sticks near the mound, as a thick clump of vines and leaves soon develops. But, if a the stick is put beside the mound of one of the long ceremonial yams, the vine will often reach the top of the stick before it has produced more than a couple of leaves and will then fall back down to produce its leaves on the ground. The stick for these varieties often needs to be put at some distance from the yam hole. The tip can be picked off the vine if branching is wanted earlier.

Production: In most places, the yam growth and time to maturity is linked to seasonal rainfall patterns. They are mostly planted just before the first rains, where a 8 - 10 month rainy season exists. They give better yields in 6 - 8 month rainy season areas, where they are planted 3 months before the rains. Earlier planting requires larger sett size to withstand drying out. In drier grassland areas, mulching the mounds at planting means fewer plants die and more food is produced. The time to maturity ranges from 5 months on the coast, to 9 - 10 months at higher altitudes. Yams will store well for over 6 months in a dry, dark, well-ventilated shed. Greater yam is an important root crop of the seasonally dry, hot humid, tropics.

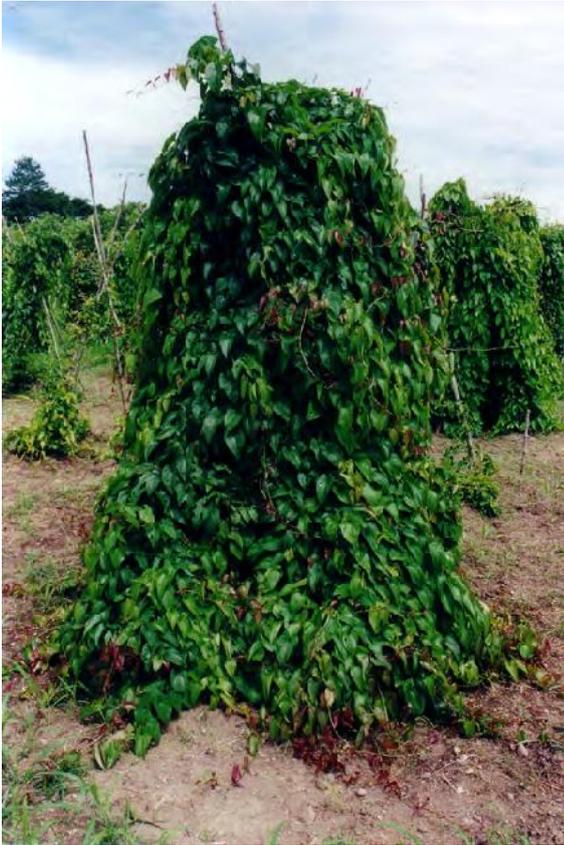
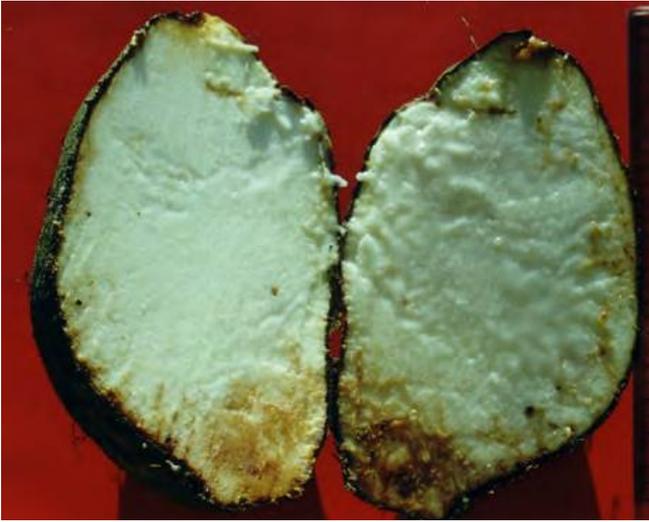
Use: The tubers are boiled, baked or mumued (cooked in the ground).

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Tuber	76.6	323	2.0		0.8	18	10	0.39

Insects: Yam mealy bug (*Planococcus dioscoreae*); Pacific mealy bug (*Planococcus pacificus*)

Diseases: Anthracnose, due to the fungus *Glomerella cingulata*, causes leaves to die off early in many areas. It can also cause immature death in easily damaged varieties when the weather conditions suit the disease. Hot, wet, humid conditions, and heavy rain, worsen the disease, although anthracnose does not appear to stop yam production in any area. Earlier planting enables the plants to be well-established when the rains start and this reduces the damage of this anthracnose fungus. There are varieties that get less disease because they have thicker covering on their leaves. The disease oftens gets spread around from the old tubers used for planting.



Greater yam

Names**English:** Potato yam**Pijin:****Local:****Scientific name:** *Dioscorea bulbifera* L.**Synonyms:****Plant family:** Dioscoreaceae

Description: A yam with a long smooth stemmed vine, round in cross-section. It twines to the left. It does not have spines. The vine can climb up into trees and grow to great lengths. The leaves are large and round, pointed at the tip, and round at the base. About 7 veins arise from the tip of the leaf stalk. Leaves can be 14 - 30 cm across and slightly longer than wide. This yam produces bulbils (aerial yams) in the angles of the leaves along the vine. These are often flattened and can be grey brown or purple. Under the ground it has a smaller tuber normally covered with roots. The flowers are large. The male flowers are in spikes up to 20 cm long. The female spikes are usually in pairs. The fruit are winged and about 2.5 cm long by 1.5 cm across. The seeds have wings. The bulbils normally have few fibres through the tissue compared to the tubers of some other yams. The flesh of many varieties is yellow.



Distribution: It is a tropical plant that grows in most tropical countries including Solomon Islands. It will grow from the coast up to about 1700 m altitude in equatorial zones. It is common near the edge of grassland and forest at mid altitudes. Both wild and cultivated forms occur. In Nepal, it grows to 2100 m altitude. It suits hardiness zones 9 - 12.

Cultivation: Either the bulbils off the vine, or the underground tubers, are planted. Because the vines are long, training them up trees is convenient. The bulbils have to be stored for a period of time before they will sprout. The plant is annual and leaves die-off each year, 1 - 4 months before re-sprouting from the tuber. Bulbils only grow shoots from one end unless the bulbil is cut into pieces. If the larger bulbils are cut, the cut surfaces should be dried and healed in a shady place for 2 - 3 days before planting. Bulbils are planted 8 - 12 cm below the surface and spacing can be 100 cm x 100 cm, or variations of this. Nitrogen and potassium fertilisers normally give greater responses than phosphorus. Friable (loose), well-drained soils are most suitable. Often, very little cultivation or mounding is done. A high level of organic matter improves yield. Staking is normally required, but often trees or living stakes are used. Branched stakes 2 m high are suitable. They need to be strongly erected as vine and tuber growth can be extensive and heavy. This yam often occurs wild, but is not always used as food.

Production: Bulbils or aerial yams are produced as soon as leaves begin to unfold and continue until the plant reaches maturity. These aerial tubers often fall from the plant. Harvesting can start 3 months after planting but immature tubers have less starch. Underground tubers are normally not harvested until the leaves die back. Wounds and damage to the tuber surface normally heal naturally in dry, aerated conditions. Some varieties have aerial tubers which are seasonally dormant and only grow after an extended period of storage. Others germinate relatively quickly.

Use: The tubers are cooked and eaten. More commonly, the aerial bulbils are eaten after cooking. Some kinds are bitter and inedible, or at least require special processing and cooking, and some varieties are poisonous.

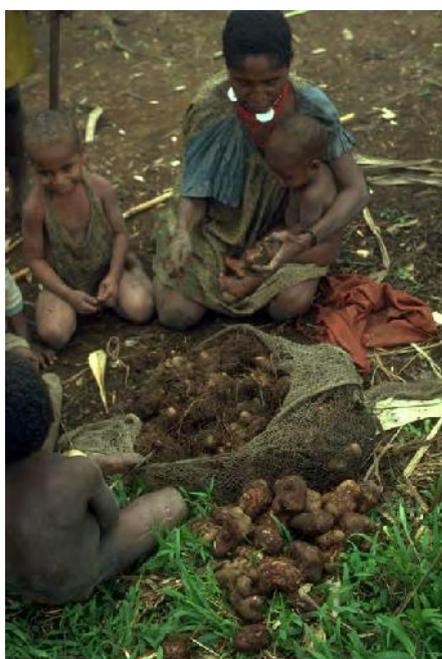
Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Tubers	70.8	357	2.7		3.1		78	0.4
Bulbils								

Insects:

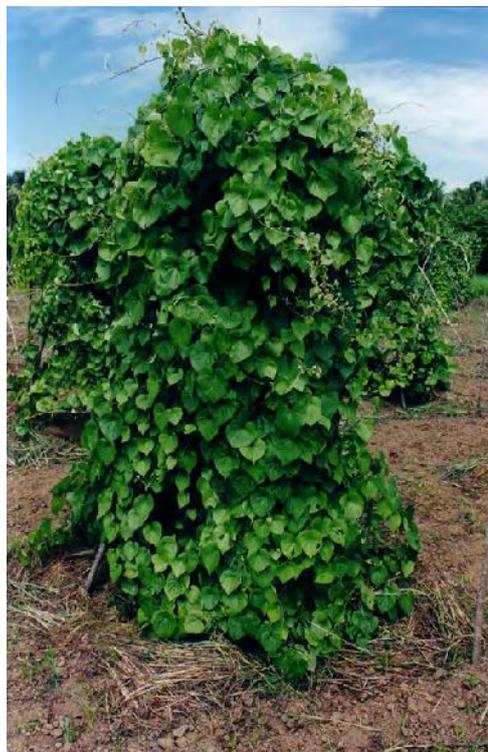


Potato yam



Names**English:** Lesser yam**Pijin:****Local:****Scientific name:** *Dioscorea esculenta* (Loureiro) Burkill**Synonyms:****Plant family:** Dioscoreaceae

Description: A yam with a spiny vine. It is a prickly climber. It can climb 1.2 - 2.4 m high and spread 1.8 m across. The vine twines to the left. The leaves are round with a gap where the leaf stalk joins. They are almost heart shaped. The leaf is about 12 cm long. This yam produces a cluster (5 - 20) of tubers under the ground. In many varieties there are sharp thorns just under the ground. Forms occur without these spines in China. The tubers are often sticky when cut. The flowers are green, 4 mm across and borne on long slender spikes. These are singly in the axils of leaves. There are many different varieties.



Distribution: It grows in many tropical countries, including Solomon Islands. It grows from sea level up to about 1500 m, but is mostly below 800 m. It cannot tolerate water-logging. It needs a reasonably long rainy season. It needs a loose fertile soil. It does poorly on sandy soils and becomes mis-shapen in heavy clay soils. High levels of organic matter promote growth. In the Philippines, it occurs throughout Luzon and is also found in the Batanes Islands. It suits hardiness zones 9 - 12. Lesser yam is an important root crop for the tropical humid lowlands.

Cultivation: Normally, small tubers (50 - 75 g) are planted, but cut portions of a tuber can be used. Using either the top section or the bottom section of a tuber gives better establishment and yield than middle portions. Using larger tubers gives larger individual tubers and higher yields for individual plants. With a spacing of 30 cm between plants and 100 cm between rows, about 2,000 kg of planting material are used if 70 g tubers are used. Tubers are planted 8 - 12 cm below the ground. It is possible to grow plants from stem cuttings where a leaf and node are propagated under mist. This method is normally only used for increasing the amount of planting material of a selected variety. Planting in mounds makes harvesting easier. It also assists drainage and improves aeration. A spacing of 80 - 100 cm between plants is suitable. Planting is normally adjusted to fit in with the beginning of the rainy season. The growing season of 9 - 10 months is long and an extended wet season is therefore desirable. Stakes are required. Stakes 2 m long are sufficient. Lesser yams compete poorly with living plants used as shade. Weed control is probably most critical during the first 3 months. As early growth of the plant is sustained from the tuber, fertilisers can be applied after planting. Added nitrogen fertiliser is more effectively used when plants are staked. Nitrogen is of more benefit for leaf growth in the early stages of plant development. Potassium is beneficial, although phosphorus applications often do not give significant responses, as lesser yams are efficient at extracting it from the soil.

Production: High yields can be obtained. Plants take about 9 months to reach maturity. In some varieties and under some conditions, leaves do not die-off and tubers must be harvested to avoid tubers rotting as new growth commences. Tubers need to be harvested and handled carefully. They must often be cut from the vine and can be washed and dried. Tubers will store for about 3 months. They need to be stored under ventilated conditions. Fungal growth and rots easily occur on cut or

damaged surfaces under damp conditions. Storage probably needs to be at temperatures above 15°C. Tubers need to be peeled either before or after cooking.

Use: The tubers are cooked and eaten.

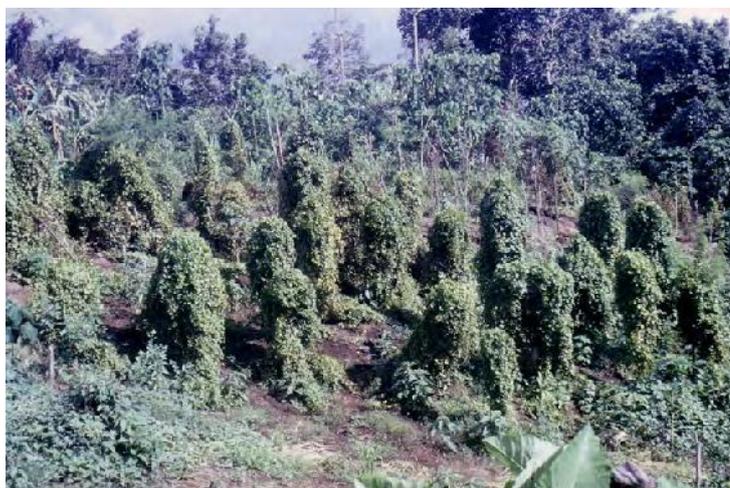
Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Tubers	74.2	470	2.06		0.75	84	20	0.5

Insects: Green looper (*Chrysodeixis eriosoma*)



Lesser yam



Names**English:** Nummularia yam**Pijin:****Local:****Scientific name:** *Dioscorea nummularia* Lamarck**Synonyms:****Plant family:** Dioscoreaceae

Description: A vine plant with long spiny stems. The stems are nearly round in cross-section. The leaves are oval to heart-shaped. They end abruptly in a pointed tip. Often they are alternate lower on the vine, then opposite each other higher up the plant. The vines twine to the right. The stems are spiny near the base. The flowers are slender. The flower spikes occur on leafless branches produced in the axils of leaves (where the leaf joins the stem) The flower spikes are longer than the leaf near where they are produced. The flower spikes remain of equal size along the length of this flowering branch. Tubers are often deep in the soil and with several lobes.



Distribution: It grows in Asia and the Pacific, including Solomon Islands, and occurs mostly in coastal areas.

Cultivation: It can be grown from pieces of the tuber. It can also be grown from aerial tubers. Plants are often planted near trees so the vine can climb the tree and the tuber is left growing in the same spot for several years, with tubers being harvested annually.

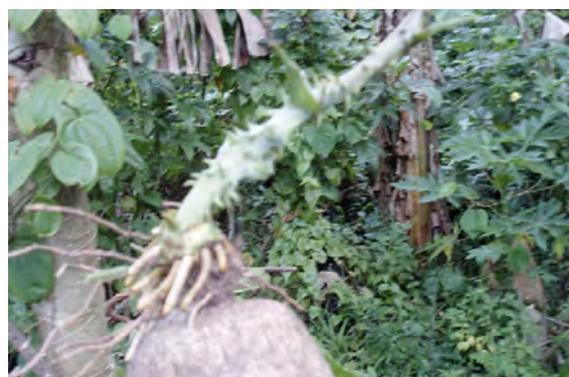
Production: The leaves die- off and regrow each year. The tuber does not store well.

Use: The tuber is cooked and eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Tuber	71.9	443	2.04		0.38	17		0.5

Insects:



Names**English:** Five-leaflet yam**Pijin:****Local:****Scientific name:** *Dioscorea pentaphylla* L.**Synonyms:****Plant family:** Dioscoreaceae

Description: A yam with a climbing vine 2 - 5 m long. The stems have scattered small spines. There are small tubers found in the axils of the leaves (where the leaf joins the stem) as well as larger underground tubers. The leaves have 5 - 7 leaflets pointed at the tip and 8 - 15 cm long. Often, the lower leaves have 5 - 7 leaflets and the upper leaves have 3 leaflets. The leaflets are spread out like fingers on a hand. The leaves have fine hairs. The flowers are small yellowish-white with a slight smell and borne in large numbers of flower clusters in the axils of leaves. The male flower spikes are 10 - 18 cm long and mostly occur as two together in the axil of a leaf. The female spikes occur as 1 - 3 together and are as long as the male ones. The fruit are winged capsules 8 - 12 mm long by 6 - 9 mm wide. The tubers vary in colour and shape. They are often round and covered with long hairs.



Distribution: It grows in Asia and the Pacific, including Solomon Islands, from sea level up to 1800 m. It needs a well-drained, well-aerated soil. It is best adapted to an abundant rainfall during the growing season and an annual dry season. Soils need to be fertile.

Cultivation: They are grown from tubers or pieces of tubers, and can be grown from aerial tubers. The dormancy of the tuber can be short. They need stakes for support. Stakes of about 2 m are adequate, although live stakes are often used. They often grow wild and are used only occasionally.

Production: Tubers are harvested after the vines die back.

Use: The tubers are eaten boiled or roasted.

CAUTION: Poisonous types of this yam also occur. These need to be cut into pieces, then repeatedly boiled and put into running water or washed and baked. The leaves and flowers are reported to be eaten in India.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Tuber	80.0	266	2.3		0.44		2.8	0.4

Insects:

Names**English:** Cassava, Manioc, Tapioca**Pijin:****Local:****Scientific name:** *Manihot esculenta* Crantz**Synonyms:** *Manihot utilissima* Pohl**Plant family:** Euphorbiaceae

Description: A plant which can regrow year after year from the thickened roots. It has several stems. The stems are woody and have some branches. Plants grow 2 - 3 m tall. Stalks have distinct scars where leaves have fallen. The leaves tend to be near the ends of branches. The leaves are divided like the fingers on a hand. The leaves have long leaf stalks. The leaves have 3 - 7 long lobes which can be 20 cm long. These are widest about $\frac{1}{3}$ of the distance from the tip and taper towards the base. The colour varies. It produces several, long tubers. These can be 50 cm long by 10 cm across. The flowers are on short stalks around a central stalk. They are produced near the ends of branches. The female flowers are near the base of the flower stalk and the male flowers higher up.

Distribution: It is grown in most tropical countries including Solomon Islands. Plants grow from sea level up to about 1650 m in regions near the equator. They can grow in poor soil and can survive drought. Cassava does not suit wet soils, and preferably they should not be too shallow or stony. It is native to tropical America. It suits hardiness zones 10 - 12.



Cultivation: It is planted from sections of the stalk. Sections about 15 - 20 cm long of the more mature woody stem are cut and stuck into the ground. They can be completely buried or put at almost any angle, with little effect on growth. Soon roots form, and leaves start to sprout from the stalk. Cassava seeds need a soil temperature of 30°C for their germination (shooting). Flower and fruit production is more common under lower temperatures, such as in highland or less equatorial conditions. It is not necessary to dig a hole to plant cassava, and where the soil is loose it can be planted without digging first. Cassava can be planted at any time of the year, but to get started it needs moisture, so is often planted at the beginning of the wet season. Once established, the crop can survive for several months without rain. The ability to tolerate drought varies significantly with the cultivar (cultivated varieties). During drought, fewer, smaller leaves are produced and leaves die off more quickly, but storage roots can be increased in the short term. Because cassava can still grow satisfactorily in poorer soils, it is often put last in a rotation after others crops have already been grown on the piece of land. Cassava is more responsive to nitrogen and potassium than phosphorus under many field situations. Nitrogen can increase cyanide levels. Under very acid conditions with high soluble aluminium levels, cassava has been able to achieve and maintain top growth, but with significantly reduced root yields. When drainage is good and soil moisture is adequate, cassava stalks can be planted at any orientation from horizontal to vertical, but horizontal planting is best in very sandy soils, and vertical planting is best in heavy clay soils. Because of the slow growth in early establishment stages, soil loss from erosion with heavy rains can be significant. To avoid this, planting should be timed so that the maximum leafy growth is occurring during the heaviest rains. A leaf area index between 2.5 - 3.5 is optimal for cassava yield. The critical period for weed control is the time from 2 - 8 weeks after planting. Cassava tuber bulking (when the tubers become larger) is delayed under shaded conditions. Yields are also reduced. In mixed cropping situations, using other early maturing crops allow the cassava time to recover. For optimum production, shading should be avoided. Spacing and plant density varies with soil

climatic conditions and variety. Plant densities from 10,000 - 30,000 plants per hectare are used. Plants from the higher density crops have been shown to have quick post-harvest deterioration (rotting after harvest). Mulching has given significant yield increases in some conditions. It also reduces the incidence and damage of some root-boring insects.

Production: Cassava takes about 10 - 12 months to produce mature tubers in the lowlands tropics, although some varieties produce a smaller yield earlier. Yields in the range of 20 - 45 t/ha have been recorded for 12 - 14 month crops. The plants can be left growing and the tubers stored in the soil for considerable time. Crops of 24 months duration occur. Once the tubers have been dug, they do not keep for more than a few days. Pre-harvest pruning of plants increases the storage time of tubers after harvest. Plants can be harvested after 10 months in the lowlands. There are some faster growing varieties.

Use: The tubers are eaten after thorough cooking. They are boiled, roasted or made into flour. Young leaves are edible after cooking. Seeds are also eaten.

CAUTION: Bitter kinds of cassava contain poison, but this is destroyed on heating. This kind of cassava should be cooked, sun-dried, soaked and cooked again.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Tuber	62.8	625	1.4		0.23	30	15	0.48
Leaf	82.0	382	7.1		7.6	11775	275	

Insects: Black cutworm (*Agrotis ipsilon*); Green coconut bug (*Amblypelta cocophaga*); Striped mealy bug (*Ferrisia virgata*); White scale (*Pseudaulacaspis pentagona*); Cacao armyworm (*Tiracola plagiata*)



Names**English:** Sago**Pijin:****Local:****Scientific name:** *Metroxylon sagu* Rottb.**Synonyms:** *Metroxylon rumphii* (Willd.) C. Martius**Plant family:** Arecaceae

Description: A clumping palm. It can grow 10 - 70 m tall with a fat trunk (50 - 75 cm across). A palm can have 18 -24 leaves which are 5 - 7 m long. The leaflets can be 50 - 160 cm long by 3 - 6 cm wide with up to 100 per leaf. After about 15 years, the palm produces a large flower on top, then the palm dies. The flowering stalk can be 5 - 7 m long. The palm has suckers near the base. Some types have fertile seeds, about 2 - 3 cm across, on the flower. There is a complete range from very long thorns to short or no thorns on the leaf bases.

Distribution: It grows in India, Indonesia, Malaysia, Philippines and Thailand in Asia, and Australia, Papua New Guinea and Solomon Islands in the Pacific. A high watertable is tolerated by the plant. Temporary flooding does not appear to affect the crop, but permanently flooded sites do not appear to be suitable. Because of the site requirements, sago is almost always on locally level ground. The level ground can be a broad, flat basin or flood plain, or a local depression or stream edge in more hilly countryside. Sago seedlings can tolerate one rather salty flooding per fortnight. The maximum altitude is about 1200 m, but the optimum is between sea level and 800 m. Sago palms grows well in wet conditions. They can tolerate saline or brackish water. They grow better in well-drained than in poorly-drained conditions. It suits hardiness zones 11 - 12.



Cultivation: Suckers or seedlings are planted in fresh water swamps or along creeks. Once stands are established in swamps, they continue to re-grow from suckers. Plants are thinned by removing some suckers. Some “seeds” will not grow, but those that are fertile need to be planted as soon as they form or they won’t grow. Seeds germinate within 3 weeks. To plant sago, the planting site near a creek or in a damp place is first cleared of trees and rubbish. Then a sucker of a suitable variety is chosen from an old sago clump. Often the fronds of the sucker are up to 3 m high. It should be checked to see if the sucker is old enough. A sucker ready for planting has a tough woody connection to the base of the old palm. It is also checked to see that fresh roots are being produced from the base of the sucker. A suitable sucker probably has fronds 3 - 4 m long and is about 1.5 years old. This is chopped through with an axe. The sucker is then simply taken to a new site and planted in a shallow hole 30 cm x 30 cm x 30 cm. If several palms are being planted, they should be about 7 m apart. The only other attention the new palm needs is an occasional weeding when competing plants get too thick. If a suitable seedling is available, it can be replanted where it is wanted. Once planted, the sago groves renew themselves through suckers and an almost permanent stand is produced. The optimum spacing is considered to be 275 clumps per hectare. This would be thinner than that which occurs in most naturally established stands. It is also considered that for one clump, thinning out suckers so that only 3 suckers of different ages are maintained, gives the best harvestable yield. Higher yields per trunk reduce the amount of labour involved in processing the pith (the centre of the stem).

Production: Palms are ready to harvest after about 15 years. In swamps, about 10 - 60 trunks are ready per hectare, each year. An average processing rate is 2.2 kg of starch per hour. A single trunk can yield up to 400 kg of sago. Palms in poor soil grow more slowly. Normally, one main trunk grows up, but several small suckers may shoot up around the base. Sometimes these suckers spread out and the space between the palms becomes crowded. Too much competition between clumps slows down the growth of the main palm, so the grove needs to be thinned out. This is very easily done. A small hole (10 cm x 10 cm) is cut with an axe into the top of the trunk of a sucker that is not wanted. This hole lets the sago beetle in and the sago grubs, which develop quickly, kill the sucker. They don't get into the main palm or other suckers unless a hole is made. After a few months, when the sucker is seen to be dead, it can be split open to provide a feed of sago grubs.

Use: Sago starch can be processed from the pith. It is cooked and eaten. The bud can be eaten cooked. The sap can be collected for a drink called "tuba" in the Philippines. Sago grubs are often cultivated and eaten. The starch can be used to produce alcohol for motor fuel. One tonne of starch produces about 325 litres of alcohol.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Starch	27	1197	0.2		0.7		0	
Bud								

Insects: *Oryctes centaurus*; Asiatic rhinoceros beetle (*Oryctes rhinoceros*); Taro beetles (*Papuana aninodalis*); Cane weevil borer (*Rhabdoscelus obscures*); Black palm weevil (*Rhynchophorus bilineatus*); Red palm weevil (*Rhynchophorus ferrugineous*); New Guinea Rhinoceros beetle (*Scapanes australis grossepunctatus*)



Names**English:** Solomon's sago**Scientific name:** *Metroxylon salomonense* (Warburg)
Becc.**Pijin:****Synonyms:** *Metroxylon bougainvillense* Becc.**Local:****Plant family:** Arecaceae

Description: A sago palm. It is a solitary palm with no suckers at the base. It can grow 17 m tall. The trunk can be 1.3 m across. The crown is graceful with arching fronds (leaves). There can be spines on older palms. The leaves are long with wide leaflets along the stalk. They are dark green. The flower is produce at the top of the palm. The flower is very large, and takes 15 - 20 months to fully develop and produce seeds. The flower arrangement has branches which are spreading and drooping. The seeds are large (10 cm across). They are scaly and straw-coloured. After 2 years, the palm gradually dies.



Distribution: It grows in Australia, Papua New Guinea, Solomon Islands and Vanuatu. It is a tropical plant. It grows in less swampy sites than sago. It needs fertile soils. It can grow up to 880 m altitude. It suits hardiness zones 11 - 12.

Cultivation: Plants are grown from seeds.

Production: Time to maturity is 12 - 15 years. The palm is felled, the outer hull stripped off, then the pith pounded and the starch extracted by washing in water and letting the starch settle out. Four men can cut, process and collect the starch from one palm in 4 - 5 hours. When a team do this work, it is shared amongst cutters, shredders, washers and packers.

Use: The starch is extracted from the trunk and eaten cooked. The growing tip, or palm cabbage, is edible. Sago is normally a reserve and celebration food.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Starch								
Bud								

Insects:

Names**English:****Scientific name:** *Metroxylon warburgii* (Heim) Beccari**Pijin:****Synonyms:****Local:** Tenebee, Uluwar, Ota**Plant family:** Arecaceae

Description: A sago palm. There is only one trunk. It is about 7 m tall. The trunk is 30 cm across. The trunk tapers from about the middle to the top. The leaves are dark green and about 3 m long. They arch over. The leaflets grow at an angle giving a V-shaped leaf. The flower is at the top of the palm. It is very large with thousands of small yellow flowers. The flowering stalk is about 3 m long and branches 3 times. The fruit are pear shaped and brown. They are about 12 cm long by 9 cm wide. These are covered with a detailed pattern of scales. The fruit are held erect. The palm dies after flowering.

Distribution: It is grown in Australia and the Pacific in Fiji, Rotuma, Samoa, Solomon Islands and Vanuatu. It is a tropical plant. It grows in low swampy areas and hill slopes at low altitude. It originally came from Vanuatu and the Santa Cruz islands of Solomon Islands.

Cultivation:**Production:**

Use: The stem starch is eaten. The young fruit are eaten raw after the thick skin has been peeled off.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Starch								
Fruit								

Insects:

Names**English:** Banana**Pijin:****Local:****Scientific name:** *Musa sp* (A &/or B genome) cv.**Synonyms:** Often as *Musa x paradisiaca***Plant family:** Musaceae

Description: These are the main group of cultivated bananas. They can be classed into diploid, triploid and tetraploid kinds with various amounts of the A or B parents. They are large non-woody herbs with broad long leaves. Most kinds have several suckers. Bananas grow a soft, firm false stem from an underground corm. The fruiting stalk eventually emerges from the top of this false stem, and normally curves over pointing towards the ground. Fruit occur in clumps, or hands, along this stem. The male flowers are in a red bud at the end of the flower stalk. The colour of the stem, bracts, bud and fruit varies considerably depending on the variety. The fruit can be 6 - 35 cm long depending on variety. They can also be 2.5 - 6 cm across.



Distribution: It grows in most tropical and subtropical countries, including Solomon Islands. They grow from sea level up to about 2000 m altitude in the tropics. They are rarely an important food above about 1600 m. In Nepal, they grow to about 1800 m altitude. They do best in warm and humid tropical climates. Temperatures need to be above 15°C. The best temperature is 27°C. The maximum temperature is 38°C. Bananas grow best in full sun. For best growth, a rainfall of 200 - 220 mm per month is needed. A deep, friable (loose) soil is best. They can tolerate a pH between 4.5 - 7.5. They suit hardiness zones 10 - 12.

Cultivation: They are planted from sword suckers, which are the tall narrow ones. Diploids need re-planting annually, but many triploids can be re-suckered from the base on the same site. Spacing depends on variety. A spacing of 1,000 – 3,000 plants per hectare is used, depending on variety. Suckers are usually planted 30 cm deep.

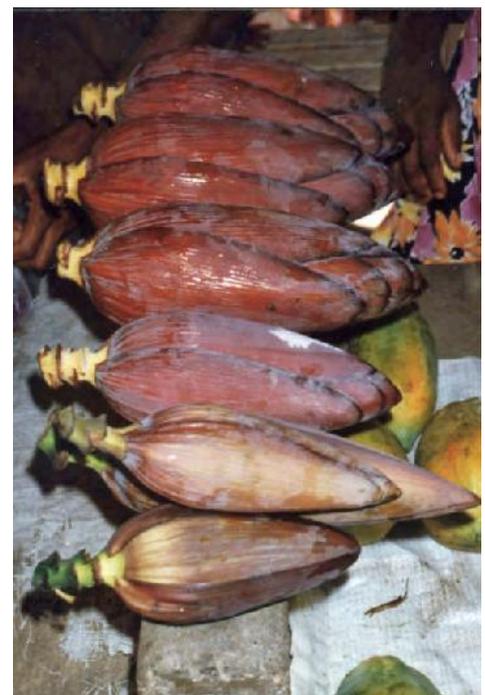
Production: Time to maturity varies from 6 - 18 months depending on variety and altitude. Triploids have larger bunches than diploids. Tetraploids are very large plants.

Use: Fruit are eaten raw or cooked, depending on variety. Male buds and flowers are eaten on some varieties. They are cooked as a vegetable. The central pith of the false stem and the underground rhizome (underground stem) are also sometimes eaten. Bananas are a major food plant and important source of starch.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	65.3	510	1.3		0.6	113	18.4	0.1
Flower bud								

Insects: Coconut white fly (*Aleurodicus destructor*); Green coconut bug (*Amblypelta cocophaga*); Pink wax scale (*Ceroplastes rubens*); Orchid thrips (*Chaetanaphothrips orchidii*); Banana weevil borer (*Cosmopolites sordidus*); Elephant beetle (*Dynastes Gideon*); Pineapple mealy bug (*Dysmicoccus brevipes*); (*Eucalymnatus tessellate*); Seychelles scale (*Icerya seychellarum*); Migratory locust (*Locusta migratoria*); Asiatic rhinoceros beetle (*Oryctes rhinoceros*); Taro beetles (*Papuana aninodalis*); Banana aphid (*Pentalonia nigronervosa*); (*Planococcus pacific*); Longtailed mealybug (*Pseudococcus longispinus*); (*Pseudococcus solomonensis*); Cane weevil borer (*Rhabdoscelus obscures*); Brown coffee scale (*Saisettia coffeae*); New Guinea Rhinoceros beetle (*Scapanes australis grossepunctatus*); Cacao armyworm (*Tiracola plagiata*); Coconut spathe moth (*Tirathaba rufivena*)



Names**English:** Rice**Pijin:****Local:****Scientific name:** *Oryza sativa* L.**Synonyms:****Plant family:** Poaceae

Description: An annual grass with hollow stems. The stems can be 30 - 150 cm tall. (Floating varieties can be 5 m long.) The nodes are solid and swollen. The stem is protected by a skin layer which can often be high in silicon. A clump of shoots is produced as tillers, or new shoots, from buds in the lower leaf axils (where the leaf joins the stem). The leaves are narrow and hairy. They taper, or become narrower, towards the tip. Each stem produces 10 - 20 leaves and the seeds hang from the flower stalk at the top.



Distribution: It grows in many subtropical and most monsoonal tropical countries. It also grows in Solomon Islands. It is grown in both flooded and dryland sites. It will grow over a range of conditions but is normally between sea level and 900 metres altitude in the tropics. Rice is occasionally grown up to 1600 m. In Nepal, it grows to about 2800 m altitude. It suits hardiness zones 9 - 12.

Cultivation: Plants are grown from seed. Seed can be sown direct or in a nursery and transplanted. For dryland crops, 5 - 10 seeds are put in holes 20 - 25 cm apart. For transplanting, 2 - 3 plants at a 20 cm x 20 cm spacing is suitable. Weed control is a problem in the early stages. Flooding can be used for weed control.

Production: The glumes (the dry bracts surrounding the spikelet of grasses) are removed to produce husked rice. Polishing removes the husk, giving polished rice. Rice development takes 90 - 200 days depending on variety.

Use: The grains are boiled and eaten after the husks are removed by pounding and winnowing (fanning the grains free of rubbish). Rice can be used to make alcohol. Rice is enjoyed as a food, but people are often not keen to grow it.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seed white	11.4		4.8		1.0		0	
Seed brown			8.0		2.5			

Insects: White leafhopper (*Cicadella spectra*); Rice leaf roller (*Cnaphalocrocis medinalis*); (*Cyrtorhinus lividipennis*); Corn earworm (*Helicoverpa armigera*); Cape gooseberry budworm (*Helicoverpa assulta assulta*); Paddy bugs (*Leptocorisa acuta*); Paddy bug (*Leptocorisa oratorius*); Paddy bug (*Leptocorisa solomonensis*); Migratory locust (*Locusta migratoria*); Rice leaf rollers (*Marasmius venialis*); Bean pod borer (*Maruca vitrata*); Rice armyworms (*Mythimna loreyi*); Rice armyworms (*Mythimna separate*); Green Vegetable bug (*Nezara viridula*); Brown backed rice planthopper (*Nilaparvata lugens*); Maize stem borer (*Ostrinia furnacalis*); *Oxya gavis*; *Oxya japonica*); Corn leaf aphid (*Rhopalosiphum maidis*); Violet rice stem borer (*Sesamia inferens*); Angoumois grain moth (*Sitotroga cerealella*); White backed rice planthopper (*Sogatella furcifera*); African armyworm (*Spodoptera exempta*); Paddy armyworm (*Spodoptera mauritia*); *Nisia atrovirens*

Names**English:** Polynesian arrowroot**Pijin:****Local:****Scientific name:** *Tacca leontopetaloides* (L.) O.Kuntze**Synonyms:****Plant family:**

Description: A perennial herb with no stem but with leaves up to 1 m long and divided into 3 segments. The leaf stalks are 1.5 - 2 cm across and about 1 m long. The leaves are 1 - 1.5 m across and divided into 3 parts which are again divided. A single flower stem grows up beside the leaf stem. The flowers are green and purplish on top of a 1 m long flower stalk. There can be 30 - 40 small flowers and several long spreading and drooping coloured bracts (small leaves) or long thin threads hang from the flowers. The leaf and flower stalks are hollow and ribbed which helps distinguish it from the somewhat similar-looking leaf of elephant foot yam (which is smooth and solid). The fruits are yellowish-green, long and with 6 raised lines along the side. They can be 4 cm long and 2 cm wide and have several seeds inside. Under the ground, there is a round swollen root or tuber. It can be 30 cm across and weigh 1 kg. Some varieties produce several smaller tubers.



Distribution: It grows in Asia and the Pacific, including Solomon Islands. It grows on the coast in the equatorial tropics and up to 200 m altitude and is mostly seen on sandy beaches, under coconuts and in grassland. It suits drier areas. It is grown on some of the coral atoll islands. It needs a neutral to acid pH. It needs fertile, humus-rich, well-drained soil. It can grow in light shade. This is a crop mainly grown in tropical Asia and Polynesia. It is also grown in Africa. It occurs throughout the Philippines near the seashores. It suits hardiness zones 10 - 12.

Cultivation: Plants are grown from division of the small tubers. A spacing 0.6 m x 0.6 m is suitable. Polynesian arrowroot is a plant which grows during the wet season and dies during the dry season. The tubers are harvested when the leaves turn yellow and the plant dies back. Small tubers are kept for replanting. Often, plants just regrow naturally from these small tubers that are left in the ground after harvesting. Plants can be grown from seed. The small tubers produced from seeds are then replanted or left to grow for another year.

Production: Plants take 8 - 10 months to mature. A tuber can weigh 1 kg.

Use: The starchy tuber is eaten. The tubers are scraped and mashed in cold water for 4 - 5 days. It is then prepared like sago. That is, normally the tuber is scraped into small shreds and then washed in water. The starch is filtered out and allowed to settle. The starch is washed several times to get rid of bitterness which is common with this plant. The tuber needs to be carefully peeled to get clean, white starch. The starch can be hung in a cloth to allow the water to drain and then it can be sun-dried. Once dry, the fine, powdered arrowroot starch will store well in a sealed jar. The arrowroot starch is tasteless. The leaves have been recorded as eaten in Africa. The yellow fruit is also eaten by children in some places. The seeds are edible.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A μ g	proVit C mg	Zinc mg
Starch								
Fruit								
Seeds								

Insects: Seychelles scale (*Icerya seychellarum*)



Polynesian arrowroot



Names**English:** Queensland arrowroot**Pijin:****Local:****Scientific name:** *Canna edulis* Ker-Gawl.**Synonyms:****Plant family:** Cannaceae

Description: A broad-leafed plant with purple leaf sheaths, growing about 1.5 - 2.5 m tall. It grows as a perennial (from year to year). The stems are in clusters. Flowers are red and produced at the top of the plant. The petals are small and red and 4 - 10 mm wide. The fruit is a 3-celled capsule with black seeds. Underground, it has a much-branched root or rhizome with fattened sections covered with leaf scars. These are often light red on the outside and yellowish-white inside. A clump of 15 - 20 suckers often develops. These starchy tubers are from 6 cm across to 15 cm long. The shape varies.



Distribution: It is grown and used in some of the coastal areas of the tropics and subtropics. It will grow from sea level up to 1600 m. In the Andes, it grows between 1000 and 2500 m altitude. It needs a heavy fertile soil. It cannot tolerate strong winds or water-logging. It does best with an evenly distributed rainfall. It can tolerate some shade. It needs to be in a frost-free location. It does best where days and nights are warm.

Cultivation: The end section of the rhizome is planted. Well-developed tubers with one or two undamaged buds should be used. A spacing of 1 m x 1 m is suitable. Tubers are planted about 15 cm deep and need to be kept weed-free during early growth. About 2.5 tonnes of tubers are required to plant a hectare.

Production: Harvesting occurs from 6 - 19 months after planting. Parts of the underground root are harvested as needed. The tubers can be stored if cool and dry. They need to be processed immediately for starch manufacture. High yields of tops and rhizomes are possible. Up to 38 tonne/ha of rhizomes and 50 tonne/ha of tops have been achieved.

Use: The rhizomes are eaten after cooking. They are boiled or baked. The leaves and rhizomes are used for animals. Starch can be extracted from the roots. This is achieved by rasping the tubers, then washing the starch out and straining out the fibres. The large starch grains are very digestible. The starch is used to make transparent noodles. It is a popular root crop in some places.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Rhizome	72.6		1.0					

Insects:



Queensland arrowroot



Names**English:** Potato**Pijin:****Local:****Scientific name:** *Solanum tuberosum* L.**Synonyms:****Plant family:** Solanaceae

Description: A branched, annual plant that grows up to 50 cm high. The stems are soft and 4-angled with compound leaves. The leaves are irregular shape and have 6 - 8 pairs of leaflets as well as small irregular leaflets between the others. It has swollen stem tubers under the ground. The tubers can vary in colour from white to red and purple. The tuber shape can also vary greatly. The flowers are white pink or purple. The fruit is a berry. It is smooth, round and green, but often striped.



Distribution: Although plants will grow tops on the coast, tubers will normally only form above about 1300 m altitude. In the tropics, they mostly grow at high altitude above 1500 m but plants are grown between 900 and 2800 m. Tubers form best when soil temperatures are 15.5°C. They are damaged by frost, but are slightly more frost-tolerant than sweet potato. It suits hardiness zones 7 - 11.

Cultivation: Plants are grown from tubers. Due to virus diseases, it is necessary to get fresh seed tubers each few years. Large tubers can be cut to include a bud or "eye". It is best to inter-crop (plant among other crops).

Production: The time to maturity is 17 - 24 weeks. Yields of 5 to 12 tonne/ha can be expected.

Use: The tubers are cooked and eaten. They are also fried, canned and made into starch. The tender leaves are also occasionally eaten. It is a popular food, often imported.

CAUTION: Green tubers and leaves are poisonous.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Tuber	77.0	344	1.7		1.1	25	21	0.27

Insects: Black cutworm (*Agrotis ipsilon*); Foxglove aphid (*Aulacorthum solani*); Elephant beetle (*Dynastes gideon*); Taro beetle (*Papuana aninodalis*)



Names**English:** Yam bean**Pijin:****Local:****Scientific name:** *Pachyrrizus erosus* (L.) Urban**Synonyms:****Plant family:** Fabaceae

Description: A climbing bean that has hairy stems. It can grow up to 6 m tall. The stems are woody at the base. It has a white-fleshed tuber with a rough, sandy-coloured skin. The leaves are alternate and made up of 3 leaflets. These leaflets have large teeth. The flowers are violet or white. The pod is 8 - 15 cm long, curved and hairy, and contains 8 - 11 flattened seeds. The seeds are almost black.

Distribution: It grows in warm places, like coastal areas in Papua New Guinea and up to about 70 m altitude in the tropics. A well-drained soil is needed. A light rich sandy soil is suitable. It cannot tolerate frost. Plants need 11 - 13 hours of daylight for tubers to form. It suits hardiness zones 10 - 11. It is a minor food in Solomon Islands.

Cultivation: It is grown from seeds and also grows wild. Seed should be pre-soaked for 12 hours in warm water to encourage rapid germination. Seeds germinate (shoot) within 2 weeks. Plants can be grown by dividing the root clump and then growing plants from the thickened roots. Cuttings will grow. A spacing of 50 cm between plants is suitable. Topping the plant by picking out the growing point and removing the flowers is said to help tubers form.



Production: Tubers are ready about 6 months after sowing. Individual tubers can be up to 20 kg in weight.

Use: The young tuber is eaten either raw or cooked. It can also be pickled. The young pods can be eaten, provided they are well cooked.

CAUTION: Old pods and mature seeds can be poisonous.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Tuber	89.0	160	1.0		0.6	2.0	20	0.2
Seed	8.1		38.5		1.3	345		
Pod	86.0	189	2.6		1.3	345		

Insects:

Names**English:** West Indian Arrowroot**Pijin:****Local:****Scientific name:** *Maranta arundinacea* (L.) Midon**Synonyms:****Plant family:** Marantaceae

Description: A perennial plant up to 2 m high with large, fleshy underground rhizomes. The stem is erect. There are 4 - 8 leaves near the base and 1 - 8 leaves on the stem. It has large leaves on long stalks near the base. These stalks can be 3.5 - 20 cm long. The leaf blade is 12 cm long and the leaf stalk clasps the stem. Flowers are small and white. There can be several on each leafy shoot. They occur on the ends of branches. There are 1 - 2 bracts under each 2 - 3 flowers. The rhizomes can be 20 cm long and about 3 cm across. They are covered with fleshy scales. The fruit are capsules which are green with a red-brown tinge. They are oval and 7 - 8 mm long by 4 - 5 mm wide. The seeds are brown.

Distribution: It is grown in many tropical countries, including Solomon Islands. It is a tropical plant that grows well in hot, humid climates. A temperature of 20 - 30°C is best. Plants grow from the coast up to 900 m altitude in the tropics. It needs an annual rainfall of 1500 – 2000 mm. It is cultivated in China for starch. It needs deep, well-drained and slightly acid soil.

Cultivation: Plants are grown from pieces of rhizome or occasionally suckers. A spacing of 1 m x 0.5 m or closer is suitable. 3,000 - 3500 kg of planting material are required for one hectare. The pieces are planted 6 - 8 cm deep. It requires a fertile soil. Normally, flowers are removed to allow as much storage as possible in the rhizomes.

Production: Rhizomes are ready for harvest after about 11 months. Successive crops are grown in the same site for 5 - 7 years. Yields of 12.5 t/ha are average. These produce 8 - 16% starch.

Use: The rhizomes are used in soups or sauces. They can be just scraped and boiled. They can be used for making flour. It is an easily digested starchy flour. It is a good thickener in sauces.

CAUTION: It is important to peel off the skin scales or they give a bitter taste to the starch.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Rhizome	12.2	1515	0.4		2.0	0	0	

Insects:

Names**English:** Kudzu**Scientific name:** *Pueraria lobata* var. *montana* (Willd.)
Ohwi**Pijin:****Synonyms:****Local:****Plant family:** Fabaceae

Description: A slow growing climbing legume (from the bean family) with a thickened, edible tuber. It has a thick stem that is hairy at the base. The stem can be 2.5 cm across. It can climb to 20 m high. The leaves are hairy and divided into 3 leaflets. They are oval or diamond shaped, and they have lobes. The middle leaflet is the largest. The side leaflets are not equal on both sides of the main vein. The leaflets are 10 - 18 cm long by 8 - 15 cm wide. The leaves taper towards the tip. The leaf stalk is 20 cm long. The flowers are pea-like and purple. They are 2 cm long and produced in upright stalks. The clusters along the stalks are 25 - 40 cm long. The fruit are oblong pods 9 cm long and 1 cm wide. They are covered with dense, rusty hairs. The tuber is shaped like a cassava root. It can be 60 - 90 cm long.



Distribution: It grows in Asia, Australia, Papua New Guinea and Solomon Islands, as well as in other Pacific countries. Wild forms grow between 30 - 1860 m altitude in the tropics. Cultivated forms are more common in high altitude areas up to 2700 m altitude in Papua New Guinea. It grows in grassland and on the edge of forests. It suits hardiness zones 5 - 11.



Cultivation: It is normally grown by stem cuttings. It grows slowly. Plants also grow self-sown from seed.

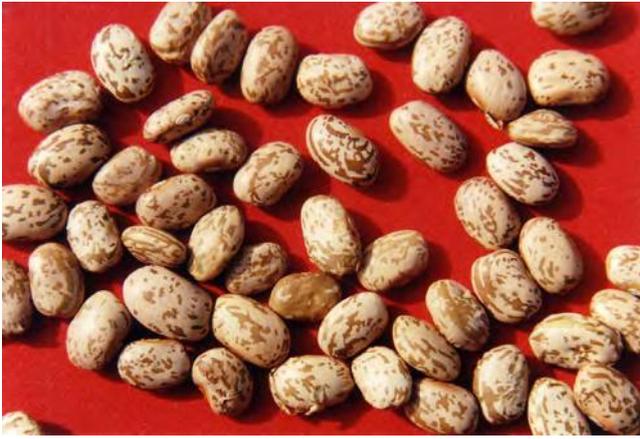
Production: The time to maturity is 2-3 years. A tuberous root can weigh 35 kg.

Use: The tuber is cooked and eaten. A kind of flour can also be made from the roots. This is processed into a thickener for sauces. The leaves, shoots and flowers can be cooked and used as a vegetable. In India, the seeds are boiled and kept in a closed container for about seven days, and allowed to decompose. A drink is made from it. It is rarely used as a food plant.

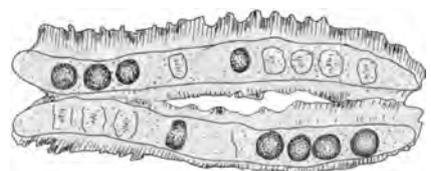
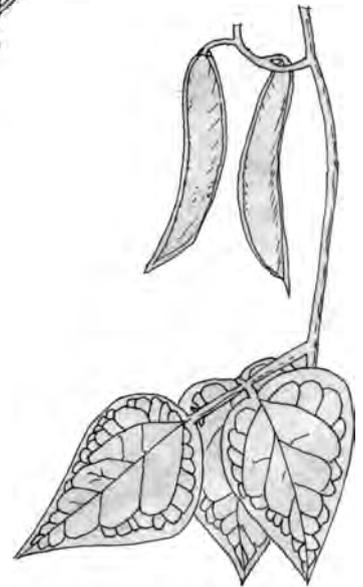
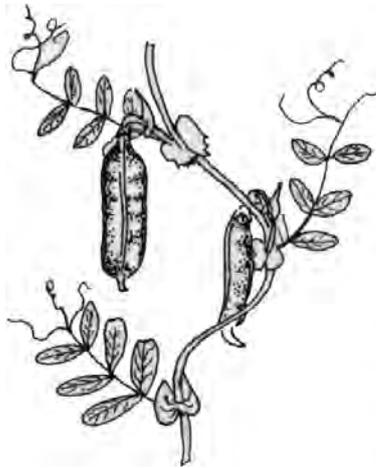
Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Root	68.6		2.1	15	0.6			

Insects: *Planococcus pacificus*



Beans and food legumes



Names**English:** Peanut, Groundnut**Pijin:****Local:****Scientific name:** *Arachis hypogea* L.**Synonyms:****Plant family:** Fabaceae

Description: A spreading, bushy plant up to about 40 cm high. Leaves are made up of 2 pairs of leaflets arranged opposite each other. Flowers are produced in the axils of leaves (where the leaves join the stem). Two main types of peanut occur. They are often called runner and bunch types. The runner type has a vegetative or leafy branch between each fruiting branch and, therefore, produces a more spreading type of plant. This is called "Virginia" peanut. The pods have 2 dark brown seeds. The bunch type produces fruiting branches in a sequence one after the other along the branches. These are called the "Spanish-Valencia" type. They grow as a more upright plant and grow more quickly. They have lighter-coloured leaves and the pods have 2 - 6 seeds which are often white. Virginia types have flowers in alternate pairs. Spanish and Valencia types have several flower branches one after another along the stem. Pods are produced on long stalks which extend under the ground. The stalk or peg from the flower grows down into the soil and then produces the pod and seed under the ground. The flower needs to be no more than 18 cm from the soil for the seed pod to develop underground.



Distribution: The plant has been taken to most tropical and subtropical places. Peanuts grow well from sea level up to about 1650 metres altitude in the equatorial tropics. They need a temperature between 24°C and 33°C, with about 28°C being best. The plants are killed by frost. They need a well-drained soil and cannot tolerate water-logging. Therefore, they are often grown on raised garden beds. They do better in drier areas, but need 300 - 500 mm of rain during the growing season. Dry weather is needed near harvest. Short-season cultivars (cultivated varieties) are used in semi-arid regions. It suits hardiness zones 8 - 12.

Cultivation: Peanuts require soil with good levels of calcium or they produce empty pods. Adding gypsum will improve this. Fruit won't set properly if boron levels are low. Because peanuts are legumes, they have root nodule bacteria which can fix their own nitrogen. This means they can still give good yields in grassland soils where nitrogen is at a lower level. The seeds or nuts are normally removed from the shell before planting and are sown 2 - 3 cm deep. The alternately branched or Virginia-type of peanuts have a dormancy (inactive) period, so they must be stored before replanting. A suitable spacing is 10 cm between plants and 60 - 80 cm between rows. Plants are often grown in mixed cultures with other plants, but for a pure stand, up to 250,000 plants/ha are grown. The soil needs to be weeded and loose by the time the flowers are produced to allow the peg for the seed pods to penetrate the soil. Normally, when the whole plant dies-off, it is ready to pull. They are left to dry in the sun for 3 - 4 days. Peanuts are an important food plant that also restore the soil.

Production: Flowering may commence in 30 days. It takes from 3.5 - 5 months to mature. It is harvested when the tops of the plants die. The whole plant is pulled out. Virginia peanuts have a longer growing season than Spanish-Valencia types and the seeds need to be stored for a while before they will start to regrow (30 days.)

Use: The seeds can be eaten raw or cooked. The young leaves are edible cooked. Oil is extracted from the seeds and is edible. The remaining meal is also eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seeds fresh	45	1394	15.0		1.5	Trace	10	
Seeds dry	4.5	2364	24.3		2.0	0	Trace	3
Leaf								

Insects: Cacao false looper (*Achaea janata*); *Compsolacon gracilis*; Pineapple mealy bug (*Dysmicoccus brevipes*); Coffee leaf roller (*Homona coffearia*); Taro beetles (*Papuana huebneri*)



Peanut



Names**English:** Winged bean**Pijin:****Local:****Scientific name:** *Psophocarpus tetragonolobus* (L.) DC**Synonyms:****Plant family:** Fabaceae

Description: A climbing, perennial bean 3 - 4 m tall. It can regrow each year from the fattened roots. The stems twine around supports or trail over the ground. The leaves have 3 leaflets. The leaf stalks are long. The leaflets are 8 - 15 cm long. The flowers are blue or white. They occur on the ends of branches from within the axils of leaves (where the leaves join the stem). Pods have wavy wings and are roughly square in cross-section. They are 6 - 36 cm long with 5 - 30 seeds. Seeds can be white, yellow, brown or black. They are bedded in the solid tissues of the pod. The seeds are round smooth and brown with a small hilum (where the seed is attached to its pod). There are many large nodules on the roots.



Distribution: It grows in many tropical countries, especially in Africa, Asia and the Pacific, including Solomon Islands. Papua New Guinea is a centre of diversity for winged beans and they are grown in many areas of that country. It grows from sea level up to about 2300 m altitude. It is less common above 1850 metres, and normally only produces tubers between 1200 m and 1850 m altitude. Because of the effect of daylength, it will not produce flowers or pods at places far removed from the equator. Photoperiodism (how many hours the sun shines daily) limits pod availability in higher latitudes, but this should not be significant in the equatorial latitudes. Winged bean is a short-day plant, needing a daylength less than 12 hours. It is a plant ideally suited to the tropics, including the hot, humid lowlands. For maximum seed production, winged beans need temperatures of 23 - 27°C, and for tubers, the temperatures should be between 18°C and 22°C. This means the main areas of production occur between 20°N and 10°S latitudes. Winged beans can grow on a wide variety of soils. Winged beans have been grown on soils with pH from 3.6 - 8.0. Soils which are very acid have soluble aluminium to which winged beans are sensitive. Winged beans are mainly self-pollinated, but limited outcrossing (crossing with another plant) has been reported. Hard seed coats have been reported from dried, stored seed. The amount of vegetative growth has been shown to increase with increasing pH from 4.7 - 5.5. Nitrogen percentage in tissues has been shown to increase with pH from 4.7 - 6.2. Plants are intolerant of water-logging. Flowering is inhibited by low levels of sunlight. Shading improves pod length and seed number. Root nodule nematode (a very small, worm-like animal) can cause severe damage in some places.

Cultivation: Seeds are sown at the beginning of the rainy season. Seeds germinate and grow slowly for the first 3 - 5 weeks. Winged beans are grown for their edible roots, leaves, flowers, pods and seeds. The cultivation procedures vary slightly depending on which product is the preferred goal. The two main types of winged bean are short-podded ones, which are used for tubers, and long-podded ones, which have poor tubers. For tuber production, vines are pruned off at about 1 m high (or left unstaked) and some flowers are removed. Tuber production is not as efficient in tropical lowland conditions. Seeds are planted 2 - 3 cm deep and about 25 - 35 cm apart. If seeds have been dried and stored, then they can suffer from hard seed coats and this delays the germination of seeds. Seeds normally start to grow in about 15 - 16 days. Plants grow slowly to start with, so weeding is important, but then they grow rapidly. They produce flowers after 46 - 92 days. If fattened roots are important, some of the leaves and flowers and tips are pruned off at

this stage. These can be eaten. Pods develop 10 - 13 weeks after planting and tubers occur 4 - 5 months after planting.

Production: The first green pods are ready about 10 weeks after sowing. Tubers are ready after 4 - 8 months. Seed yields of 1.2 t/ha and tuber yields of 4 t/ha are possible. A single plant can produce up to 75 pods. Dry bean yields of 45 - 330 g per plant can be produced depending on variety. Tuber yields of 5,500 - 12,000 kg/ha have been produced.

Use: Young pods, ripe seeds, young leaves, flowers and root tubers are all edible. The seeds can be used to extract an edible oil. Seeds can contain something that stops your body using trypsin which reduces protein being digested. This inhibitor is destroyed by soaking seeds, then boiling them well. Tubers can also contain this chemical and need to be well-cooked. This is a very important tropical bean.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seed	8.5	1764	41.9		15.0		Tr	
Pod	92.0	105	2.1					
Leaf	95.0	197	5.0		6.2	809	30	1.3
Flower								
Root	57.4	619	11.6		2.0	0	0	1.4

Insects: Green coconut bug (*Amblypelta cocophaga*); Bean pod borer (*Maruca vitrata*); Rice armyworms (*Mythimna loreyi*); Green vegetable bug (*Nezara viridula*); *Planococcus pacificus*; Cacao armyworm (*Tiracola plagiata*)





Winged bean



Names**English:** Lablab bean**Pijin:****Local:****Scientific name:** *Lablab purpureus* (L.) Sweet**Synonyms:** *Dolichos lablab* L.**Plant family:** Fabaceae

Description: A climbing bean that can have vines 1 - 5 m long. It keeps growing from year to year. The stems can be smooth or hairy. Leaves are made up of 3 almost triangular leaflets. The leaflets are 5 - 15 cm long and 3 - 14 cm wide. The side leaflets are somewhat asymmetrical (unequal). Often the plants have some purple colouring. The flowering clusters are 5 - 20 cm long. Flowers are often white but can vary from red to blue. The pods are flattened, pointed and up to 12 cm long and 2 cm wide. Inside there are 3 - 5 white or dark seeds. Seed pods have a wavy margin. The seeds are 0.5 - 1.5 cm long. This bean differs from Lima bean in three ways - the keel of the flower is not spirally twisted, the pod ends more bluntly with a long thin style at the end, and the hilum, where the seed joins the pod, on the seed is longer.



Distribution: It mostly grows between 750 m and 2175 m altitude in the tropics. It is drought-resistant and can grow in quite low rainfall areas. In Nepal, it grows to about 2500 m altitude. It suits hardiness zones 9 - 12.

Cultivation: Seeds are sown at 30 cm x 60 cm spacing near stakes or trees. About 20 kg/ha of seed are required. Fertilising with nitrogen and potash until flowering is recommended.

Production: Young pods are ready 4 - 6 months after planting and seeds are ready in 6 - 8 months. Pods are often harvested over 2 - 3 years. Pollination and seed setting are reduced in cold weather.

Use: The young pods, ripe seeds and young leaves are edible when cooked. The seeds can also be sprouted, then crushed and cooked.

CAUTION: Many types can be poisonous unless boiled. The cooking water should be thrown away.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seed young	86.9	209	3.0		0.8	14	5.1	0.4
Seed dry	10.0	1428	22.8		9.0		Tr	
Pod	82.0		4.5		10.0		1.0	
Leaf								

Insects:

Names**English:** Yard long bean, Snake bean**Scientific name:** *Vigna unguiculata* subsp. *sesquipedalis* (L.) Verdc.**Pijin:****Synonyms:****Local:****Plant family:** Fabaceae

Description: A climbing bean with long pods. The vines can be 3 m long. They normally twine around stakes. Dwarf kinds also occur. Leaves have 3 leaflets. The leaflets are oval and side leaflets are at an angle. Leaflets can be 2 - 16 cm long by 1 - 12 cm wide. The centre leaflet can have lobes near the base and the side leaflets can have lobes on the outer edge. The leaf stalks can be 2 - 13 cm long. The flowering stalks are in the axils of leaves. There can be few or several flowers. The flowers can be white, yellow or blue. Flowers are 1 - 3 cm long by 1 - 3 cm wide. Pods are long (up to 90 cm) and flexible. The seeds can vary between white to dark brown. They are oblong or kidney-shaped. Seeds are 4 - 12 mm long by 2 - 6 mm wide.



Distribution: It is grown in many tropical countries in Africa, Asia, the Americas and in Australia, Papua New Guinea and Solomon Islands. Plants grow in coastal areas in the tropics from sea level up to about 300 m in equatorial regions. Seeds shoot in moist soil over 22°C. For growth, day temperatures between 25 - 35°C and night temperatures not below 15°C are required. It suits wet areas and cannot tolerate drought. It is a day-length neutral plant that performs best under full sunlight, but can tolerate some shade. It has a high water requirement when fully grown (6 - 8 mm/day). It can tolerate a wide range of soils with pH of 5.5 - 7.5. Seeds show no dormancy or inactivity. This is a very important bean for the hot, humid tropics, including Solomon Islands.

Cultivation: Plants are grown from seed. Seeds germinate quickly (2 - 3 days) and plants grow rapidly. Flowering occurs after 5 weeks and harvesting of young pods can start 2 weeks later. Plants die after about 3 - 4 months. A spacing of 60 cm is suitable. Plants need sticks to climb up. Sticks about 2 - 2.5 m long are suitable. Often 5 - 6 seeds are sown around the one stick. Plants are often topped when growing too vigorously. It only grows as an annual bean, so seeds need to be replanted each year. The pods need to be harvested every 2 - 3 days. It suffers more from diseases if the bean does not have sticks to climb. Damage by bean pod borer is less if snake beans are grown intercropped with maize.

Production:

Use: The young pods and leaves are eaten. The ripe seeds can also be eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Pod								
Leaf								
Seed								

Insects: Green looper (*Chrysodeixis eriosoma*); Solomon fly (*Dacus solomonensis*); Coffee leaf roller (*Homona coffearia*); Bean pod borer (*Maruca vitrata*); Green vegetable bug (*Nezara viridula*)



Snake bean



Names**English:** Cowpea**Pijin:****Local:****Scientific name:** *Vinga unguiculata* var. *unguiculata***Synonyms:****Plant family:** Fabaceae

Description: A creeping bean type plant with straight firm pods. Both cover-crop types (leafy) and grain types occur. There is a deep taproot and many branches grow from it in the surface the soil. The root nodules are large and round. They can be 5 mm across. The leaves have 3 leaflets. The end leaflet can be 12 - 16 cm long. This leaflet is larger than the side leaflets. The side leaflets are unequal. The stipules at the base of the leaf are large and have spurs at their base. Flowers often occur in pairs on the end of long flowering shoots. This stalk can be 2 - 30 cm long. Only 2 - 4 flowers in each stalk produce pods. Flowers are white, yellow or blue. They are large and showy. The standard petal is 2 - 3 cm across. The pods are about 15 cm long. The seeds are white, except for a dark scar.



Distribution: It grows from sea level to 1800 m altitude in the tropics. It can stand high temperatures and some kinds can tolerate drought. It is sensitive to cold and killed by frost. It can grow on a range of soils providing they are well-drained. It is a short-day length plant that does well in the semi-arid tropics.

Cultivation: It is grown from seeds. Seed collection is easy. Seeds remain viable (usable) for several years if carefully stored. A seeding rate of about 20 kg/ha is suitable and seed are sometimes scattered, then thinned after establishment. Cowpeas mostly inbred to give pure lines.

Production:

Use: The young leaves, young pods and ripe seeds are all eaten, and seeds are also used for bean sprouts. This is a bean worth growing.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Pod	89.5	142	2.6		0.7	45	17.0	0.2
Leaf	91.3	92	4.7		1.1	345	18	0.2
Seed dry	11.2	1189	23.5		4.7	426	35	0.3
Seed young	75.5	406	3.2		1.1	79	2.2	1.0

Insects: Cacao false looper (*Achaea janata*); Bean pod borer (*Maruca vitrata*); *Riptortus rubronotatus*; *Saissetia neglecta*

Names**English:** Pigeon pea**Pijin:****Local:****Scientific name:** *Cajanus cajan* (L.) Millsp.**Synonyms:****Plant family:** Fabaceae

Description: An upright perennial shrubby legume. It lives for 3 - 4 years. It can be up to about 4 m tall and spread to 1.5 m wide. The stem is erect and branching. It has a bushy appearance and a strong deep taproot. The root nodules are round and sometimes lobed. Young stems are angled and hairy. A leaf consists of 3 leaflets. Leaflets are narrow and green and silvery green underneath. Leaflet size can be 10 cm x 3 cm. The end leaflet is larger with a longer leaf stalk. Flowers are red and yellow. The large petal has red lines. They are pea-shaped and on branched flower stalks which stick upwards in the axils of leaves. Pods are long, straight and narrow, often with 4 - 8 seeds. The pods are slightly hairy. Pods are often 4 - 8 cm long and have a beak at the end. Pods are more narrow between the seeds. Many varieties of pigeon pea occur. Some are dwarf and daylength neutral. Seeds vary in shape, size and colour.



Distribution: It is grown in most tropical countries, including Solomon Islands. It requires a tropical or subtropical climate and grows from sea level up to about 1800 m in the tropics. It can tolerate drought and is suited to a drier climate. It can grow in places with less than 600 mm rainfall per year. It does not grow well in the wet tropics. Pigeon pea suffers in waterlogged soils and is damaged by frost. It can tolerate heat and will grow on poor soils. It cannot grow on salty soils. It grows to about 2000 m in Nepal. It suits hardiness zones 10 - 12.

Cultivation: It is grown from seeds. It is best to sow seeds where the plants are to grow. Seeds normally germinate easily and well. It helps to soak seeds in cold water for one day before sowing. Seeds store well if kept cool and dry. A spacing of 1.5 m x 1.5 m is suitable. Plants can be cut back and allowed to regrow. Plants can also be grown from cuttings.

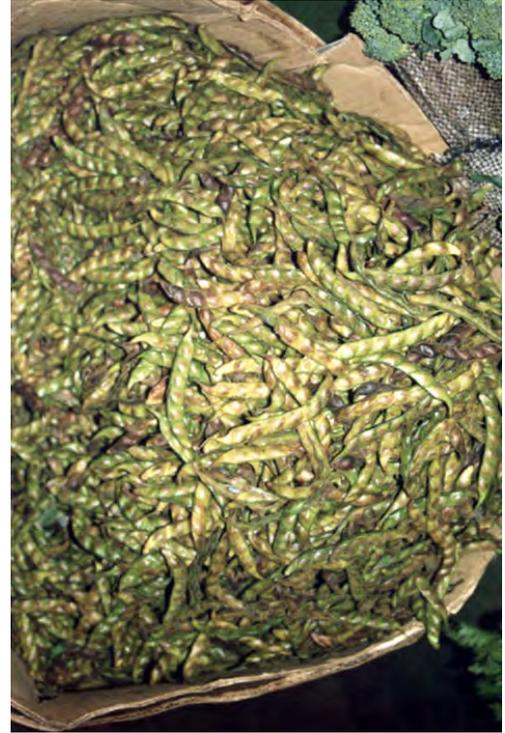
Production: Plants are fast growing. Pods are ready after 5 months. It takes about 8 months for seeds to mature. Plants will often live for 3 - 4 years. Plants are cross pollinated by insects, or self-pollinated.

Use: Young leaves, shoots and pods are eaten. Ripe seeds are also edible. Bean sprouts can be produced and eaten. Pigeon pea is a very useful soil restoring legume (bean plant) that is easily managed in gardens. It also produces nutritious leaves, pods and seeds.

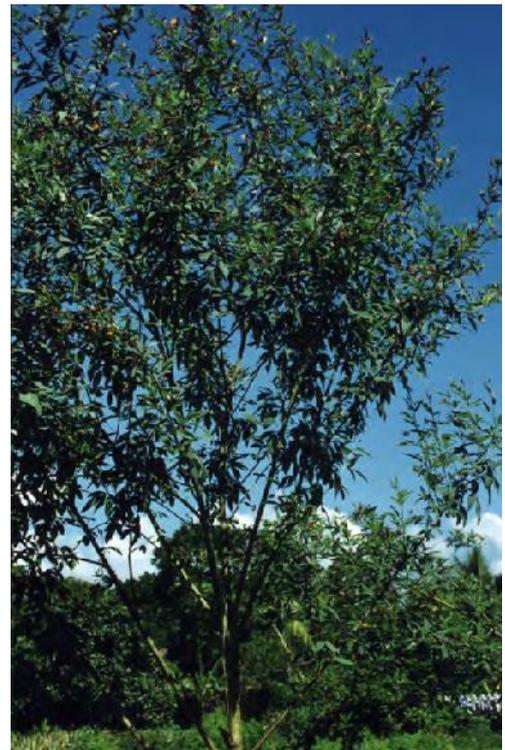
Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Pod								
Seed dry	10.0	1449	19.5		15.0	55	Tr	
Seed young	71.8	464	6.0		1.6	13	28.1	0.8
Leaf								

Insects: Corn earworm (*Helicoverpa armigera*); Seychelles scale (*Icerya seychellarum*); Bean pod borer (*Maruca vitrata*); *Planococcus pacificus*; Mexican black scale (*Saissetia Miranda*)



Pigeon pea



Names**English:** Soybean**Pijin:****Local:****Scientific name:** *Glycine max* (L.) Merr**Synonyms:****Plant family:** Fabaceae

Description: A small erect bean up to 60 cm tall. It grows each year from seed. Straggling kinds can occur. Stems, leaves and pods are covered with soft hairs. The leaves have 3 leaflets with stalks. Flowers are small and white or blue. They occur in groups in the axils of leaves. Pods have 2 - 4 seeds. The seeds range in colour from yellow to black.



Distribution: This is a subtropical crop that suits lowland areas. It can be grown from sea level to 2000 m altitude. Many varieties will not flower in the tropics (short days). Soybean needs fertile soil. The best soil acidity is pH 5.5 - 7.0. It is damaged by frost. In Nepal, it grows to 1800 m altitude. It suits hardiness zones 7 - 8.



Cultivation: It is grown from seed. Seeds need to be treated with good bacteria (inoculant) before planting. Plants need to be about 20 cm apart.

Production: Plants flower about 8 weeks after sowing and pods mature about 16 weeks after sowing. Plants are often pulled and hung up to dry before threshing out the seed.

Use: The young pods and ripe seeds are eaten. They are used to make flour. Sometimes the young leaves are eaten. The seeds are also used for sprouts and for making cooking oil and soya sauce, etc. Because soybeans contain a trypsin (protein) inhibitor, they should be cooked, and even the sprouts should be lightly cooked.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Pod								
Seeds dry	9.0	1701	33.7		6.1	55		
Seeds young	68.0	584	13.0		3.8	16	27	0.9
Sprout	79.5	339	8.5		1.3	1	8.3	1.0
Leaf								

Insects: Green looper (*Chrysodeixis eriosoma*); Coffee leaf roller (*Homona coffearia*); Bean pod borer (*Maruca vitrata*); Green vegetable bug (*Nezara viridula*); *Planococcus pacificus*

Names**English:** Lima bean**Pijin:****Local:****Scientific name:** *Phaseolus lunatus* L.**Synonyms:****Plant family:** Fabaceae

Description: A perennial climbing bean. It is often a tall, vigorously-climbing plant which can keep growing for some years. The leaves are slightly rounded at the base and pointed at the tip. The flower is white or yellow. Unlike the Lablab bean, the keel of the flower is twisted. The pods are long (10 cm), flattened and curved, with 3 - 4 large seeds which are variable in colour. The seeds have a short, round hilum where the seed is attached to the pod. The seeds also have lines going out from this point across the bean seed.



Distribution: A useful tropical bean that grows in most tropical and subtropical countries including Solomon Islands. It suits warm and subtropical areas. In the tropics, it is common between 500 and 2100 m altitude, but grows to the limit of cultivation (2700 m). For germination, it must have a soil temperature above 15.5°C and cannot tolerate frost. In very hot weather, seeds often do not set. It does best in a temperature range 14 - 21°C. It is sensitive to a pH less than 6. It suits hardiness zones 8 - 11.

Cultivation: It is grown from seed. Coloured seeds are often hard to get to grow, but white seeds start growing easily. Sow 3 - 4 seeds in a mound and put a stick 2 - 3 m tall in the middle. Hills should be about 1 m apart. Seeds should be planted 2 - 4 cm deep.

Production: Harvesting can begin after about 100 days. Dried beans can be stored for several months. Yields of 0.12 kg of seeds per square metre have been obtained. The yield of pods can be 1 kg per square metre.

Use: The leaves, young pods and seeds can all be eaten. The seeds are eaten fresh or after drying. They are also fried in oil. Dried beans are boiled or baked. The seeds are sometimes grown as bean sprouts, then cooked and eaten.

CAUTION: Some kinds have poison (hydrocyanic acid). This is destroyed by thorough cooking. The beans contain a protein inhibitor, but this is destroyed by cooking.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seed young	67.2	515	6.8		2.5	37	10.1	0.8
Seed dry	12.0	1407	19.8		5.6	Tr	0	
Pod								
Leaf								

Insects: Bean pod borer (*Maruca vitrata*); Cacao armyworm (*Tiracola plagiata*)

Names**English:** Common bean**Pijin:****Local:****Scientific name:** *Phaseolus vulgaris* L.**Synonyms:****Plant family:** Fabaceae

Description: There are many bush and climbing varieties of this bean. Climbing forms can be 2 - 3 m tall. Bush types are 20 - 60 cm tall. The leaves have three leaflets, one after another along the stem. The leaf stalk has a groove on the top. The side leaflets are unequal in shape, and can be 8 - 15 cm by 5 - 10 cm. The flowers are in the axils of leaves (where the leaves join the stem) and occur in a loose form. Flowers are white to purple. Pods are smooth, slender and 8 - 20 cm long by 1 - 1.5 cm wide. They are straight or slightly curved with a beak at the end and often have 10 - 12 coloured, kidney-shaped and seeds.



Distribution: It is a temperate plant that grows in many temperate and subtropical countries, including Solomon Islands. It mostly grows from 700 - 2000 m altitude in the tropics. It suffers from pest and disease damage in the lowlands, but can be grown to sea level. It is not suited to the wet tropics. It is shallow-rooted and damaged by excess moisture near the roots. A crop lifecycle needs about 350 mm of water. It is sensitive to frost and high temperatures. Flowers will not form below 9.5°C. Night temperatures above 37°C cause flowers to drop. The best temperature range is 15 - 21°C. It does not suit very acid soils. It suits hardiness zones 8 - 11.

Cultivation: Plants are grown from seed, preferably sown in raised beds. Seeds remain viable for 2 years. Germination is normally good if seed has been well stored. Climbing types need stakes. Plants are self-fertilised. These beans are intercropped with other plants in many places. If grown on their own, bush types can be spaced at 25 cm x 25 cm. They can be sown closer together in rows wider apart to make weeding and harvesting easier. For dried beans, once the pods are mature and turning yellow, the whole plants are pulled, then dried and threshed. About 50 - 75 kg of seed will sow a hectare. Flowering in most French bean varieties is not affected by day length.

Production:

Use: The young pods, leaves and mature seeds are edible. Dry seeds are soaked in water and boiled until soft.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seed dry	10.0	1386	25.0		8.0	10	1	2.8
Seed young	92.0	142	3.0		0.8		20	0.2
Pod	88.0	151	2.5		1.4	750	27	0.2
Sprout	90.7	121	4.2		0.8	0	38.7	0.4
Leaf								

Insects: Shootfly (*Atherigona orientalis*); *Planococcus pacificus*; Cacao armyworm (*Tiracola plagiata*)

Names**English:** Pea**Pijin:****Local:****Scientific name:** *Pisum sativum* L.**Synonyms:****Plant family:** Fabaceae

Description: A short-lived plant. It is a creeping plant with white or pink flowers. Plants can be 30 - 150 cm tall. It has a well-developed taproot and many slender side roots. The stem is weak and round. Leaves are made up of 1 - 3 pairs of leaflets with a branched tendrill at the end. There are large leaf-like stipules at the base of the leaf. The lower half of these stipules has teeth. The flowers occur in the axils of leaves (where the leaves join the stem) and are either on their own or in 2 - 3 flowered clusters with equal length stalks. The pods are swollen and green, and can have up to 10 seeds inside. Seed shape can vary. Large numbers of varieties have been recorded.



Distribution: Peas grow best at altitudes over 1000 m in the tropics. They suit a humid climate. Hot, dry weather interferes with seed setting. They are frost-tolerant, except at flowering. Peas are a temperate plant and needs temperatures of 13 - 18°C. They need a pH of 5.5 - 6.5 and reasonably good fertility. They cannot tolerate very acid soils. It suits hardiness zones 7 - 9.

Cultivation: Plants are grown from seed. Seed can be collected for re-sowing. A spacing about 5 cm apart in rows 25 cm apart is suitable. Seed can be sown 3 - 5 cm deep. If leaf and stem rot is a problem, plants can be supported off the ground. Plants need to be inoculated with bacteria for good production. For dried peas, plants are cut when mature then dried and threshed.

Production:

Use: Mostly the young seeds are eaten. They can be eaten raw or cooked. Sometimes the young pods and leaves are eaten. The young leaves and buds are cooked as a vegetable.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seed	78.5	223	5.0		1.2	300	15	0.5
Pod								
Leaf								

Insects: Corn earworm (*Helicoverpa armigera*); African armyworm (*Spodoptera exempta*)

Names**English:** Jack bean**Pijin:****Local:****Scientific name:** *Canavalia ensiformis* (L.) DC.**Synonyms:****Plant family:** Fabaceae

Description: A perennial climber, although short kinds do occur. It is often a more bushy plant than the sword bean. Plants grow up to 1.5 m long. Stems can be hairy. Leaves have three leaflets. The leaflets are oval and 5.7 - 20 cm long by 3.2 - 11.5 cm wide. The leaf tends to be wedge-shaped at the base. The leaf stalks are 2.5 - 11 cm long. Flowers are red/purple. They occur on flower clusters 5 - 12 cm long and with flower cluster stalks which are 10 - 34 cm long. The individual flower stalks are 2 - 5 mm long. Pods are long and sword-shaped. Pods can be 15 - 35 cm long. Seeds are white with a light brown hilum half as long as the seed. Seeds are 2 cm long by 1 cm across.



Distribution: It is grown in many tropical countries in Africa, Asia and America. It is also grown in the Pacific, including Solomon Islands. It grows in tropical and subtropical places and requires fairly high temperatures (15 - 30°C) for growth. It will possibly grow up to 900 m altitude. It is fairly drought-resistant and also has some resistance to salt in the soil. It can tolerate shade. It can tolerate pH from 4.5 - 8.0 but does best at about pH 6.1. The the best temperature for growing temperature range is 14.4 - 27.8°C. Seeds germinate between 24°C and 27.5°C. It is a short-day plant and grows well with a daylength of 10 - 12 hours.

Cultivation: It is grown from seeds. Seeds need to be sown 2 cm deep. A spacing of about 60 cm is suitable. Plants preferably need a support to climb over. It benefits from a fertile soil, but adding nitrogen lowers yield.

Production: Green pods are produced in 3 - 4 months, but ripe seeds need 6 - 9 months. Yield of seeds can range from 700 - 5,400 kg/ha.

Use: The leaves, top shoots, young pods, flowers and young and ripe seeds are all eaten.

CAUTION: The ripe seeds can contain poison. They need to be well cooked, and the water needs to be changed before eating. They are also often left under running water in streams or fermented.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Pod	88.0	155	2.4					
Seed	10.0	1423	20.4		4.9	160	0	
Leaf								
Flower								

Insects:

Names**English:** Sword bean**Pijin:****Local:****Scientific name:** *Canavalia gladiata* (Jacq) DC.**Synonyms:****Plant family:** Fabaceae

Description: A climbing or sometimes bushy and upright bean plant. It is mostly a climber. It can be 4 m long. The leaves have 3 large leaflets. The leaflets are oval and 7.5 - 20 cm long by 5 - 12 cm wide. The top of the leaf can narrow abruptly to a tip while the base can be rounded or broadly wedge shaped. The leaves are slightly hairy on both surfaces. The leaf stalk is 5 - 12 cm long. The flowers are in groups and are white. The flower cluster is 7 - 12 cm long and the flower cluster stalk 4 - 20 cm long. The individual flower stalks are 2 mm long. The pods are long (20 - 40 cm) and curved. Seeds are coloured red or pink. The hilum (that attaches the seed to the pod) is dark brown and almost as long as the seed.



Distribution: A less common bean that requires a tropical climate and grows in a range of tropical countries in Africa, Asia and the Americas, and also grows in Solomon Islands. Temperatures of 20 - 30°C suit it well and it grows from sea level to about 1000 m altitude in equatorial zones. It is drought and salt resistant and can grow on depleted lowland tropical nutrient soils. It can grow on soils with pH from 4.5 - 7.0 and can tolerate some shade.

Cultivation: It is grown from seeds. Seeds germinate readily and the plant is relatively fast-growing. Seeds can be sown 5 cm deep. Plants should be 60 - 70 cm apart. Climbing types need support. Natural supports such as trees, walls and fences are often used in backyard production. For large scale production, 25 - 40 kg/ha of seed is needed.

Production: Green pods/seeds are produced in 3 - 4 months and mature seeds in 5 - 10 months. Seed yields of 700 - 900 kg/ha are possible. Green pods are hand-picked when 10 - 15 cm long, before they swell and become fibrous or coarse. Seed yields of 700 - 900 kg/ha are possible.

Use: Young pods are cooked and eaten. Seeds can be cooked and eaten, but the water should be changed to remove toxins. The young leaves are also cooked and eaten.

CAUTION: The seeds can be poisonous due to hydrocyanic acid and saponin. Hydrocyanic acid makes plants bitter and is easily removed by cooking.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Pod	89.0	142	2.8					
Seed	15.0	1335	27.1					
Leaf								

Insects:

Names**English:** Adzuki bean**Scientific name:** *Vigna angularis* (Willd.) Ohwi & Ohashi**Pijin:****Synonyms:****Local:****Plant family:** Fabaceae

Description: An erect bushy bean plant which regrows from seed each year. Plants grow up to 60 cm tall. The flowers occur as clusters of bright yellow flowers. The fruit are pods 6 - 12 cm long. These contain up to 12 small, oblong seeds. These can vary between red, brown and black. They are 0.5 cm long.

Distribution: Adzuki bean grows in several temperate and tropical countries including Solomon Islands. It cannot tolerate frost but can tolerate some cold. It is a short-day plant, forming flowers and pods when daylengths are getting shorter.

Cultivation: Seeds can be pre-germinated on wet paper to get them growing more quickly. The soil temperature needs to be above 15°C. A spacing of 15 cm is suitable.

Production: Green pods should be picked regularly. For dry beans, plants can be allowed to grow to maturity, then pulled up and dried.

Use: The young pods are eaten cooked. The seeds can be eaten cooked. They are boiled, mashed and sweetened. The seeds are germinated for sprouts.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Pod								
Seed								

Insects: Bean pod borer (*Maruca vitrata*)

Names**English:** Mung bean**Pijin:****Local:****Scientific name:** *Vigna mungo* (L.) Hepper**Synonyms:****Plant family:** Fabaceae

Description: A small, annual bean with hairy pods. It is an erect herb 20 - 80 cm tall. Sometimes, the stems are twining. The stems have dense yellow or rusty hairs. Leaves have 3 leaflets. The leaflets are oval and 3 - 10 cm long by 1 - 5.5 cm wide. The leaf stalks are long but the leaflet stalks are short. Flowers are yellow. They are 1 - 2 cm long in dense flower clusters. The fruit is a pod, 4 - 7 cm long and 5 - 6 mm wide. Seeds are small and black. There are 4 - 10 seeds per pod. Seeds are 4 - 4.5 mm long by 4 mm wide. They have square ends.



Distribution: It grows in a range of tropical countries including Australia, Papua New Guinea and Solomon Islands. It is mainly coastal, but probably will grow up to 1800 m altitude in the tropics. It suits dry areas and is drought-resistant. It is grown in areas with rainfall of 900 mm per year. It cannot stand frost or long periods of cloud. It is not suited to the wet tropics. In Nepal, it grows to 2000 m altitude. It suits hardiness zones 10 - 12.

Cultivation: It is grown from seed. Seed collection is easy. Seed can be scattered, or sown individually, 25 cm apart.

Production: Flowering commences after 6 weeks. Plants are self-pollinated. Pods are ready to harvest 2 - 4 months after planting. Pods shatter easily. It is easiest to pull the whole plant, dry it for a week, then thresh out the seeds. Seed yields of 450 - 560 kg/ha after 80 - 120 days are common. 100 seeds weigh about 4 g.

Use: The ripe seeds are eaten. They are mostly eaten as dal 'dal' in India. They are fried and roasted and eaten as a snack. The young pods and young leaves are also edible. The beans are also used for bean sprouts. The seeds are used in lentil soup, parched and ground into flour for porridge, or baked into bread.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seed								
Pod								
Leaf								
Sprout								

Insects: Green coconut bug (*Amblypelta cocophaga*); Coffee leaf roller (*Homona coffearia*); Bean pod borer (*Maruca vitrata*); Green vegetable bug (*Nezara viridula*); *Riptortus rubronotatus*

Names**English:** Green gram bean**Pijin:****Local:****Scientific name:** *Vigna radiata* (L.) Wilczek**Synonyms:****Plant family:** Fabaceae

Description: An upright, hairy bean plant which can be 1 m tall. It has many branches. The leaves have 3 leaflets and are dark green. The leaves are on long leaf stalks. There are oval stipules at the base of the leaf. Flowers are pale yellow and small. They occur in bunches of 10 - 20 on the ends of long, hairy flower stalks. Pods are black and straight. They do not have a beak. Pods contain 10 - 20 seeds which are usually green or golden yellow. They are smaller than Black gram bean. The beans can be black. They have a flat, white hilum that attaches the seed to the pod. There are 2000 varieties.



Distribution: It is grown in many tropical countries including Australia, Papua New Guinea and Solomon Islands. The plant will grow from sea level up to probably 2000 m in the tropics. It is drought-resistant but does not tolerate waterlogging. It is damaged by frost and cannot tolerate salinity. Rainfall at flowering is damaging to the plant. It requires a deep soil. Both short-day and long-day types occur. It can grow where annual temperatures are from 8 - 28°C. It can tolerate a pH from 4.3 - 8.1. In Nepal, it grows up to 1000 m altitude. It suits a drier climate. It suits hardiness zones 10 - 11.

Cultivation: Plants are grown from seed. In some areas these are broadcast, while for small plots, 2 - 3 seeds are often sown in holes 50 - 60 cm apart. Seeding rates of 6 - 22 kg/ha are used in different locations. It normally requires phosphorus fertiliser for adequate growth. Seeds germinate in 3 - 5 days.

Production: Green pods are ready after about 2 months and ripe pods may take another 1 - 2 months. For ripe beans, the whole plant is harvested and dried before threshing. Yields of 450 - 560 kg/ha of seeds are common.

Use: Young pods and leaves can be eaten. Seeds are eaten raw or roasted when ripe. Seeds can be germinated for sprouts.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seed								
Pod								
Leaf								
Sprout								

Insects:

Names**English:** Chickpea**Pijin:****Local:****Scientific name:** *Cicer arietinum***Synonyms:****Plant family:** Fabaceae

Description: An annual legume. Plants are 40 - 60 cm high and all parts are hairy. It is erect with many branches. Plants are often bluish-green in colour and have a strong taproot that carries many nodules. The leaves are 5 cm long. The leaves are made up of 9 - 15 pairs of leaflets along a stalk and a single leaflet at the end. The leaflets are 1 - 2 cm long by 0.3 - 1.4 cm wide and strongly pointed with a saw-toothed edge. The flowers can be white, pink or purple. The flowers are carried singly on long stalks in the axils of leaves (where the leaf joins the stem). The flowers normally never open and are self-pollinated. The pods are inflated. Pods are 2 - 3 cm long and have 1 - 2 seeds. The seeds are angular and up to 1 cm across. They have a pointed beak. The seed colour can vary from brown to white, red or black.



Distribution: A subtropical crop plant. It suits high altitudes in the tropics because it needs cold nights with dew. It is well suited to semi-arid regions. It can tolerate salt and drought. It does not do well in warm, humid places. It needs well-drained soil. It is damaged by frost. For best growth, night temperatures between 18 - 26°C and day temperatures of 21 - 29°C are required. The temperature range of 8°C between day and night is required. Rainfall of 600 - 750 mm and a relative humidity of 20 - 40% is suitable. The best pH is 5.5 - 7.5, but it will grow on alkaline soils. In Nepal, it grows up to 1300 m altitude. It suits hardiness zones 8 - 11.

Cultivation: It is grown from seed. Often other crops are grown mixed with chickpea, but these are planted 3 - 4 weeks after sowing the chickpea. Seed should be sown at 2 - 12 cm depth. Seed will germinate at temperatures above 5°C but temperatures above 15°C are best. Spacing plants 10 cm apart in rows 25 - 30 cm apart is suitable if plants are put in rows. Plants are cut and harvested when leaves turn brown.

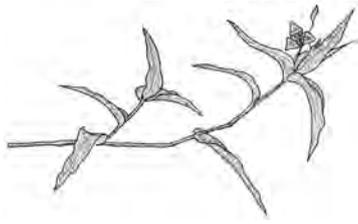
Production: Yields of 400 - 1,600 kg/ha of seed are average. Plants can reach maturity in 4.5 - 5 months, but 7 months or longer is needed for some types.

Use: Mostly the ripe seeds are eaten either boiled and mashed, but they can also be roasted or fried. The young leaves, shoots and pods are sometimes eaten.

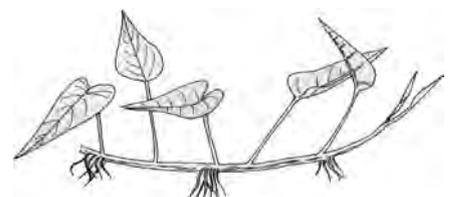
Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seed	9.9	1362	20.2		6.4	190	3	
Pod								
Leaf								

Insects:



Edible leafy greens or kumu



Names**English:** Native Amaranth**Pijin:****Local:****Scientific name:** *Amaranthus interruptus* R. Br.**Synonyms:****Plant family:** Amaranthaceae

Description: A herb which can grow upright or lying down. It can be 60 - 120 cm tall. The stems are angular. The plant often branches from the base upwards. The leaves are 1.5 - 4 cm long by 0.7 - 2 cm wide. The leaf stalk is 0.5 - 2.5 cm long. The side veins are prominent underneath. The flower cluster can be slightly branched at the base and at the top of the plant. Seeds are 1 mm across and rather thick.

Distribution: It is a tropical plant and grows in tropical Australia, the Pacific, Papua New Guinea and Solomon Islands.

Cultivation:**Production:**

Use: The leaves are used cooked. The seeds have also been eaten. It is a minor food.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								
Seed								

Insects:

Names**English:** Red amaranth**Pijin:****Local:****Scientific name:** *Amaranthus tricolor* L.**Synonyms:****Plant family:** Amaranthaceae

Description: A small, annual, leafy green herb about 1 m high, spreading to 45 cm wide. An upright, much-branched annual with a thin membrane covering the stems. Sometimes the plant lies over. The stems are angular. The plant branches in the upper part of the plant. It does not have thorns and grows from seed each year. Leaves have long leaf stalks which can be 5 - 10 cm long. Leaves vary in shape, size and colour. The leaf blade can be 5 - 25 cm long by 2 - 6 cm wide. Leaves are dull-purplish and the top leaves can be yellow or red. Some types have coloured leaves or patterns on the leaves. It has a clumpy seed head at the top. The flower spike at the top can be 30 cm long. The seeds are 1 - 1.2 mm across and black.



Distribution: It grows in most tropical countries, including the Pacific and Solomon Islands. It will grow in warm, temperate places. Plants grow wild in waste places. Amaranths grow from sea level to 2400 m altitude in the equatorial tropics. Amaranth seeds need a temperature above 15 - 17°C to germinate. In areas of the equatorial highlands above 1800 m, average temperatures are probably below this during the cooler months. It may be more difficult to get Amaranths started during these months. It suits hardiness zones 8 - 11.

Cultivation: The very small seeds of this plant are scattered over ashes or fine soil in fertile ground. The seeds are normally spread by rubbing the dry seed heads between the hands. Some types are self-sown. These plants grow in most tropical countries. The soil must be fertile. If they are put in an old garden, they will grow very poorly. They should either be put in a new garden site, when it is cleared from bush, or in old ground that is had compost added. Small gardens close to a house can often be built up to a good fertility by using food scraps and ashes that are left over near houses. Amaranths need high amounts of two nutrients, nitrogen and potash. The ashes from fires are high in potash, so farmers scatter seeds of Amaranth over areas they have burnt. Normally, the hotter it is, the better they grow. They also like plenty of sunlight and do not suit shaded places. They need to have water most of the time they are growing. This is mostly not an issue in areas with high rainfall.

Production: Plants can be harvested when small by thinning out closely-spaced plants. These can be either transplanted or eaten cooked. Plants can be harvested whole or have top leaves harvested several times. Harvesting begins after 4 - 7 weeks and can continue over the next 2 months.

Use: The young leaves and stems are cooked and eaten as a vegetable. The seeds can be eaten. It is a very important tropical vegetable. It grows quickly, produces well and is nutritious. *Amaranthus caudatus* and *Amaranthus cruentus* are probably also grown.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	91.7	96	2.5		2.3	292	42.3	0.9
Seed								

Insects: Paddy bugs (*Leptocorisa acuta*); *Planococcus pacificus*; Cacao armyworm (*Tiracola plagiata*)

Names**English:** Green amaranth**Scientific name:** *Amaranthus viridus* L.**Pijin:****Synonyms:****Local:****Plant family:** Amaranthaceae

Description: An erect, smooth-branched herb without thorns. It grows 30 - 60 cm high from seeds each year. The stems are slender. The leaves are broad near their base and narrow near the top. The leaves usually have notches. Leaves are 1 - 3 cm long with exceptionally long petioles, or leaf stalks. The flowers occur in the angles of the leaves and the seeds are small and brown or black. The spikes are not bristly.



Distribution: It is a tropical plant and grows in most tropical countries, including Solomon Islands. It is common in open waste places. In Nepal, it grows to about 1400 m altitude.

Cultivation: It can be grown from seed or cuttings.

Production: It grows quickly.

Use: The young leaves and the seeds are cooked and eaten. It is an important tropical vegetable.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	87.3		4.5		6.0		169	
Seed								

Insects:

Names

English: Edible Hibiscus, Slippery cabbage, Sunset Hibiscus

Scientific name: *Abelmoschus manihot* (L.) Medic.

Pijin: Aelan kapis

Synonyms: *Hibiscus manihot* L

Local:

Plant family: Malvaceae

Description: A branched shrub up to 2 m or more high. It has rounded twigs that are green and smooth. The leaves are simple and smooth, and have 3 - 5 lobes. The leaves are large and can vary in shape. The leaves are normally very dark green, but occasionally, pale green types occur. The leaf stalks are 6 - 13 cm long. The stalks can be green or have red colours on them. The flowers are borne singly and are yellow with dark purple centres. They are produced on mature bushes and the flowers are hibiscus-like. The fruit pods are rather stiff or have bristly hairs. They are a dry capsule with many small seeds. Plants can last for a year or for several years.



Distribution: It is grown in many Asian and Pacific countries. It is well-suited to the tropical lowlands, but grows only poorly at an altitude of 1800 m. It needs fertile soil. Plants will withstand occasional short periods of temperatures, down to about -5°C, so long as they are in a very well-drained soil. It suits areas with high humidity. It suits hardiness zones 10 - 12.

Cultivation: It is normally grown from cuttings. Lengths of about 25 cm (2 or 3 leaf joints or "nodes") of fresh, green, stem cuttings are used. These are simply stuck in the ground. It can be grown from seeds. The narrow-leaved types tend to compete less well with weeds. In some areas, people tend to put the narrow-leaved types in the middle of the garden cropped amongst sweet potato, and the broad-leaved types near stumps or logs and around the edges of gardens. The pale, green-leaved types only grow very slowly. A fertile soil is needed. Therefore, it can be planted in good soil in a newly cleared garden site or it can be planted near houses where the soil fertility can be built up by adding food scraps, compost and ashes. The growth and colour of the leaves can be improved greatly by spraying the leaves each 2 - 3 weeks with a very small amount of the nitrogen fertiliser called urea, dissolved in water (0.5% solution). This uses less fertiliser than putting it on the ground where it can wash away in the rain. Picking out the tips off branches of the plants encourages the plant to produce more branches and therefore, more leaves. Too many leaves should not be picked off the one bush at the one time when harvesting. This is because it slows down the growth of more leaves. If the soil is very fertile, older bushes which are only growing a few leaves can be chopped off. The stump left in the ground can then regrow into a new bush. It is a very fast growing and productive food plant in the hot, humid tropics.

Production: Leaves are ready to harvest after about 80 days. Yields of 6.7 - 7.3 t/ha/crop have been recorded.

Use: Young leaves are cooked and eaten. They are slimy unless steamed or fried. It is a very nutritious plant.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf		197	5.7					

Insects: Green coconut bug (*Amblypelta cocophaga*); Cotton semi-looper (*Anomis flava*); Green looper (*Chrysodeixis eriosoma*); Red cotton bug (*Dysdercus cingulatus*); Corn earworm (*Helicoverpa armigera*); Spherical mealybug (*Nipaecoccus viridis*); *Planococcus pacificus*; White scale (*Pseudaulacaspis pentagona*)



Edible Hibiscus

Names**English:****Scientific name:** *Gnetum costatum* Schum.**Pijin:****Synonyms:****Local:****Plant family:** Gnetaceae

Description: A tree which loses its leaves. It grows 15 - 20 m tall. The bark is reddish-brown. The leaves are broadly oval and 15 - 18 cm long. They taper, or become narrow, at both ends. The leaf stalk is 0.5 cm long. Male and female flowers are separate. The male flowering shoots occur singly in the axils of leaves (where the leaf joins the stem). They are 6 - 7 cm long and simple. The flowers do not have stalks and occur in rings. The female flowers have fine white hairs. The fruit are nut-like and taper at both ends. They are 4 cm long by 1 cm wide. They can be red or pink. The seed taper and have furrows.

Distribution: It grows in the Papuan Province of Indonesia, in Papua New Guinea and in Solomon Islands. It grows in rainforest up to 1350 m altitude. It can be found on ridge tops or along streams. It does not grow in swamps. It grows best where there are distinct wet and dry seasons.

Cultivation:**Production:**

Use: The fruit are boiled and the kernel eaten. They need to be cooked for a longer time than "Tulip" *Gnetum gnemon* fruit to remove the bitter taste. The young leaves and flowers are also cooked and eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit								
Leaf								

Insects:

Names**English:** Spinach joint fir**Pijin:****Local:** Tu-lip, Melimjo**Scientific name:** *Gnetum gnemon* L.**Synonyms:****Plant family:** Gnetaceae

Description: A shrub or small tree about 10 m high. It can grow to 20 m high. It normally has a cone-shaped crown. The bark is greyish-brown. The small branches are slender and like a vine. The leaves are produced in pairs opposite each other. They are dark green and shiny, oval and pointed at both ends. The leaves are 7.5 - 12.5 cm long by 2.5 - 7.5 cm wide. Trees are either male or female. Male spikes are 3 - 6 cm long. They consist of 50 - 80 very small flowers in rings along the stalk. Flowers are produced as cones made up of rings of scales along stalks that can be up to 12 cm long. There are 5 - 8 flowers at each node. Fruits are oval and green when young, but red when ripe. Fruit are 2 - 3 cm long and contain one seed.



Distribution: It grows in Asia in Burma, Cambodia, China, India, Indochina, Indonesia, Malaysia, Myanmar, Thailand, and Vietnam, and in the Pacific in Fiji, Palau, Papua New Guinea, Philippines, Solomon Islands and Vanuatu. Trees occur in tropical rainforest from sea level to about 1200 metres altitude. It can grow on a range of soils but does best on deep well-drained soils. It suits hardiness zones 10 - 12.

Cultivation: Trees are grown from seed. When using the seed for growing, a fully-ripe, red fruit is needed. Seeds exhibit a natural dormancy due to a very hard (impermeable) seed coat. Breaking this seed coat can normally hasten germination, or shooting. This is done by boring a hole into the seed. Propagation, or starting new plants, can occur naturally from seeds distributed by birds, or by planting seeds or by cuttings. A spacing of 6 m is suitable, although in rows, they are often sown closer together. Trees appear to establish in the forest understorey, indicating some shade tolerance. Trees recover readily from pruning. Coppicing, or chopping back and letting the plant regrow, can produce a rapid flush of new leaves. Flushes of new leaves tend to occur seasonally. Trees can be topped to keep them shorter. If plants are grown by air-layering, they are shorter and more compact.

Production: Trees produce flushes of young, reddish leaves. Flowers are produced throughout the year. Trees grown from seed take 5 - 8 years to bear fruit. Air-layered trees produce fruit in 2 - 3 years. Leaves are harvested when fully expanded, but still soft and succulent. The fruit are harvested when the skin turns red. Trees can produce 20,000 pieces of fruit per year, each weighing 6 - 7 g.

Use: Young leaf tips, young flowers, and young fruit are eaten cooked. Ripe fruit are eaten raw or cooked. Fruit should be crushed before cooking or they can explode. Young flowers and fruit need cooking to get rid of irritating substances. The seeds are dried and flattened and then deep fried in hot oil and salt added. It is a popular snack food and an important vegetable.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	66.0	378	5.9		2.7	3700	200	
Seed								
Flower								

Insects: *Milviscutulus mangiferae*



Spinach joint fir

Names**English:****Scientific name:** *Gnetum latifolium* Bl.**Pijin:****Synonyms:****Local:** Tangkil, Sakilkil**Plant family:** Gnetaceae

Description: A large semi-climber. It grows from 5 - 20 m long. The branches are in pairs. The leaves are large. The leaflets are 20 cm x 56 cm. The spike-like flower grows on old wood. The fruit is an oval nut. The outside of the fruit is green, but turns red to orange.

Distribution: It grows in tropical Asia and the Pacific, from India to Solomon Islands. It grows in the lowlands near mangroves.

Cultivation:**Production:**

Use: The leaves and fruit are sometimes eaten. The seeds are eaten cooked, either roasted or boiled.

**Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seed								
Leaf								

Insects:

Names**English:** Blackberried nightshade**Scientific name:** *Solanum nigrum* L.**Pijin:****Synonyms:****Local:****Plant family:** Solanaceae

Description: An erect, branched, smooth herb. It grows about 60 - 100 cm high. The stems are green and 3-angled. Leaves are pointed at both ends. The leaves are 1.3 - 9 cm long by 0.5 - 6 cm wide. They are oblong and taper to the tip. They can have wavy lobes. The inner ring of petals is white and about 8 mm across. The fruit are black, smooth and round. They hang downwards.



Distribution: They occur in waste places at low and medium altitudes throughout the country. It grows from sea level up to high altitudes such as 2700 m in the tropics. It often comes up self-sown after fires. It is grown in most tropical countries as a green, leafy vegetable. It occurs between 600 - 3000 m altitude in southern China. In Nepal, it grows to about 2900 m altitude.



Cultivation: It is grown from seed. In the highlands areas, it is almost always self-sown or encouraged by burning grassland, but then weeded and harvested as a normal part of the garden. In coastal areas, seeds are sown by broadcasting, or scattering. Good yields can be obtained under moderate fertility levels. A spacing of 40 cm x 40 cm is suitable. Topping, or removing the top of the plant, encourages branching. It can be grown from cuttings.

Production: Seeds germinate about a week after planting. Leaves can be harvested after about 8-10 weeks by cutting off the last 5 cm of each branch. High yields can be obtained and 5 - 8 harvests over 6 - 8 weeks are possible. It grows rapidly, has high seed production and high viability of seed. This gives it a competitiveness as a weedy species, but also means it is one of the first edible greens to be harvested from a new garden.

Use: The ripe fruit are cooked and eaten. They are also used for soup. The leaves and young shoots are eaten cooked. It is a commonly used vegetable.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	87.0	160	4.3		1.0	3660	20	
Fruit								

Insects: Seychelles scale (*Icerya seychellarum*); Cottony urbicola scale (*Pulvinaria urbicola*); Brown coffee scale (*Saisettia coffeae*)

Names**English:** Riverine fig**Pijin:****Local:****Scientific name:** *Ficus adenosperma* Miq.**Synonyms:****Plant family:** Moraceae

Description: A shrub or small tree. It grows to 10 m tall. The sap from broken twigs is yellow or cream. The leaves are simple and alternate or opposite. They are 6 - 12 cm long and 2 - 7 cm wide. There are oil dots on the leaves, visible with a lens. There are 2 flat glands on the underside of the base of the leaf. The leaf stalks are 1 - 4 cm long and hairy. The figs are in the axils of the leaves (where the leaf joins the stem). They can be yellow or green. They are 1 cm long by 1 cm wide and are rough. The fig stalk is 1 cm long.

Distribution: It grows in Indonesia and Malaysia in Asia, in Australia and Papua New Guinea, and in Solomon Islands and Vanuatu in the Pacific. It grows in rainforest near watercourses. In tropical Queensland, it grows from sea level to 600 m altitude.

Cultivation:**Production:****Use:** The leaves are eaten cooked.**Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:** Benjamin's fig**Pijin:****Local:****Scientific name:** *Ficus benjamina* var. *benjamina* L.**Synonyms:****Plant family:** Moraceae

Description: An evergreen tree. It grows 12 - 30 m tall and spreads to 4 - 15 m across. The stem is erect and slender. It has irregular flanges along it. The trunk can be 30 - 50 cm across. The branches can hang over and the leaves hang down. The plant can produce aerial roots from the largest branches. The bark is smooth and pale grey. The leaves are simple, green and glossy. They are darker on top. They are leathery and oval, and taper, or narrow, towards the tip. Leaves are 5 - 13 cm long and 2 - 4.5 cm wide. The leaf stalk is 1 cm long. The flowers are very small. There are separate male and female flowers enclosed in a receptacle or fig. The fruit are dark red, small, round figs. They are 1 cm across and are produced in pairs. Some varieties have different sized figs.



Distribution: It mostly grows in Asia and the Pacific, including Solomon Islands. It is a tropical plant. It can grow in subtropical and warm temperate regions. It does best in rich, moist soil. It needs a protected, sunny position. It is damaged by drought and frost, but can survive light frost. It needs a minimum temperature above 15°C. It grows naturally in moist, coastal, monsoon-vine forests. It grows in mixed forests between 500 - 600 m altitude in southern China. It suits hardiness zones 10 - 12.

Cultivation: Plants can be grown by cuttings, suckering or layering, and also from seed.

Production: It is moderately fast growing. In Australia, plants fruit from August to October.

Use: The fruit are eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit								

Insects:

Names**English:****Pijin:****Local:** Labutsie, Karsikerie**Scientific name:** *Ficus chrysochaete***Synonyms:****Plant family:** Moracee**Description:****Distribution:** It grows in Solomon Islands.**Cultivation:****Production:****Use:** Leaves are boiled with meat to give flavour.**Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:** Plentiful fig**Pijin:****Local:****Scientific name:** *Ficus copiosa* Steud.**Synonyms:****Plant family:** Moraceae

Description: A small tree that grows up to 10 m high. The trunk is slender and straight and the bark is grey and smooth. Young stems and leaf veins have a purplish colour, and the tips have a rough feel due to raised bristles on the leaves and stems. The leaf shape varies. Leaves are 10 - 25 cm long by 5 - 12 cm across. They are oval. The leaves are often heart shaped at the base and bluntly pointed at the tips. The edges of the leaves are irregular. The leaf stalks are about 2 cm long. Fruit are 1 - 2 cm across and often in small clusters on old twigs.



Distribution: It grows in Asia, Australia, Indonesia, Papua New Guinea and the Pacific, including Solomon Islands and Vanuatu. It is a tropical tree. Trees grow from sea level up to about 1800 m above sea level in Papua New Guinea. They are normally in mixed forest.

Cultivation: Trees are often planted by seeds or self-sown seedlings are transplanted. Trees can also be grown by cuttings and aerial-layering (part of the plant cut and wrapped in dirt so it produces new shoots). In some areas, trees are grown as a hedge and pruned to increase branching. Plants occur both in the wild and as cultivated types.



Production: Young leaf tips of 3 - 5 g are picked.

Use: The young leaves are eaten cooked. The fruit are eaten raw. It is a common and popular vegetable.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								
Fruit								

Insects: *Eucalymnatus tessellates*; *Laingiococcus painei*; *Milviscutulus spiculatus*; *Paraputo leveri*; *Planococcus pacificus*



Names**English:** Brown-woolly fig**Pijin:****Local:****Scientific name:** *Ficus drupacea* Thunb.**Synonyms:****Plant family:** Moraceae

Description: A small to medium sized tree that grows 10 - 15 m high. It has a spreading bushy crown. It has strangling roots but not aerial roots. The trunk is short and irregular. The bark is grey and smooth. The young shoots have dense, rusty-coloured hairs. The leaf stalk is 2.5 - 3 cm long. The leaves are simple and 8 - 18 cm long by 4 - 9 cm wide. They are oval but narrow abruptly at each end. They are dark green and leathery. Underneath, they are more yellowish-brown. Young leaves have rusty hairs, while mature leaves are smooth. The edible fig, or receptacle, is 1.5 - 2 cm across. They are round and in the axils of leaves (where the leaf joins the stem) on young shoots. They occur either singly or in pairs. They ripen from orange to dark red. They are. There are some varieties described based on the hairiness of the leaves.

Distribution: It grows in most tropical Asian countries and in Australia, Papua New Guinea and Solomon Islands. It is a tropical plant and grows naturally in the rainforest. It grows in mountain forests and along streams between 100 – 1500 m altitude in China.

Cultivation: Plants can be grown from seed or by using aerial-layering (part of the plant cut and wrapped in dirt so it produces new shoots).

Production:

Use: The ripe fruit are eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit								

Insects:

Names**English:****Scientific name:** *Ficus edelfeltii* ssp. *bougainvillei* King**Pijin:****Synonyms:****Local:****Plant family:** Moraceae

Description: A small tree. It develops buttresses, or roots, above ground that give extra support to the tree. The leaves are less rough than *Ficus copiosa*. Each leaf node produces a pair of medium sized fruit about 1.5 cm across.



Distribution: It grows in the lowlands of Solomon Islands.

Cultivation:

Production:

Use: The young leaves are cooked and eaten. They are also chewed in place of betel nut with lime and pepper leaf.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:****Pijin:****Local:** Vo man**Scientific name:** *Ficus glandulifera* Summerh.**Synonyms:****Plant family:** Moraceae

Description: A small to medium sized tree. The bark is pinkish-brown. The twigs are slender and reddish. The leaves are simple and alternate. They are oval and 4 - 14 cm long by 2.5 - 6 cm wide. They are narrowed towards the tip. Veins join near the edge of the leaf. The leaf stalk is 1.5 - 3 cm long. The edible fruit are figs carried in the axils of leaves (where the leaf joins the stem) near the ends of branches. Often, 1 or 2 figs occur together. They are 10 mm long by 8 mm wide. There are 3 bracts (leaves) at the base. The male flowers are arranged near the opening of the fig.



Distribution: It grows in SE Asia and Solomon Islands. It occurs in evergreen forest in northern Vietnam.

Cultivation:**Production:**

Use: The small figs can be eaten, but are small and unattractive.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit								

Insects:

Names

English:

Pijin:

Local:

Scientific name: *Ficus longibracteata* Corner

Synonyms:

Plant family: Moraceae

Description:

Distribution: It grows in Solomon Islands.

Cultivation:

Production:

Use:



Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A μ g	proVit C mg	Zinc mg

Insects:

Names**English:****Scientific name:** *Ficus odoardi***Pijin:****Synonyms:****Local:** Alafasu**Plant family:** Moraceae**Description:****Distribution:** It grows in Solomon Islands.**Cultivation:****Production:****Use:** The leaves are chewed as a substitute for betel. They are chewed with lime and betel leaf.**Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:**Names****English:****Scientific name:** *Ficus prasinicarpa* Elmer**Pijin:****Synonyms:****Local:****Plant family:** Moraceae**Description:** This fig tree loses its leaves during the year. The fruit are bell-shaped.**Distribution:** It grows in Solomon Islands. It occurs in Santa Anna and Rennell.**Cultivation:****Production:****Use:** The young leaves are often cooked with coconut milk.**Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:****Scientific name:** *Ficus storckii* Seem**Pijin:****Synonyms:****Local:** Losilosu, Raranga**Plant family:** Moraceae

Description: A small tree up to 7 m tall. The trunk is crooked. The young growth is slightly hairy. The leaves grow one after another and narrow to a long point and rounded at the base. They are up to 15 cm long and 6 cm wide and with 3 spreading nerves, or veins. The leaves have small teeth around the edge. The leaf stalks are 2 - 3 cm long. The fruit is round and 1 cm across. They are clustered along the stem. They are dull red.



Distribution: It grows in the Pacific in Fiji, Niue, Tonga and Solomon Islands.

Cultivation:**Production:****Use:** The sweet leaf is eaten raw.**Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:** Variegated Fig**Pijin:****Local:****Scientific name:** *Ficus variegata* Blume**Synonyms:****Plant family:** Moraceae

Description: A medium-sized, buttressed tree that grows 7 - 18 m high. The trunk varies in length and can be 20 - 30 cm across. Trees can be larger. The bark is characteristically brown and smooth. It is thick with an abundance of latex. The young shoots are pale green. The leaves are broad and oval. They are leathery, shiny and smooth to touch. They are 14 - 20 cm long and 8 - 12 cm wide. The base of the leaf is rounded and heart shaped. The leaf stalks are 3 - 8 cm long and brown. The leaf-like structures (stipules) at the base of the leaf stalks are 1 - 1.5 cm long, smooth and pinkish. Swollen structures are found along the larger limbs. Red figs with white spots are produced on the trunk and larger branches. The fruit is round and smooth and turns deep yellow when mature. The edible fruit are 3 - 4 cm across. Trees may bear thousands of fruit which are eaten by birds. Named varieties occur based on the colour of the fruit.

Distribution: It grows in tropical Asia, Australia, Papua New Guinea and Solomon Islands. It occurs in the Philippines in lower forested regions from Luzon to the provinces of Mindanao. In Australia, it occurs in tropical rainforests and in coastal districts. Trees need light and humid conditions. They are often on well-drained soils at the edge of the rainforest. They grow in valleys at low and middle altitudes in South China. In Indonesia, trees grow up to 1500 m altitude.

Cultivation: It can probably be grown from seed or by aerial-layering (part of the plant cut and wrapped in dirt so it produces new shoots). It seeds and grows naturally under the right conditions.

Production: It is a fast growing tree. In the northern hemisphere, it flowers in April and May, and fruits in July and August.

Use: The freshly cut stems yield drinking water. The fruit are edible, but not attractive. Young fruit can be used cooked. The young leaves are eaten cooked.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit								
Leaf								

Insects:

Names**English:** White Fig**Pijin:****Local:****Scientific name:** *Ficus virens* Aiton ex Dryander**Synonyms:****Plant family:** Moraceae

Description: A tall and often very large tree. It can lose all or some of its leaves during the year. It grows 15 - 30 m high and spreads 15 - 40 m across. It is a widely-spreading plant often with a rounded crown. It can have both strangling roots and aerial roots. The trunk is short and very thick. It has irregular flanges on it and buttresses. It can have a mass of prop roots. The bark is dark grey to brown. Young shoots are bright green. The leafy growth at the base of the leaf is sword shaped and 10 cm long. The leaf stalk is 2 - 5 cm long. The leaves are 6 - 20 cm long and 4 - 6 cm wide. They are oval or sword-shaped, thin, and leathery. They are dark green above but with pale veins and dull underneath. The male and female flowers occur in the one fig. The male flowers are few and near the opening. The fruit or figs are about 1 cm across. They are round and greenish-white to brown with white or red dots. They are wrinkled on the surface. Varieties with different leaf shapes have been described.



Distribution: It grows from Pakistan in Asia to Solomon Islands in the Pacific. It is a tropical plant and grows in a range of locations including rocky outcrops and rainforest. It needs well-drained soil. It can grow in dry and humid regions. It is damaged by frost. It grows between 300 - 2700 m altitude in South China. It suits hardiness zones 10 - 12.

Cultivation: Trees can be grown from seed or by aerial-layering (part of the plant cut and wrapped in dirt so it produces new shoots). Cuttings from young shoots strike easily. It often grows naturally in the fork of a host tree and eventually strangles and kills the other tree.

Production: Trees grow quickly. In Australia, fruit mature June to October.

Use: The fruit are eaten. The leaves are recorded as eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit								
Leaf								

Insects:

Names**English:** Large-Leaved Weeping Fig**Scientific name:** *Ficus virgata* Reinw. ex Bl.**Pijin:****Synonyms:****Local:****Plant family:** Moraceae

Description: A medium size tree. It grows 10 - 20 m tall and spreads 10 - 25 m wide. It has a rounded or pointy crown. It has strangling roots but not aerial roots. The trunk can vary in length and has irregular ridges on it. The bark is grey and leathery. The young shoots are pale green. The leaves are simple and 10 -20 cm long by 6 - 8 cm wide. They are oval. They are dark-green and shiny on the upper surface and paler underneath. There is a flat gland where the mid-rib and first side vein join. The leaf stalks are 0.5 - 1 cm long. The fig fruit are 2 - 3 cm across. They are round and pink to brown and produced in the axils of leaves (where the leaf joins the stem). The surface of the fruit is rough. The fruit are orange to dark-red when ripe.

Distribution: It grows in Asia and Australia, and in Solomon Islands and Vanuatu in the Pacific. It occurs naturally in tropical rainforests at low elevations.

Cultivation: Plants can be grown from seed or by aerial-layering (part of the plant cut and wrapped in dirt so it produces new shoots). It can also be grown by cuttings.

Production: In Australia, fruit are produced in all months of the year.

Use: The fruit are eaten. The young shoots are eaten in curries. Young leaves (under 3 days old) are eaten fresh.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit								
Leaf								

Insects:

Names**English:****Scientific name:** *Ficus wassa* Roxb.**Pijin:****Synonyms:****Local:****Plant family:** Moraceae

Description: A shrubby tree up to 4 m tall. The bark is grey, flaky and scaly. The young leaf parts have grey hairs underneath them. The leafy twigs are reddish-brown. The leaves are produced opposite one another. The leaf is rough to the touch. The edges of the leaves are wavy and slightly toothed. The tip of the leaf is pointed and the base is wedge-shaped. There is a gland at the base of the leaf veins. Fruit are produced in clusters on the leafless stems. They are red to purple when ripe. *Ficus copiosa* and *Ficus wassa* are very similar. *Ficus wassa* is usually smaller and has darker bark. *Ficus copiosa* has larger, more angular leaves and the figs are normally less red and more green and on longer stalks.



Distribution: It grows in Papua New Guinea, Solomon Islands and Vanuatu. It occurs in areas of regrowth. In Papua New Guinea, it grows in lowland areas and up to 300 m altitude or higher.

Cultivation: Plants can be grown from seed or cuttings.

Production:

Use: The leaves are eaten cooked. The fruit are also cooked with the young leaves. It is a common and useful vegetable.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								
Fruit								

Insects:

Names**English:****Pijin:****Local:****Scientific name:** *Ficus xylosyca* ssp. *cylindricarpa* Diels**Synonyms:****Plant family:** Moraceae**Description:****Distribution:** It grows in Solomon Islands.**Cultivation:****Production:****Use:****Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg

Insects:

Names**English:** Kangkong**Pijin:****Local:****Scientific name:** *Ipomoea aquatica* Forsk.**Synonyms:** *Ipomoea repens* Roth**Plant family:** Convolvulaceae

Description: Kangkong is a creeping, sweet potato-like plant. It has hollow stems and can float on water. The leaves are green and are normally not divided like some sweet potato leaves, but the shape and size varies a little between different kinds. The trumpet-shaped flower looks like a sweet potato flower and is normally white. The runners develop roots at the nodes and also branch. This branching increases when tips are picked off. Some variation in leaf shape can be observed. Leaf-shape is less variable than in the related sweet potato, but narrow and broad-leafed kinds occur. White and green stemmed types occur. Green-stemmed types have more cold tolerance than white-stemmed types.



Distribution: It grows in most tropical countries, including Solomon Islands. It is a tropical plant and grows best in short-day, stable, high-temperature, moist conditions. Temperatures need to be above 25°C for satisfactory growth. In equatorial regions, plants probably grow up to 1000 m altitude. Below 23°C, the growth rate is too slow for economic production, so production is mainly in the lowland tropics. The best pH is between 5.3 - 6.0. It suits damp places and grows well in swamps. It can grow as a partly floating plant in swamps or lagoons behind the beach. In some countries, the dry land form is grown in gardens. In Nepal, it grows up to 500 m altitude.

Cultivation: Dryland kangkong is normally grown from seed. Seeds are sometimes pre-soaked for 12 - 24 hours prior to sowing. Plants can also be grown from cuttings and establishment is rapid. Top cuttings 25 - 40 cm long can be planted beside a pond.

Production: Young leaf tips can be harvested 30 days after planting, with subsequent harvests every 7 - 10 days. Production of new shoots probably declines at flowering. Yields up to 60,000 kg/ha have been recorded.

Use: The young leaf tips are cooked and eaten. Kangkong is a very important tropical vegetable.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	92.9	84	2.1		1.3	520	16.0	0.2

Insects:



Kangkong

Names**English:****Pijin:****Local:****Scientific name:** *Polyscias fruticosa* (L.) Harms**Synonyms:** *Nothopanax fruticosum* (L) Miq.**Plant family:** Araliaceae

Description: A tall shrub. It grows 3 - 5 m high and spreads 2 - 3 m wide. The branches are spreading. The leaves are clustered near the tips. The leaves are divided 3 times. They are 75 cm long and sheath, or enclose, the stem at the base. The leaflet stalks are 25 cm long and the leaflets are 1-12 cm long by 0.5 - 4 cm wide. They vary in shape and can be lobed or have teeth. The flowers are 0.5 cm across and in a spreading group 60 cm long. The fleshy fruit are 0.5 cm across. Different types of the plant vary a lot. Some types are similar to *Polyscias cumingiana* and *Polyscias filicifolia*, another closely related species which is illustrated in the accompanying photograph and used in a similar way.



Distribution: It grows in Asia and the Pacific in tropical countries, including Solomon Islands. It suits tropical and subtropical regions and needs well-drained, acid soils. It is grown at low altitudes and up to about 1000 m. It is often grown as a hedge.

Cultivation: Plants can be grown from fresh seed or cuttings.

Production:

Use: The young leaves are eaten as a flavouring. They are also boiled and eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects: Pink wax scale (*Ceroplastes rubens*); *Planococcus pacificus*



Names**English:****Scientific name:** *Polyscias macgillivrayi* (Seem.) Harms**Pijin:****Synonyms:****Local:****Plant family:** Araliaceae

Description: A tall shrub. It grows 4 - 7 m high and spreads 2 - 4 m wide. Young growth is smooth. There is usually a single trunk. The bark is grey. There are only a few spreading branches. The leaves are divided along the stalk and are 1 m long. The leaflets are 20 - 25 cm long by 8 - 10 cm wide. They are oblong and often broadest near the base. They are green and often curved downwards. The flowers are 0.5 cm across. They form loose, open groups. The fruit is about 0.8 cm across and flattened.

Distribution: It grows in Australia, Papua New Guinea and the Pacific, including Solomon Islands. It grows in rainforest. It is a tropical plant and needs well-drained soil. It often grows just behind the mangrove along the coast.

Cultivation: Plants can be grown from fresh seed.

Production:

Use: The leaves are eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:****Scientific name:** *Polyscias scutellaria* (Burm.f.) Fosb.**Pijin:****Synonyms:****Local:****Plant family:** Araliaceae

Description: A shrub which forms many branches from the base. It is 1 - 6 m high and spreads 1.5 - 3 m wide. The stems are bronze-green and there are distinct scars where the leaves fall off. The leaves have long leaf stalks and they can be simple or have 1-5 leaflets. The leaves are often cup-shaped or saucer-shaped. The leaf is long and narrow along the leaf stalk for about a quarter of its length. The leaves have wavy edges and are smooth on both sides. They are dark green on top and lighter green beneath. The leaf blade is 8 - 25 cm across and almost round or kidney-shaped. The leaf stalk is 6 - 28 cm long. The flowers are 0.5 cm across. They are white or yellow. The fruit is 0.7 cm across and purplish-black. It is round and fleshy.



Distribution: It grows in Asia, Australia, India, Indonesia, Malaysia, Papua New Guinea and Solomon Islands. It occurs in the lower altitude regions. It needs well-drained soils. It often grows at low altitudes and up to 800 m altitude. It is often grown as a hedge.

Cultivation: The shrub is often planted and pruned to form a hedge. It is grown from cuttings.

Production:

Use: The young leaves and tips are cooked and eaten. It is a useful and nutritious vegetable.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:****Pijin:****Local:** Valanguar**Scientific name:** *Polyscias verticillata* Stone**Synonyms:****Plant family:** Araliaceae

Description: A shrub grown as a hedge and of which the young leaves are eaten. It can grow up to 7 m high. The leaves are arranged in spirals towards the ends. The leaves can be 1 m long. The leaves are divided twice. The leaf stalk is 24 - 30 cm long. The leaf sheaths form a flat section clasp the leaf stalk. Leaf shapes, colours and size vary between species and varieties. The leaf blades are oblong and often more broad near the base. The mid-rib and side veins are visible. The leaf blades are 16 - 27 cm by 5 - 13 cm. The flowering stalks are large and at the ends of the branches. The flower stalks branch and radiate out. The fruit are round and fleshy and black. The leaves are like *Polyscias macgillivrayi*, but the flower arrangement is different.



Distribution: It grows in Indonesia, Papua New Guinea and Solomon Islands. It occurs in coastal areas and probably up to 1000 m altitude. It is mostly planted around houses. It usually occurs near sea level and below 140 m altitude.

Cultivation: Plants are grown by cuttings. This plant is often used to form an ornamental hedge around houses and gardens. Constantly picking the leaves helps maintain it as a small, pruned shrub. As a shrub, it grows 2 - 5 m tall. Seeds are produced and spread by birds. These self-sown seedlings are sometimes replanted.

Production:

Use: The young leaves have a nice smell and are cooked and eaten as a vegetable, as well as to flavour stews.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:****Scientific name:** *Pseuderanthemum whartonianum*
Hemsl.**Pijin:****Synonyms:****Local:****Plant family:** Acanthaceae

Description: Small shrubs up to 6 m high. The leaves are oval and narrow to a point at both ends. The veins are easy to see. The flowers are white, with a purple throat.



Distribution: It grows in coastal and inland areas in Solomon Islands and Vanuatu.

Cultivation: Plants are grown from cuttings. It is often inter-cropped, or grown among other crops, in gardens and also grows wild in moist forest.

Production:

Use: The leaves are eaten cooked. Sometimes, the water is changed to remove bitter tastes. It is an important edible vegetable in Solomon Islands.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:



Ofenga



Names**English:** Watercress**Scientific name:** *Rorippa nasturtium-aquaticum* (L.)

Hayek

Pijin:**Synonyms:** *Nasturtium aquaticum* L**Local:****Plant family:** Brassicaceae

Description: A small, leafy plant that grows in water and lasts for several years. It grows 30 cm high and has runners 2.5 m long. It has hollow stems and roots freely from the nodes (the knob or point where leaves begin). It branches freely. The leaves consist of 3 - 7 pairs of small leaflets with a larger leaflet at the end. The flowers are small and white and grow in a cluster. Flowers are not always produced and need days with more than 12 hours of sunlight to form. A small, narrow, curved seed pod, about 2 cm long, can develop. It grows attached to the banks of streams.



Distribution: It grows in many temperate countries and also in tropical countries, including Solomon Islands. This is a temperate-climate crop. It is common in tropical, highland creeks, especially those flowing off limestone hills (pH 6.5 - 7.5). It needs to be in running water. In the tropics, it occurs from about 1000 m up to at least 2900 m altitude. It grows in streams, ditches, lakes, swamps and marshes from near sea level to 3700 m altitude in China. It is a popular vegetable where it occurs.

Cultivation: It is grown from cuttings planted along the edges of clear, running water. Cuttings of 10 - 15 cm long are suitable. The plant has roots along the stem at the nodes and cuttings quickly form roots in water. A spacing of 30 cm is suitable. This small plant keeps living for many years, once established. It can also be grown from seeds. Plants can float on the water. It will not tolerate drying-out. Watercress has a high phosphate requirement.

Production: Harvesting can occur 4 - 6 weeks after planting. Regular picking encourages branching and increases production. Leaf tips 5 - 10 cm long are harvested. This can be repeated every 4 - 6 weeks.

Use: The leaves and stems are eaten raw or cooked and have a spicy flavour. Leaves should be cooked if the growing water is not pure and clean. The seed can be germinated to produce sprouts. The seeds can be ground to make a mustard flavouring.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								
Seed								
Sprout								

Insects:

Names**English:****Pijin:****Local:****Scientific name:** *Beta vulgaris* ssp. *cicla* (L.) Koch**Synonyms:** Probably now *Beta vulgaris* Cicla group**Plant family:** Chenopodiaceae

Description: A broad-leafed annual plant. Stalks are smooth and often white with a dark green leaf. A clump of stalks and leaves is produced from the base. Plants can also be blue. The leaves can be 12 - 25 cm long.



Distribution: It needs to be grown above 500 m altitude in the tropics. It is mostly grown between 1000 m and 2600 m altitude

Cultivation: It is grown from seeds. It is not normally possible to collect seed under tropical conditions. In cold climates, plants need to be sown when conditions are warmer so that plants do not go straight to flower. A spacing of 30 cm between plants is suitable. Seeds are sown 2.5 cm deep. It is an easy to grow, useful vegetable for the highlands.

Production: The first leaves are ready after 8 - 10 weeks and it can produce for 2 years. Only the outer leaves are picked off.

Use: The leaves and stalks are cooked and eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	92.7	84	1.9		2.3	314	18	0.3
Stalk								

Insects:



Names**English:** Sweet leaf**Pijin:****Local:****Scientific name:** *Sauropus androgynus* (L.) Merr.**Synonyms:****Plant family:** Euphorbiaceae

Description: A low-growing shrub with small red flowers. It continues to grow from year to year. It grows 0.8 - 2 m tall. It can grow 6 m tall. It tends to grow upright, then falls over due to its weight. It branches little. Compound leaves on the sides of the stems bear flowers along their underside. The fruit are purple and about 1 cm across. They open and drop their seed at maturity.



Distribution: An Asian vegetable now grown in Australia, Papua New Guinea and Solomon Islands. It occurs commonly in South East Asia. It can grow in partial shade or full sun. It suits the hot, humid lowlands. It will grow in heavy clay soils and acid soils.

Cultivation: It is easily grown from cuttings. Pruning encourages more upright shoots. It can also be grown from seed. Seed only remain viable, or usable, for a few months. It is often grown as a hedge. Cuttings for this are placed 10 cm apart. Adding shade (shade cloth) and fertiliser can be used to force the leaf tips to grow rapidly. , Bushes are normally planted about 60 cm apart.

Production: Young leaves can be harvested 4 months after planting. The top 15 cm of young leaf tips are picked. It gives a high yield of leaves and production continues year round. Shrubs last a long time.

Use: The young tips, young leaves, flowers and small fruit are eaten raw. Older leaves are cooked. Leaves are often singed before being added to soups. The fruit can be used to make jam.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								
Fruit								

Insects:



Names**English:** Horseradish tree, Drumstick Tree **Scientific name:** *Moringa oleifera* Lamarck**Pijin:** **Synonyms:****Local:** **Plant family:** Moringaceae

Description: A small tree up to 9 - 12 m high. The trunk is 60 cm across. The wood is soft. It has fern-like, divided leaves. The tree loses its leaves during the year. The bark is grey and thick. It is like cork and peels off in patches. The leaves are pale green and the leaf is divided 3 times. The whole leaf is 30 - 60 cm long and the leaflets are usually oval and 1 - 2 cm long. The leaflets are jointed, with a gland near the joint. The flowers are pale yellow and contain both male and female parts. They occur in long sprays 30 cm long. Each flower has five petals, and of these, one is erect and 4 are bent backwards. The flowers are sweet-scented. The fruit is a long capsule, 30 - 100 cm long by 2 cm wide. The seed capsules are up to 45 cm long. They are roughly triangular in shape. They split open when dry. There are 9 dark brown seeds inside. The seeds have 3 wings. Some kinds are better for edible fruit than others, while some are selected for leaves. The fruiting kinds are often grown as annual plants.



Distribution: The tree is grown in most tropical countries, including Solomon Islands. A tropical and subtropical plant. It suits the dry, lowland areas and grows up to 500 m altitude in the tropics. In Nepal, it grows up to 1100 m altitude. It does not tolerate frost. A pH of 6 - 7.5 is suitable. It suits hardiness zones 9 - 12.

Cultivation: It is best to grow plants from 1 m long cuttings, but it can be grown from seed. They can be used as a hedge and pruned regularly to produce more leaves. Properly dried seed can be stored for a long time in sealed containers in a cool place. Perennial types are normally grown from cuttings and annual types are grown from seed.

Production: Trees are fast growing. They can be pruned or topped. With one variety, the tree flowers and fruits continuously, while with the other variety, there are flowers and fruit once per year. The fruit ripens 3 months after flowering. Annual types produce fruit 6 months after planting.

Use: The young tops and leaves are eaten cooked. The very young long pods are eaten cooked, especially in curries. They are also pickled. The young seeds are eaten roasted. Sometimes the roots are used as a horseradish substitute. The roots, leaves, flowers and fruits are eaten cooked in water and mixed with salt and chili peppers. The oil expressed from the seeds is used in salads. It is a very nutritious and important tropical vegetable, possibly not yet widely used in Solomon Islands.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	81.7	251	5.3		2.3	701 RE	31.0	0.5
Pod	88.2	155	2.1		0.4	7	141	0.5
Seed	6.5		46.6					
Root								

Insects:



Horseradish tree

Names**English:** Indian spinach**Pijin:****Local:****Scientific name:** *Basella alba* L.**Synonyms:** *Basella rubra* L.**Plant family:** Basellaceae

Description: An annual or perennial climbing herb with thick, fleshy leaves. The vine is smooth and juicy, and can be 10 m long. It branches freely. The vine and leaves can be red or green. The leaves are pointed at the tip. They can be 8 - 18 cm long and 8 - 10 cm across. They are carried alternately along the vine. Leaves can be heart-shaped or oval. It has white, pink or red flowers in short spikes which are in the axils of the leaves (where the leaf joins the stem). Flowers have both male and female parts. The fruit are round and soft. They can be red, white or black and are 6 - 8 mm across. The seeds are round and black and 3 mm across. (Often the ones with heart-shaped leaves are called *Basella cordifolia*, the ones with a red stem are called *Basella rubra*, and the short-day, flowering, dark green type are called *Basella alba*.)



Distribution: It is grown in most tropical countries, mostly in the tropical lowlands. It grows best below 500 m, but will grow up to about 1600 m in the equatorial tropics. It will grow quite well in the temperature range 15 - 35°C.

It does not like, but can survive, 4 - 12 weeks drought once well-established. It requires adequate water during the growing season. It grows well in a variety of soils. The best pH is 5.5 - 7.0. It cannot tolerate salty conditions. Flowering does not occur when day length is over 13 hours.

Cultivation: It can be grown from seeds or cuttings. Seeds germinate, or shoot, in a few days. Sticks are normally provided for support, or it is allowed to grow over fences and stumps. If seeds are used, 3 kg of seed will sow one hectare. They are best sown in a nursery and transplanted. A spacing of 1 m is suitable. Plants grown from seed are more productive than from cuttings. When cuttings are used, 20 - 25 cm long cuttings are suitable. Where the plant grows in light soil, it can root at the nodes and continue spreading. Partial shade, rich, fertile soil and adequate moisture favour abundant leaf production. It is responsive to nitrogen fertiliser. Light shade gives bigger leaves. It requires a trellis, or frame, to climb over. Picking the buds frequently encourages branching.

Production: It is 4 - 6 weeks until the first harvest. It grows reasonably well on poor soils and is fairly resistant to pest and disease. Leaves will only store for one day at 20 - 30°C. A yield of 40 kg of leaves from a 10 square metre bed is possible over 75 days.

Use: The young shoots and leaves are eaten cooked. They are somewhat slimy. In soups and stews, the mucilage (or gum-like mucus) can be used as thickening. The purple colour of fruit is harmless and is used to colour vegetables. The leaves can be eaten raw in salads or cooked like a vegetable. The seeds can be crushed to use as an edible dye for jellies.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	85.0	202	5.0		4.0	1800	100	

Insects:



Indian spinach



Names**English:** Purslane**Pijin:****Local:****Scientific name:** *Portulaca oleracea* L.**Synonyms:****Plant family:** Portulacaceae

Description: A spreading, branched herb. It lies prostrate (flat) on the ground. It grows each year from seed. The plants spread 10 - 50 cm wide. The stems are purplish. The leaves are fleshy, flat and shaped like a wedge at the base. They are 1.5 - 2.5 cm long and 0.3 - 1 cm wide. The flowers are yellow and occur in a few, rounded heads. They are 0.8 - 1.5 cm across. They bloom about the middle of the day. The capsules are 0.5 cm long and oval. The seeds are black and shiny.

Distribution: It grows in most tropical countries, including Solomon Islands, and many warm temperate countries. It is common in waste places throughout the Philippines. It is a common self-sown plant in lowland areas and up to 1700 m altitude. It prefers sandy, well-drained places. It can grow on salty soils. It suits hardiness zones 7 - 12.

Cultivation: It roots easily from broken pieces of stem. It can also be grown from seed.

Production: The first harvest of leaves can be a month after planting.

Use: The stems and leaves are cooked and eaten. Usually the skin is scraped off, then the plant is boiled and mashed. It thickens stews and other dishes in which it is cooked. It is used as a pot herb. The fleshy stems are pickled.

CAUTION: Plants can cause nitrate poisoning in areas where a lot of nitrogen fertiliser is used. Plants can also contain oxalates.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	82.2	108	3.1		0.8	185	20	1.5
Seed	9.1	1405	19.5					
Root	79.0	210	3.5					

Insects:



Edible ferns



Names**English:** Vegetable-fern**Pijin:****Local:****Scientific name:** *Diplazium esculentum* Swartz**Synonyms:** *Athyrium esculentum* (Retz.) Copel**Plant family:** Aspleniaceae/Athyriaceae

Description: A large fern with an upright stem. It forms tufts. It can be 1 m high and 1 m wide. It usually grows as a large clump. It spreads by underground runners. It has feather-like fronds that are 50 - 80 cm long and divided 2 or 3 times. The leaf stalks are black near the bottom. The secondary leaflets are pointed at the tip and about 8 cm long and 1 cm wide. The leaflets have teeth and are about 2 - 5 cm long.

Distribution: It grows in Asia and the Pacific including Solomon Islands. It grows in moist tropical places and mostly occurs in coastal areas. It is common in wet areas. It also occurs in Malaysia, Indonesia, Philippines and Fiji where it is used as food. It is widely distributed in the Philippines on areas of gravel and the banks of streams. It is frost sensitive. It is an important vegetable fern throughout Asia and the Pacific.

Cultivation: Plants can be grown from spores. They need to be in a well-drained potting medium and kept in a high humidity environment. The spores need a temperature of 21°C to grow and should be sown as soon as ripe. Plants should be transplanted into a moist, well-drained soil with partial shade. Plants can also be grown by separating the underground runners.

Production:

Use: The fronds are cooked and eaten as a vegetable. They are also used in stews.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fronde	91.8	88	3.6		4.4		25	

Insects:

Names**English:****Scientific name:** *Diplazium proliferum* (Lamk.) Kaulf.**Pijin:****Synonyms:****Local:****Plant family:** Aspleniaceae/Athyriaceae

Description: A moderate-sized land fern with a scaly rhizome. The blade is up to 60 cm long. The leaflets are 2 - 3 cm wide and 15 cm long. The sori, or the covering over the spores of the fern, are long and attached along the veins.



Distribution: It grows in Asia and the Pacific including Solomon Islands.

Cultivation: Plantlets on the fronds take root and grow into new plants.

Production:

Use: Young fronds are cooked and eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Frond								

Insects:

Names**English:****Scientific name:** *Diplazium stipitipinnula* Holtt.**Pijin:****Synonyms:****Local:****Plant family:** Aspleniaceae/Athyriaceae

Description: A non-woody fern, 1 - 1.5 m tall. When developing, the young fronds have hairs and are a dirty black colour.



Distribution: It grows in Solomon Islands. It commonly grows by rivers and in wet places.

Cultivation:**Production:**

Use: The young leaves are cooked and eaten. The fibrous stem is removed.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Frond								

Insects:

Names**English:****Scientific name:** *Cyathea brackenridgei* Mettenius**Pijin:****Synonyms:****Local:****Plant family:** Cyatheaceae

Description: A tree fern. The stem is dark-coloured with a narrow trunk 10 - 12 cm across and 5 - 6 m long. It can be 10 m tall. The fronds are divided 2 or 3 times. They are 2 - 3 m long. The stalk is covered with scales.

Distribution: It is a tropical plant that grows in the Pacific in Solomon Islands. It grows in wet forests and beside streams.

Cultivation:**Production:**

Use: The young tender fronds are eaten cooked. Unless well-cooked, it can be bitter and somewhat fibrous.

**Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Frond								

Insects:

Names**English:****Pijin:****Local:****Scientific name:** *Cyathea hornei* (Baker) Copel**Synonyms:****Plant family:** Cyatheaceae

Description: A tree fern that is rather slender in the trunk and 3 - 4 m high. The stem of the frond is 25 cm long and very dark. The part near the base has pale-edged scales. The lower leaflets on the stalk are reduced and narrow. The largest leaflets are 40 - 50 cm long. The fertile and sterile leaflets have different shapes. The fertile ones are 50 - 60 mm long by 11 - 17 mm wide. This tree fern is smaller in size than other tree ferns, and grows rhizomes, or suckers, that produce new plants. As a result, the ferns occur in a clump.

Distribution: It grows in SE Asia and the Pacific, including Solomon Islands. It is a tropical plant. It grows in wet forest and stunted, mossy forest. It grows between about 700 and 2000 m altitude.

Cultivation:**Production:**

Use: The young fronds are occasionally cooked and eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Frond								

Insects:

Names**English:****Pijin:****Local:** Balabala**Scientific name:** *Cyathea lunulata* (J.Forster) Copeland**Synonyms:****Plant family:** Cyatheaceae

Description: A large tree fern. The trunk is erect and can be 8 - 10 m high. The fronds are divided 3 times. They can be 6 m long.

Distribution: A fern that grows in most Pacific countries, including Papua New Guinea and in Solomon Islands. It grows in tropical and subtropical rainforest, from sea level to 100 m altitude.

Cultivation:**Production:**

Use: The young fronds are eaten in times of scarcity. The white pith of the stem is cooked in an earth oven and eaten.

**Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Frond								
Pith								

Insects:

Names**English:****Pijin:****Local:****Scientific name:** *Cyathea vittata* Copeland**Synonyms:****Plant family:** Cyatheaceae

Description: A tree fern with a trunk 10 - 20 m tall. The fronds, or leaves, are 4 - 5 m long. They are divided 3 times. The leaflets, or pinnae, can be 90 cm long with 30 alternate leaflets. The leaf stalk and trunk are covered with light brown hairs, giving the fern a light colour.

Distribution: It grows in Papua New Guinea, Bougainville and Solomon Islands. It grows in rainforest up to about 800 m altitude.

Cultivation:

Production: Before harvesting the leaves are cut off, then about 2 months later the new young heart, or cabbage, is cut.

Use: The young leaf shoots and growing tip are cooked and eaten.

**Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Frond								

Insects:

Names**English:****Pijin:****Local:****Scientific name:** *Cyclosorus magnificus* (Copel.) Ching**Synonyms:****Plant family:** Thelypteridaceae

Description: A fern. It grows as a non-woody fern on land. Plants occur singly.

Distribution: It grows in Solomon Islands. Plants suit clay soil and shady areas.

Cultivation:

Production:

Use: The leaf shoots and young leaves are eaten after boiling and taste somewhat sour.



Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fronde								

Insects:

Names**English:****Scientific name:** *Stenochlaena milnei* Underw.**Pijin:****Synonyms:****Local:****Plant family:** Blechnaceae

Description: A scrambling, creeping fern. It has its base rooted to the ground but climbs up trees. The fronds are widely-spaced and come out horizontally from the main stem, but then hang down. The rhizome is 10 - 15 mm across and pale green. It is sometimes covered with a bluish bloom. The rhizome is smooth but with dark, small, circular scales. The fronds are 100 - 150 cm long and 3 - 5 cm wide. The fertile segments of the divided fronds are 4 - 7 mm wide and 15 - 30 cm long. They occur higher on the plant.

Distribution: It grows in Papua New Guinea, the Philippines and Solomon Islands in well-drained lowland rainforest. They can occur in Sago swamps and near rivers. They occur between sea level and 300 m altitude. They occur often with *Stenochlaena palustris* but tend to be more robust and in less swampy conditions.

Cultivation:**Production:**

Use: The young leaves are probably occasionally eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:** Climbing swamp fern**Pijin:****Local:****Scientific name:** *Stenochlaena palustris* (Burm.f.) Bedd**Synonyms:** *Polypodium palustre* Burm.**Plant family:** Blechnaceae

Description: A climbing or scrambling fern with a thin, smooth, rhizome which climbs up Sago palms and tree trunks. It can be 20 m long. The stems are brown, smooth and less than 1 cm across. They are only sparingly branched. The fronds are up to 80 cm long and have leaflets. The fronds droop. The fronds have several leaflets and are often red in colour when young. Fertile fronds, when they occur, are at the top, and are thin. It is an attractive and popular, edible fern.



Distribution: It grows in most tropical countries in Asia, and also in Australia, Papua New Guinea and some Pacific countries including Solomon Islands and Vanuatu. It is a tropical plant. It is widely distributed in areas of shrub, especially in swampy coastal areas. It likes warm, partly-cleared, forest sites. It is frost-sensitive.

Cultivation: It is easily grown.

Production:

Use: The young leaf shoots are eaten raw or cooked.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:** Giant Creek Fern**Scientific name:** *Pneumatopteris sogerensis* (A. Gepp.)

Holtum

Pijin:**Synonyms:****Local:****Plant family:** Thelypteridaceae

Description: A fern which grows on dry land. It forms large clumps. The rootstock forms a short, slender trunk. The fronds are 50 - 200 cm long by 40 - 60 cm across. They are dark green and soft, or fleshy. The side leaflets (pinnae) spread at right angles and are 20 - 30 cm long by 2.5 - 3 cm wide. The lowest 5 or 6 pairs occur as small lobes.

Distribution: It grows in Asia, Australia, Indonesia, Papua New Guinea and Solomon Islands. It grows near streams and on gentle slopes. It grows in rainforests, often at medium to high altitudes above sea level. It can grow in temperate regions. It does best in a sheltered position where there is adequate moisture and a well-drained soil. It grows better if kept well-watered and improves when fertilisers are applied.

Cultivation: It is grown from spores.

Production:

Use:

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg

Insects:

Names**English:** Golden Mangrove fern**Pijin:****Local:****Scientific name:** *Acrostichum aureum* L.**Synonyms:****Plant family:** Pteridaceae/Adiantaceae

Description: A fern with a short to medium creeping rhizome. The rhizome is up to 3 cm thick. It has large fleshy roots. The fronds are erect and up to 4 m long. The leaflets are large, thick and leathery. They are only divided once. They have blunt tips. They often have a yellowish colour. It grows in clumps or spreads out over the ground. There is often a brown sugary mass of spores in under the uppermost leaves.



Distribution: It grows throughout Asia, tropical Australia and the Pacific. It is a tropical plant, usually found in open swampy or mangrove situations. It cannot tolerate very salty water. It occurs throughout the tropics and is very frost sensitive. It occurs in brackish pools, swamps and creeks near the beach. It can occur on cliff-faces by the sea.

Cultivation: It can be grown from spores. It is slow to re-establish if transplanted, and transplanted plants often die. The best option is to transplant young plants growing from spores.

Production:

Use: The young leaves are eaten in salads. The roots have been recorded as edible. It is eaten in Solomon Islands.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:** Ladder fern**Pijin:****Local:****Scientific name:** *Nephrolepis biserrata* (Sw.) Schott**Synonyms:****Plant family:** Davalliaceae/ Nephrolepidaceae/
Oleandraceae

Description: A tufted fern with slender runners. The rhizomes have scales. The fronds can be up to 2.5 m long, erect and bright green. They are divided once. It is a coarse, woody fern that grows in tangled colonies. These small plants grow from the branched, wiry runners. The spore bearing bodies are round and lie in a row between the mid-rib and leaf edge.

Distribution: It grows in Asia in Brunei, India, Indochina, Indonesia, and Vietnam. It also occurs in Australia, Papua New Guinea, Solomon Islands and Tonga. It is a tropical plant. It prefers open or lightly shaded areas often along rocks. It can grow as an epiphyte, growing on the trunks of palms. It is very frost tender. It probably grows up to about 1000 m altitude. It can tolerate some salt. It is often in wet areas in soil with a high humus content.



Cultivation: The ferns are easily grown in warm areas, but they are not easily transplanted. They can be grown from spores or, more commonly, by separating off the small plants.

Production:

Use: The young shoots and rhizomes are eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Shoot								
Rhizome								

Insects:

Names**English:****Scientific name:** *Microsorium scolopendria* (Burm.f.)

Copel

Pijin:**Synonyms:****Local:****Plant family:** Polypodiaceae

Description: This fern has a rhizome which is long and creeping. The fern grows to 65 cm high. The rhizome is fleshy, green and up to 8 mm across. It is sparsely covered with light brown scales. The fronds are light green and up to 10 - 60 cm long and 25 - 30 cm wide. The base of the frond is swollen. It has a variable number of lobes which are 4 - 15 cm long. The sori are 2 - 3 mm across and situated near the mid vein. They form 2 or 3 rows on each side of the rib.

Distribution: It grows in Australia, Papua New Guinea and Solomon Islands. It is a hardy tropical species, often found on trees or rocks in protected places near the edges of rainforest. It is frost sensitive and grows best in light shade.

Cultivation: Plants can be grown from spores or division of the rhizome. They are easily grown or transplanted.

**Production:****Use:****Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg

Insects:

Names**English:** Bungwall fern**Pijin:****Local:****Scientific name:** *Blechnum orientale* L.**Synonyms:****Plant family:** Blechnaceae

Description: A medium to tall fern. It grows 0.3 - 1.2 m tall and forms round clumps. The stem is short and has brown scales with very small teeth. The fronds can be 1 m high. The fronds are spreading or erect, forming a rosette. They often droop at the tips. The side leaflets are thin and long, with a long pointed tip. They do not have teeth along the edge. They are about 20 - 25 cm long and 0.8 - 1.8 cm wide. They are attached directly to the stalk. The youngest leaflets are pink. The leaf segments are rounded and smallest at the base. The fronds are dark green and shiny. The spore bodies are produced under the fertile fronds, which have an appearance similar to the other fronds. These spores occur in a long continuous line along both sides of the mid-rib.



Distribution: It grows in Africa, Asia, Australia and the Pacific including Solomon Islands. It is a tropical plant and occurs in rainforest and swampy areas. It grows best with regular water, but can tolerate some sun and dryness. It grows in forest clearings and along roadsides. It is frost-sensitive. It can grow on rocky edges of waterfalls.

Cultivation: Plants are grown from spores.

Production:

Use: The rhizome is eaten after cooking and pounding.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Rhizome								

Insects:



Names**English:****Pijin:****Local:** Unu unu**Scientific name:** *Dennstaedtia samoensis* (Brack.) Moore**Synonyms:****Plant family:** Dennstaedtiaceae

Description: A large fern. It does not have a central trunk or stem. It has a spreading rhizome or creeping stem with leaves or fronds growing up from this. The leaves are up to 3 m long. They are finely divided.

Distribution: It grows in Solomon Islands. It grows in warm and tropical places.

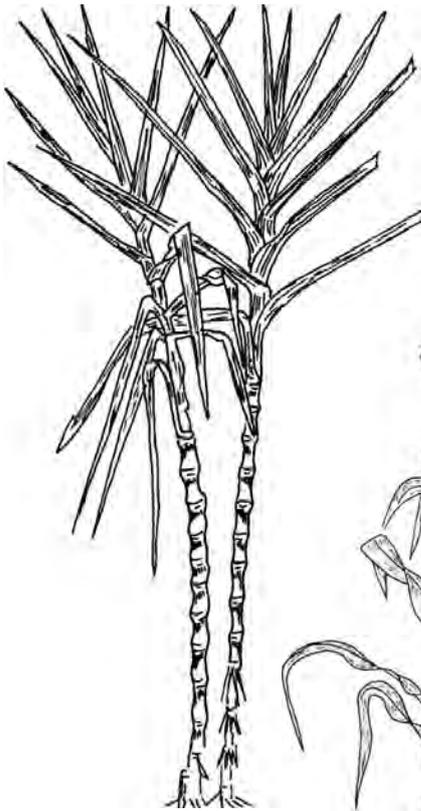
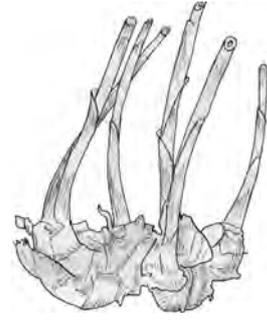
Cultivation:**Production:**

Use: Young, unfurled shoots are cooked and eaten.

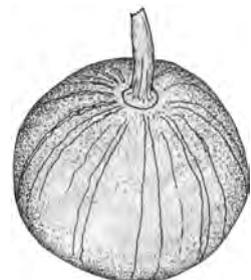
Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fronde								

Insects:



Vegetables



Names**English:****Pijin:****Local:** Long pitpit, Duruka**Scientific name:** *Saccharum edule* Hasskarl**Synonyms:****Plant family:** Poaceae

Description: A plant in the sugarcane family grown for the edible, unopened flower. Plants grow 2 - 3 m tall and have thinner canes than sugarcane. It produces suckers near the base so that a clump of stalks is normally produced. In one season of the year, it produces a seed head or flower which remains inside the top of the plant. This part is eaten. Several cultivars, or cultivated varieties, occur, differing in colour, height and season of flowering. It is an attractive and nutritious vegetable.



Distribution: It grows in Asia, Australia, Fiji, India, Papua New Guinea, the Philippines, Solomon Islands and Vanuatu. It is common in coastal areas and will grow up to about 1800 m altitude in the tropics. It is commonly grown in old gardens before they return to forest.

Cultivation: It is grown from cuttings of the stalks. In fertile soil, cut plants will re-shoot from the base. The cuttings need adequate moisture at planting. Cuttings about 30 cm long are used. They need to be planted soon after cutting to avoid cuttings drying out. Stalks can be planted at any time of the year. It takes 6 - 9 months from planting until a crop is ready to harvest. The time of flowering is controlled by the sun. Early in the year, about February to March, most plants develop a thickened clump of leaves at the top. When these are broken off and opened by removing the outside leaves, the very fine, yellow, unopened flower is seen. It is this flower which is eaten.

Production: It takes 6 - 9 months to maturity. In most cultivars, flowering is seasonal.

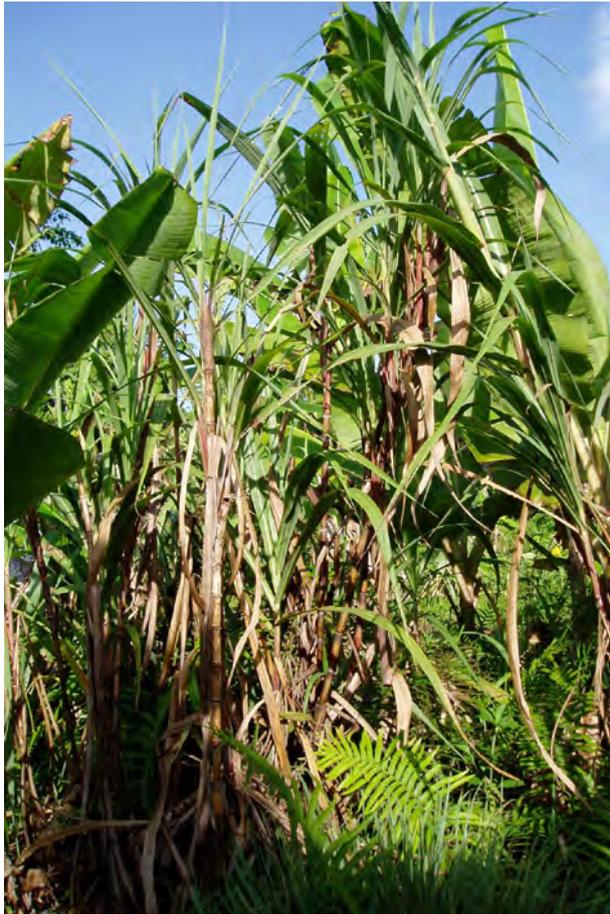
Use: The unopened flower is eaten raw or cooked. It is often cooked in coconut milk.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Flower								

Insects: Green coconut bug (*Amblypelta cocophaga*)





Long pitpit

Names**English:** Pleated pigeon-grass**Pijin:****Local:** Short pitpit**Scientific name:** *Setaria palmifolia* (Koenig) Stapf.**Synonyms:****Plant family:** Poaceae

Description: A grass with a broad leaf blade. It grows from 60 cm to 1 m tall. It has a knotty rhizome or underground stem. The leaves are 2 - 8 cm wide, 30 - 40 cm long and folded along their length. The leaf blade is folded like a fan and is hairy. The plant forms a clump of shoots that are thickened near the end in cultivated types. The flower is a loose, open, grass flower. A range of different varieties occur. These have different amounts of red, green and white colouring on the leaf and also where the leaves wrap around the stem. The seeds are about 3 mm long and borne in large numbers on shoots at the ends of the stalks. A plant normally produces a clump of shoots from suckers near the base and buds growing from the side of the short stem.



Distribution: The grass grows in several Asian and Pacific countries, and has been developed as a vegetable crop in the Highlands of Papua New Guinea. It grows from near sea level up to about 2400 m. It can grow in shady places and suits wet climates. This grass occurs as a wild plant, but the wild type is not widely used for food in some countries. These countries include Taiwan, Philippines, Malaysia, Indonesia, Papua New Guinea, Solomons, and Hawaii. Sometimes, either the shoots or seeds of this wild plant are used as a famine food reserve. In Papua New Guinea, and to a lesser extent in other countries, this species reaches significance as a domesticated, cultivated food plant. A number of named cultivars occur.

Cultivation: Wild plants grow from seed. Cultivated types grow from pieces of the shoots. Plants are normally propagated by planting shoots. The young shoots are broken off the side of the plant. Shoots near the ground often have roots already growing on them, so these shoots start growing more quickly. Portions of the stem can be planted because buds near the joints along the stem can produce new shoots. Cultivated types exist as fully domesticated plants independently of the weedy grass. It needs a moderately fertile soil and is often planted on steep sides and edges of gardens. The best altitude range is 1200 - 2400 m. It can tolerate light shade. Plant spacings of about 1 m apart are used.

Production: Harvesting commences about 5 months after planting and may continue for up to 2 years. A yield of 4.8 kg of stripped edible shoots per plant per year has been recorded.

Use: The fattened shoots are eaten raw or cooked. The seeds are used as a substitute for rice in times of shortage.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Shoot								
Seed								

Insects:



Pleated pigeon-grass



Names**English:** Corn, Maize**Pijin:****Local:****Scientific name:** *Zea mays* L.**Synonyms:****Plant family:** Poaceae

Description: An annual plant growing 2 - 3 m high. It has a single, solid stem that can be 2 - 3 cm across. There are usually 14 internodes, but this can vary from 8 - 21. It is a large grass family plant with prop roots near the base. Some forms produce tillers, or new shoots, near the base. Seed roots feed the plant initially, then casual side roots develop from the lowest node on the plant and continue supplying the plant with nutrients. Roots can go sideways for 1 m or downwards for 2 - 3 m. It is a very variable plant and, due to cross-pollination, variation continues and all forms hybridize. Leaves are produced one after another along opposite sides of the stem and there are between 8 and 21 leaves. The leaf sheath wraps around the stem but opens towards the top of the sheath. The leaf blade is 30 - 150 cm long and 5 - 15 cm wide. The leaf blade has a pronounced mid-rib and is often wavy along the edge. The male flower or tassel is at the top. The female flower is called the ear. It is on a short stalk in the axils (where the leaf joins the stem) of one of the largest leaves about half way down the stem. It produces a large cob wrapped in leaves. The kernels, or grains, develop in an even number of rows carrying 4 - 30 grains along the length of the cob. Cobs commonly have 300 - 1,000 grains. Normally, only one or two cobs develop per plant. There are several kinds of corn and these are given names like dent, flint and popcorn.



Distribution: It is grown in most warm temperate and tropical countries of the world. It is also grown in Solomon Islands. Seeds need a soil temperature more than 10°C to germinate. It grows best at less than 1800 m altitude in the equatorial tropics. It is grown in most areas of Asia. Plants have been grown from sea level to 3300 m in the Americas. It tends to occur in areas too dry for rice, but too wet for millets. Maize must have over 120 frost-free days. In Nepal, it grows up to 3000 m altitude. It suits hardiness zones 8 -10.

Cultivation: It is grown from seeds. It is normal to plant one seed per hole at 1 - 2 cm depth. A spacing of about 30 cm between plants is suitable. Saved seed should be from gardens of over 200 plants and the seed from several cobs mixed to avoid in-breeding depression. Seed saved from only one cob leads to in-breeding, resulting in smaller plants.

Production: In warm, moist soil, seeds germinate 2 - 3 days after planting. Cobs are harvested when the grains are full and the tassel is just starting to turn brown. This is normally about 50 days after fertilization. It is sweetest eaten soon after harvesting. Drought and unfavourable weather can result in the silks of the female flowers emerging after the pollen has been shed. This results in poorly pollinated cobs.

Use: The cobs are eaten cooked. The dried grains can be crushed and used. Pancake-like Tortillas from corn have been a staple food in Central America. Maize is cooked and prepared in many different ways.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Seed	10.4	1528	10.0		4.9	100	4	

Insects: Shootfly (*Atherigona orientalis*); White jassid (*Cicadella spectra*); Rice leaf roller (*Cnaphalocrocis medinalis*); *Compsolacon gracilis*; Corn earworm (*Helicoverpa armigera*); Cape gooseberry budworm (*Helicoverpa assulta assulta*); Migratory locust (*Locusta migratoria*); Rice armyworms (*Mythimna loreyi*); Maize stem borer (*Ostrinia furnacalis*); *Oxya japonica*; Corn laternfly (*Peregrinus maidis*); *Planococcus pacificus*; Corn leaf aphid (*Rhopalosiphum maidis*); African armyworm (*Spodoptera exempta*); Paddy armyworm (*Spodoptera mauritia*)



Corn



Names**English:** Snake gourd**Scientific name:** *Trichosanthes cucumerina* var. *anguina* L.**Pijin:****Synonyms:****Local:****Plant family:** Cucurbitaceae

Description: A climber with tendrils from the pumpkin family. It grows 2.4 - 6 m high and spreads 1.5 - 3 m wide. The vine has furrows along it. The leaves have 3 - 7 lobes and a tooth like edge. The flowers are white. The male flowers have no bract (a leaf-like part at the base of the flower) and the female flowers are produced singly. The flowers have long stalks. The long fruit tend to curve. They can be 1-2 m long. When ripe, they turn orange or red, but are grey and green when young.



Distribution: It grows in many tropical countries in Africa, Asia, the Americas and the Pacific, including Papua New Guinea and Solomon Islands. It is common in the humid, tropical, lowlands up to 500 m. It does not tolerate dry soil and requires a good moisture reserve in the soil, but is sensitive to water-logging. The best temperature range for growth is 30 - 35°C with a minimum of 20°C. It occurs throughout the Philippines at low and medium altitudes up to 1200 m. It suits hardiness zones 10 - 12.



Cultivation: Snake gourd is grown from seed. Seed germinate after 10 days. It requires 4 - 6 kg/ha of seed. Seed can be sown in a nursery and transplanted at the 2 true-leaf stage. More commonly, plants are sown where they are to grow. A spacing of 60 - 100 cm is suitable. Plants need supports to climb. In home gardens, this is often a natural support such as a house. Plants respond to fertiliser, but excessive nitrogen can produce too much vegetative growth. Pruning can improve the female to male flower ratio, and, therefore, produce more gourds.

Production: Flowering starts 5 weeks after planting. Male flowers appear first, then female flowers 3 days later. Pollination is normally done by insects. Harvesting of fruit starts 6 - 7 weeks after planting and continues for 1 - 2 months. Fruit are picked 12 - 20 days after fruit set when they are 30 - 60 cm long. Fruit do not store well, but can be stored for 10 - 14 days at a temperature of 16 - 17°C and relative humidity of 85 - 90%. By the time the fruit turn orange, they are too mature to eat.

Use: The long, immature fruit are eaten cooked. A bitter taste sometimes occurs, but this disappears with boiling. Fruit are inedible when ripe. The young leaves are eaten cooked. An attractive vegetable, popular in some areas.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit								
Leaf								

Insects: Solomon fly (*Dacus solomonensis*)

Names**English:** Choko, Chayote**Pijin:****Local:****Scientific name:** *Sechium edule* (Jacquin) Swartz**Synonyms:****Plant family:** Cucurbitaceae

Description: A vigorously growing climber in the pumpkin family that can grow for several years. The vine can be up to 15 m long. The plant can climb well as it has strong tendrils which can attach to fences and trees. The leaves are about 15 - 20 cm across and have a rough feel. The stems have furrows along them. The flowers are separate. Male flowers occur in clusters and female flowers occur on their own. The fruit is produced in the angle where the leaf joins the vines. Fruit can be up to 20 cm long and are rough or irregular-shaped on the outside. The fleshy fruit contains one large seed about 4 cm long. A choko plant produces a large, thickened, root tuber and the plant can regrow from this tuber and go on growing year after year. Fruit can be green or white and can have soft spines.



Distribution: It grows in most tropical and subtropical countries. Choko requires a relative humidity of 80 - 85%, annual rainfall of at least 1500 - 2000 mm and average temperatures of 20 - 25°C, with limits of 12 - 28°C. In equatorial tropical regions, choko will grow from sea level to about 2200 m altitude, but do best at 350 - 1000 m altitude. In Nepal, they grow to about 2000 m altitude. In the lowlands, it is best grown in the shade. Choko needs a reasonably well-drained soil. It suits hardiness zones 9 - 12.

Cultivation: The entire fruit is planted as the seed cannot withstand drying out. It is planted flat and thinly covered with soil. Chokos often start to develop shoots and roots while they are still attached to the original plant. These eventually fall off and continue growing if they fall on soft, moist soil. A spacing 2 m apart along a fence is suitable. Trellis support is required. A well-drained, fertile soil is needed. Cuttings can be used for planting. Plants do not breed true and a large variability of fruit types can occur.

Production: Fruit picking can start 3 - 5 months after planting and continue for many months. The fruit can be stored for several weeks. Tips can be picked regularly. Annual yields of 75 - 300 fruit per plant are possible. Fruit can weigh 400 - 500 g. Tubers of 5 kg weight have been recorded. These are normally produced during the second year of growth and after a time of arrested development, such as a dry season.

Use: The fruit, young leaf tips, seeds and fleshy root can all be eaten cooked. Starch can be extracted from the root. The leaf tips are an important and popular vegetable.

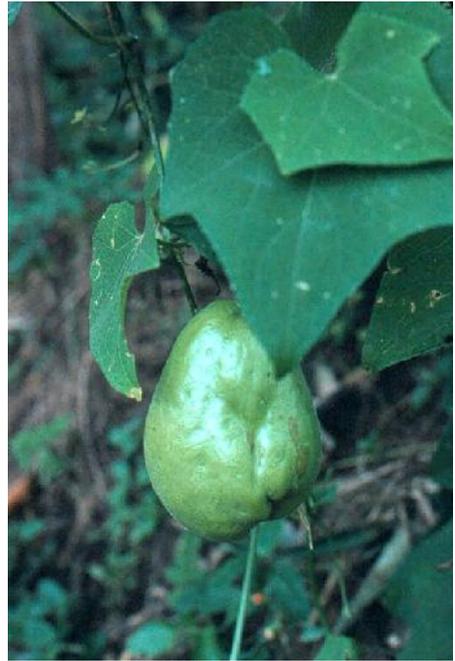
Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	94.0	100	0.6		0.4	5	8	0.7
Leaf	91.0	105	4.0		1.4	1515	24	
Seed								
Root		34	0.2		0.1		4.0	

Insects:



Choko



Names**English:** Pumpkin, Winter squash**Pijin:****Local:****Scientific name:** *Cucurbita maxima* Duch ex Lam.**Synonyms:****Plant family:** Cucurbitaceae

Description: A creeping vine with tendrils. It is an annual plant. The stems are soft and round in cross-section. The leaves are large and hang loose. They are dark green and kidney-shaped. The edges of the leaves are entire. There are large nodes at the base of the leaf. The tendrils are fairly stout and are divided half way along their length into many branches. Male flowers are carried on long upright stalks. The 5 petals are united into a long yellow tube. The female flowers are larger than the male flowers and are fewer in number and carried on shorter stalks. The fruit varies in size, colour and patterns on the skin. They can be round, oval or flattened, with yellow, orange or green skin. The surface can be smooth or rough and warty. The flesh is yellow and edible. The seeds are in the centre and are white or brown. They are flattened but plump, and have a slanting scar at the top. The seeds are edible. (*C. moschata* does not have hairy stems, but has fruit with a stalk thickened near where it joins the fruit.)



Distribution: It is grown throughout the country from sea level to 2400 m altitude. It needs a fertile soil. *C. moschata* is better suited to coastal areas. It is frost-sensitive, but better suited to cooler areas than *C. moschata*. It suits hardiness zones 8 - 11.

Cultivation: They are grown from seed. Usually, 2 or 3 seeds are planted together in a mound. The distance apart depends on the cultivated variety. Some kinds are better for leaf tips. It is good to save seed of adapted kinds for re-sowing.

Production: Fruit are ready for harvest after about 3 - 4 months. Seed can be saved from fruit for re-sowing but, as pumpkins cross-pollinate, different types become mixed.

Use: The young leaf tips and the fruit are eaten cooked. The seeds are edible when roasted. The male flowers are eaten after removing the stamen (the organ containing pollen) and calyx (the covering protecting the flower in the bud).

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	89.0	113	4.0		0.8	247	80	0.2
Flower	88.7	107	1.4		0.8	173	14	0.1
Seed dry	6.9	2264	24.5		14.9	38	1.9	7.5
Fruit								

Insects: Cacao false looper (*Achaea janata*); Shootfly (*Atherigona orientalis*); *Aulacophora similis*; Green looper (*Chrysodeixis eriosoma*); Solomon fly (*Dacus solomonensis*); Cape gooseberry budworm (*Helicoverpa assulta assulta*); *Planococcus pacificus*; Cacao armyworm (*Tiracola plagiata*)

Names**English:** Pumpkin, Winter squash**Scientific name:** *Cucurbita moschata*
(Duchesne ex Lam) Duchesne ex Poir.**Pijin:****Synonyms:****Local:****Plant family:** Cucurbitaceae

Description: A creeping plant with long, creeping stems and soft hairs. The stems are rounded or 5-angled and moderately hard. They can grow 15 - 20 m long. The leaves are large and shallowly-lobed and divided like fingers on a hand. The leaves occasionally have white blotches and rounded lobes. They are 20 cm by 30 cm. The leaf stalk is 12 - 30 cm long. The flowers have male and female flowers separately on the same plant. The fruit stalk is distinctly expanded where it joins the fruit. The fruit are not hard-shelled and are dull in colour. The flesh is yellow. The flesh often has fibres through it. The seeds are plump and white to brown. They separate easily from the pulp of the fruit. The edge of the seed is scalloped and irregular in outline.



Distribution: It suits the wet tropics. It will thrive in humid as well as in very hot climates. In Bolivia, it grows up to 2000 m altitude. It suits hardiness zones 8 - 11.

Cultivation: Plants are grown from seed.

Production:

Use: The fruit are eaten cooked. The young leaves are edible. The seeds are eaten roasted.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	90.0	151	1.0		0.8	210	15	0.1
Leaf	93.6	88.2	3.0		2.1		10	
Seed								

Insects:

Names**English:** Marrow, Pumpkin**Pijin:****Local:****Scientific name:** *Cucurbita pepo* L.**Synonyms:****Plant family:** Cucurbitaceae

Description: A bristly, hairy, annual vine in the pumpkin family. It has branched tendrils. The stems are angular and prickly. The leaves are roughly triangular. The leaves have 5 lobes which are pointed at the end and are toothed around the edge. Male and female plants are separate on the same plant. Male flowers are carried on long, grooved flower stalks. Female flowers are borne on shorter, more angular, stalks. The fruit stalks have furrows along them, but are not fattened near the stalk. The fruit vary in shape, size and colour. They are often oval and yellow, and 20 cm long by 15 cm wide. The seeds are smaller than pumpkin and easy to separate from the tissue. The scar at their tip is rounded or horizontal, not slanting.



Distribution: It is more suited to drier areas and is frost-sensitive. It suits hardiness zones 8 - 11.

Cultivation: They are grown from seeds. The seeds germinate after one week. They are best planted on mounds. A spacing of 2 - 3 m between plants is needed. Hand-pollination assists fruit-setting. Plants can also be grown from cuttings as plants root at the nodes.

Production: The first usable immature fruit are ready 7 - 8 weeks after planting.

Use: The young fruit are cooked and eaten. The young leaves and the ripe seeds can also be eaten. The seeds are dried, salted and toasted and eaten as a snack food. The seeds can also be pressed to produce oil.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	91.3	102	1.1		0.8		12	0.2
Leaf	89.0	113	4.0		0.8	3600	80	
Seed								

Insects:



Names**English:** Melon, Cantaloupe**Pijin:****Local:****Scientific name:** *Cucumis melo* L.**Synonyms:****Plant family:** Cucurbitaceae

Description: An annual climber with tendrils. It grows to 0.5 m high and spreads to 1.5 m across. The stems are soft and hairy, and often angled. The leaves have lobes and often a wavy or toothed edge. They are on long leaf stalks. The leaves are often hairy underneath. The tendrils are not branched. The flowers are yellow and funnel-shaped, with expanded lobes. The male flowers occur in clusters and are produced before the female flowers. The fruit is round, mostly with a rough or streaky skin. It is green or yellow inside. The fruit is edible. Different kinds of melons occur. Some have a hard, warty, scaly skin. Others have a network of fine ridges over the surface.



Distribution: It is not suited to places with high rainfall. It suits hot, dry, places with a fertile, well-drained, soil. It needs a sheltered, sunny position. It is drought and frost sensitive. A temperature range of 24 - 28°C is best, but much higher temperatures are tolerated. It is mostly grown below 500 m altitude in the tropics. A soil pH of 6 - 6.7 is best. Acid soils are not suitable. It suits hardiness zones 9 -12.

Cultivation: They are grown from seed. The seeds are planted about 1 - 4 cm deep. Plants need to be 1 - 2 m apart. Seedlings can be transplanted when about 10 - 15 cm high.

Production: Fruit are ready 3 - 4 months after planting. A yield of 20 kg per 10 sq m is average.

Use: The ripe fruit are eaten raw. The seeds are sometimes eaten. Sometimes the immature fruit are cooked as a vegetable. The seeds contain an edible, light oil.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	93.0	109	0.5		0.4	300	30	0.2
Leaf	85.0	172	4.2					
Seed								

Insects:

Names**English:** Cucumber**Pijin:****Local:****Scientific name:** *Cucumis sativus* L.**Synonyms:****Plant family:** Cucurbitaceae

Description: A hairy annual climber with tendrils and yellow flowers. It grows to 0.5 m high and spreads to 2 m wide. The stem is trailing and has bristles. The leaves are heart-shaped and the lobes taper. Leaf-shape varies with different varieties. The tendrils are not branched. The flowers are yellow and funnel-shaped. They occur in clusters in the axils of leaves. Male and female flowers are separate, but on the same plant. Male flowers are normally in groups of 2 - 3 and develop first, and female flowers are borne singly and open later. Fruit are long and often have a slightly lumpy skin. The flesh inside is greenish-white. The fruit are edible and contain many seeds. Fruit 20 - 100 cm long are called cucumbers, and fruit which are much smaller and darker green are called gherkins.



Distribution: It occurs from sea level up to at least 2200 m in the tropics. It is a traditional vegetable in the highlands of Papua New Guinea. Protection from wind is needed. It is killed by frost. In Nepal, it grows to 1600 m altitude. It suits hardiness zones 9 - 11.

Cultivation: Batches of 2 - 3 seeds are normally sown together in new gardens during the dry season. A spacing of 1 m apart per plant is suitable.

Production: Harvesting can commence 6 - 8 weeks after sowing. Up to 10 fruit per plant can be produced.

Use: Unripe fruit are usually eaten raw. Young stem tops, leaves and the kernels of the seeds are edible. Cucumbers are normally eaten fresh, while gherkins are pickled in vinegar. It is a popular vegetable.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	96.4	43	0.6		0.3	Tr	8	0.1
Leaf								
Seed								

Insects: Shootfly (*Atherigona orientalis*); Solomon fly (*Dacus solomonensis*); Coffee leaf roller (*Homona coffearia*); *Planococcus pacificus*; Cacao armyworm (*Tiracola plagiata*)



Names**English:** Bottle gourd**Pijin:****Local:****Scientific name:** *Lagenaria siceraria* (Molina) Standley**Synonyms:****Plant family:** Cucurbitaceae

Description: A pumpkin family plant. It is an annual vine with large leaves. It can grow 3 - 9 m long and spread 3 - 6 m wide. The thick stems have furrows along them. It can climb over logs by attaching the tendrils which grow out of the stem near the leaf. The leaves are large and have soft hairs, especially underneath. Flowers of both sexes are borne in the same plant. The plant produces male flowers first and these are on long stalks. Next, it produces female flowers on short stalks. Flowers are large and white. They can be 10 cm across. They are mainly pollinated by insects. Fruit vary in shape. The fruit can be 8 - 90 cm long. They have brown seeds in a whitish-green pulp.



Distribution: It is grown in many tropical countries, including Solomon Islands. It grows from sea level up to 2700 m altitude in the tropics. It grows best in a warm, humid climate. It is sensitive to frost and prefers full sunlight. In Nepal, it grows to about 2200 m altitude. It grows best with night temperatures of 17 - 23°C and day temperatures of 28 - 36°C. It suits hardiness zones 10 - 12.



Cultivation: Seeds should be soaked overnight to achieve fast and uniform emergence. Seeds are best sown in raised beds. A spacing of 1 - 2 m is suitable. Seedlings emerge in 5 - 7 days. Seedlings can be transplanted as required. Because plants cross-pollinate, plant and fruit types vary. Removing the young fruit to use as a vegetable will prolong the life of the plant. Large fruit can be obtained by thinning some of the small fruit. It prefers to climb on a trellis. Because it is shallow rooted, weeding needs to be done carefully.

Production: It is fast growing and flowers 2 months after seeding.

Use: The young fruit are boiled as a vegetable. The skin and seeds are removed. Young tips and leaves are edible. The seeds are sometimes eaten. They yield an edible oil. Old fruit are used as containers, and seeds are not normally edible. A common plant, not often used as food.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	93.0	88	0.5		2.4	25	10	
Leaf seed	83.0	180	4.4		7.4			

Insects:

Names**English:** Angled loofah**Pijin:****Local:****Scientific name:** *Luffa acutangula* (L.) Roxburgh**Synonyms:** *Cucumis acutangula* L**Plant family:** Cucurbitaceae

Description: An annual climber with square stems. They have 4 - 7 branched tendrils which attach to objects, helping the plant to have a climbing habit. Leaves are pale green, hairy and shallowly five-lobed. The leaves have a bad smell when rubbed. Male and female flowers are separate. Male flowers are in clusters, female flowers singly (ratio 43:1). Flowers open late in the afternoon and stay open during the night. The flowers are yellow. Fruit can be up to 40 cm long and have 10 long ridges. It is green-brown outside and white inside.



Distribution: It is grown in many tropical countries in Africa, Asia and the Americas, and also in Solomon Islands. It grows from sea level to 500 m altitude in the hot, humid tropics. It won't tolerate excessive rainfall, so does best in drier areas or in the dry season in wetter areas. Day temperatures above 25°C are suitable. Some varieties require short-day length. Additional nitrogen fertiliser can stimulate female flower formation in short-day varieties. In Nepal, it grows from 1000 - 1600 m altitude.

Cultivation: Seeds are sown direct at 40 cm x 80 cm spacing. Plants need stakes to climb. Because seeds can have a hard coating, soaking seed in water for 24 hours before planting can assist. 5 kg of seed per hectare are required. The plant benefits from full sunlight. Good soil fertility is beneficial. The soil needs to be well-drained and adequate organic matter helps. Pinching out the growing tips when plants are 1.5 - 2 m long can promote fruit development. Once female flowers develop, hand-pollination helps fruit set. This is best done in the evening.

Production: Immature fruit are ready 6 - 10 weeks after planting. On maturity, the fruit become bitter and inedible. Fruit do not store well, so are harvested when they are to be used.

Use: The immature fruit are cooked and eaten as a vegetable. The ridges are removed with a vegetable peeler. The leaves are edible.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit								
Leaf								

Insects: Brown coffee scale (*Saisettia coffeae*)

Names**English:** Smooth loofah**Pijin:****Local:****Scientific name:** *Luffa cylindrica* (L.) M.Roemer**Synonyms:** *Luffa aegyptiaca* Miller**Plant family:** Cucurbitaceae

Description: An annual climber up to 10 m long. The stem is 5-angled and slightly hairy. The tendrils have 2 or 3 branches. Leaves are 10 - 20 cm across with 5 - 7 lobes. Male and female flowers are separate and yellow. The male flowers occur as 4 - 20 flowers together, while female flowers are solitary in the leaf axils. Flowers open in the early morning. The fruit is fairly smooth and cylindrical and can be 30 - 60 cm long. The seeds are black, flat and smooth, and 10 - 15 mm long.



Distribution: It is grown in many tropical countries, including Solomon Islands. It grows well in the tropical lowlands, but will also grow in more temperate places. It does best with temperatures between 25 - 30°C. It is better suited to the drier season as heavy rainfall during flowering and fruiting is harmful. Soils should be well-drained and moderately rich. It suits hardiness zones 9 - 12.

Cultivation: Plants are grown from seed, which is collected from ripe fruit. Seeds are sown 4 - 5 cm deep and plants are spaced 1 m apart. They can be sown in seed boxes and transplanted when 15 cm high. It is best to have a trellis for the plant to climb on, or be left to climb over trees. They are often pollinated by insects but can be hand-pollinated in the early morning.



Production: Young fruit are ready to eat 2 - 3 months after planting, while fruit mature 4 - 5 months after planting. Fruit are harvested for sponges when fully mature.

Use: The young fruit are eaten as a vegetable. They are skinned and have the centre removed. The seeds yield an edible oil after extraction. The young leaves and flowers are edible. They are blanched by covering them to make them white.

CAUTION: Older fruit are bitter and fibrous, and contain poisonous substances.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	94.3	79	1.1		0.7			
Leaf								
Flower								

Insects: Solomon fly (*Dacus solomonensis*); Brown coffee scale (*Saisettia coffeae*)

Names**English:** Wax gourd**Pijin:****Local:****Scientific name:** *Benincasa hispida* (Thunb.) Cogn.**Synonyms:****Plant family:** Cucurbitaceae

Description: A long-vined (3 m), climbing, pumpkin family plant. The plant re-grows from seed each year. The vines are thick, furrowed and hairy. The leaves are heart-shaped with 5 - 7 lobes and are rough to touch. Flowers are yellow. The immature fruit can have skin of various colours, depending on variety. The fruit is up to 30 cm long and 20 cm across. They are green with a waxy covering when mature. This waxy layer enables the fruit to be stored for a long time. Fruit shape and size can vary with variety. The flesh is firm and white. The fruit are heavy, weighing 8 - 45 kg.



Distribution: It is grown in many tropical countries, including Solomon Islands. It is suited to warm, lowland, tropical conditions. It does better in dry areas or drier seasons. It is reasonably drought tolerant. The best temperature for growing is 23 - 28°C. It needs a well-drained soil with a pH of 6.5. It grows up to 1400 m altitude in Nepal.

Cultivation: It is grown from seeds. There are about 1800 seeds in a kg. Seeds are sown 3 - 5 cm deep with a spacing of 60 - 80 cm between plants. If plants are to be allowed to trail over the ground, a spacing of about 3 m is necessary. Seed can be sown in nurseries and transplanted when 15 - 20 cm tall. They are usually planted in mounds and allowed to grow over a strong trellis. Plants can be allowed to stay on the ground. Decayed manure or compost is used where available. Plants are responsive to sulphate of ammonia. Flowering normally starts 60 - 80 days after planting. Flowers are open in the early morning. Hand-pollination may assist fruit development. This becomes more important in colder areas. Thinning of fruit gives larger fruit. The growing tips of plants can be pruned out to encourage branching or to restrict growth.

Production: Fruit are ready 3 - 5 months after planting. The fruit keeps well when fully mature. It can be stored for 6 months at 13 - 15°C in a dry atmosphere. The pulp of wax gourds can be shredded and dried for later use.

Use: The white flesh is added to stir-fried dishes. The seeds are fried and eaten. Young leaves and flower buds can be eaten. The young fruit are used as a vegetable. The mature fruit are peeled, cut in pieces and candied.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	96.6	54	0.4		0.4	0	10.5	0.6
Leaf								
Seed								
Flower								

Insects:

Names**English:** Bitter cucumber**Pijin:****Local:****Scientific name:** *Momordica charantia* L.**Synonyms:** *Momordica chinensis* Spreng.**Plant family:** Cucurbitaceae

Description: A slender annual climber with flowers of both sexes on the one plant. It has simple tendrils and vines can be 4 m long. It has bright green, lobed leaves. The leaves are 5 - 12 cm long on thin leaf stalks 3 - 10 cm long. The flowers have 5 petals, are small, yellow and with a sweet smell. Fruit are green when young and orange when ripe. The fruit has a lumpy appearance, with ridges along its length and, when fully ripe, it bursts open. It has a bright red covering on the seeds inside. The seeds are 10 - 16 mm long, 7 - 10 mm wide, and pale brown. Considerable variation in the fruit occurs between varieties.



Distribution: It is a tropical plant that is grown in many tropical countries, including Solomon Islands. It grows from sea level up to about 500 m, and will probably grow to 1000 m altitude in tropical regions. It requires a well-drained soil, preferably rich in organic matter. Seeds do not germinate below 15°C. Plants grow best with temperatures between 18°C and 35°C. In Nepal, it grows to about 2100 m altitude. A soil pH of 6.5 is best. It suits hardiness zones 9 - 12.

Cultivation: For large scale plantings, 6 - 7 kg/ha of seed are required for planting. Seeds are planted at 50 cm spacings in the place where the plants are to grow. The seeds are put at 2 cm depth. The seed has a hard seed coat and germinates slowly. Soaking seeds for 24 hours before sowing gives a quicker, more even, germination. Plants are often grown on raised beds 2 m apart with 0.5 m between plants. They need a stick to climb up. Regular watering is required.

Production: Fruit are ready to harvest 45 - 55 days after planting. Fruit should be harvested when young and tender. Once fruit have begun to change colour to yellow, they are past maturity for eating. Early removal of young fruit ensures continuous fruit-setting. This can allow 6 - 8 successive pickings of fruit. Fruit on the plant are sometimes wrapped in paper to prevent fruit fly damage. Well-stored seed can remain viable for 4 - 5 years.

Use: The young bitter fruit are cooked and eaten. The fruit is blanched or soaked in salt water to reduce the bitter taste. The seed mass of the ripe fruit is used as a food flavouring. The leaves are also cooked and eaten as a flavouring. The tender shoots and leaves are sometimes eaten.

CAUTION: The leaves are considered to cause diarrhoea and vomiting.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	94.0	79	0.8		0.4	11	33	0.8
Leaf	88.7	146	3.6		1.0	173	57	0.3

Insects: Shootfly (*Atherigona orientalis*); Cacao armyworm (*Tiracola plagiata*)

Names**English:** Cabbage**Pijin:****Local:****Scientific name:** *Brassica oleracea* var. *capitata* L., L.**Synonyms:****Plant family:** Brassicaceae

Description: A herb. It is a short, leafy plant with a thick stalk. In cold areas, it forms a thick, tightly-packed ball of leaves called a "head". If the plant is left growing in the ground, it will later produce a flower stalk. The flowers are yellow. There are 3 main types - the white cabbage, a purple kind and one with wrinkled leaves.



Distribution: It is grown in most temperate countries and, unfortunately, in many tropical countries as well. It is a temperate crop. It does best at altitudes over 1000 m in the tropics where there is a greater difference between day and night temperatures. Seeds germinate when soil temperature is between 13 - 16°C. It does not grow properly when temperatures are above 26°C. New varieties grow in warmer places. They are frost-resistant. It suits hardiness zones 8 - 11.



Cultivation: Plants are normally first grown from seeds, but in most places they are re-grown from cuttings or sprouts that develop on the cut stalk.

Production: Cabbages take 5 - 7 months to be ready for harvest.

Use: The leaves can be eaten raw or cooked. They have very little food value and are too bulky to be used as a food in poorer subsistence diets.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	93.6	92	1.0		0.2	132 IU	20	0.1

Insects: Cacao false looper (*Achaea janata*); Black cutworm (*Agrotis ipsilon*); Green looper (*Chrysodeixis eriosoma*); Cabbage cluster caterpillar (*Crocidolomia pavonana*); Corn earworm (*Helicoverpa armigera*); Cape gooseberry budworm (*Helicoverpa assulta assulta*); *Planococcus pacificus*; Diamond back moth (*Plutella xylostella*); Cacao armyworm (*Tiracola plagiata*)



Names**English:** Bok-choy, Chinese cabbage**Scientific name:** *Brassica rapa* var. *chinensis* (L.)

Kitamura

Pijin:**Synonyms:** *Brassica chinensis* Linnaeus**Local:****Plant family:** Brassicaceae

Description: A leafy cabbage grown as an annual. It grows 40 - 60 cm high. The taproot is not fleshy. The stem is short. The leaves are arranged in spirals. They are simple and broadly oval and can be 30 cm long by 10 cm wide. The leaves form a rosette, not a head. The leaf stalk is thickened. It forms a half-cylinder in cross-section and does not have wings. The leaf blade is entire and can have a wavy edge. Flowers are small and yellow with 4 petals. The fruit is a pod, 3.5 cm long. The seeds are black and 2 mm long. Several different kinds occur.



Distribution: It is grown in many tropical countries, especially in Asia, and including Solomon Islands. It is more common in lowland areas, but will grow in the highlands. It suits cool seasons, but will not tolerate frost.

Cultivation: Plants are grown from seed and often transplanted. A spacing of 40 cm x 40 cm is suitable. Seeds are sown direct. They are sown 1 cm deep. They germinate in about 7 days with a soil temperature of 21°C. Plants are thinned to give 20 - 40 cm between plants.

Production: The whole plant is harvested after 2 - 3 months.

Use: The leaves are cooked and eaten. The stems are cooked and served with oyster sauce.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								
Stem								

Insects:

Names**English:** Petsai**Pijin:****Local:****Scientific name:** *Brassica rapa* var. *glabra* Regel**Synonyms:** *Brassica pekinensis* (Loureiro) Ruprecht**Plant family:** Brassicaceae

Description: An annual or biennial plant. The taproot is not fleshy. There are usually more than 20 basal, or main, leaves. They form a rosette and a head. This is normally oblong and compact. The leaf stalk is strongly flattened. It has incised or toothed edges. The leaf blade is teathed along the edge.

Distribution:**Cultivation:****Production:****Use:** The leaves are cooked and eaten.**Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								

Insects:

Names**English:** Radish**Pijin:****Local:****Scientific name:** *Raphanus sativus***Synonyms:****Plant family:** Brassicaceae

Description: A small, quick-growing plant with a thickened edible root. The leaves are divided along the middle vein and are hairy. The end lobe is largest. The flowers are white or lilac with purple veins. The fruit is a pod. It is round in cross-section and does not open at maturity. It is constricted between the seeds. The fattened roots can be red, white, purple or black. They can be round, oblong or long and narrow.



Distribution: It grows from the coast up to at least 2400 m in the tropics. It is frost-resistant. It suits hardiness zones 6 - 9.

Cultivation: Plants are grown from seed planted at 5 cm spacing. In highland areas, seeds can be saved from plants to re-sow.

Production: Plants can be ready to eat after 3 weeks.

Use: The young tender roots are mostly eaten raw. The leaves are eaten cooked. Roots and seeds are pickled. The seeds can be sprouted and eaten.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Root	93.3	62	1.0		1.9	Tr	25	0.1
Seed	90.1	180	3.8		0.9	39	28.9	0.6
Leaf								

Insects: Cabbage cluster caterpillar (*Crocidolomia pavonana*)

Names**English:** Chinese radish**Scientific name:** *Raphanus sativus* var. *longipinnatus*
Bailey**Pijin:****Synonyms:****Local:****Plant family:** Brassicaceae

Description: A cabbage family plant like a large radish. It has a large, fleshy root and deeply-divided leaves. The taproot is long and white. It takes 1 or 2 years to complete its lifecycle. The stems can be 20 - 100 cm high. The leaves near the base are long. They are divided and have coarse teeth along the edges. The leaves up the stem are simple and narrow. The flowers develop at the top. They are usually white with purple veins. The fruit are pods about 3 - 8 cm long and 1.25 cm across. They have a long, tapering beak. There are 6 - 12 round seeds in the pod. These can be yellow or brown.



Distribution: It is grown in many tropical countries, including Solomon Islands. It is more common in lowland areas in the tropics. It needs a rich loose fertile soil. It suits hardiness zones 6 - 9.

Cultivation: Plants are grown from seeds. A spacing of 15 cm apart in rows is suitable. Plants are often sown more thickly and seedlings are thinned out and eaten. It is possible to save seed from plants for re-sowing.

Production: Plants are ready for harvesting about 50 days after planting.

Use: The roots are cooked and eaten. The young leaves can be eaten cooked. The roots can also be shredded and eaten raw in salads.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Root								
Leaf								

Insects:



Names**English:** Shallots, Bunching onion**Pijin:****Local:****Scientific name:** *Allium cepa* var. *aggregatum* L., G.Don.**Synonyms:** *Allium ascalonicum* L**Plant family:** Alliaceae

Description: These onion-like plants produce a cluster of bulbs that are narrowly oval and grow to 1.2 m high. The leaves are round and hollow. This is a genuinely perennial form of *Allium cepa*. The bulb grows deeper in the soil and divides to produce a number of underground bulbs each year in much the same way as shallots. Large bulbs divide to form 5 - 15 bulbs, whilst smaller bulbs grow into one large bulb. They do not produce bulbils, or small bulbs, in the flowerhead.



Distribution: It grows in Africa, Asia, the Pacific and the Americas. It can be grown throughout the country but does best in the cooler higher places. It needs a fertile, well-drained soil. It tolerates soils with a pH in the range 4.5 - 8.3. It is frost-resistant. It suits hardiness zones 5 - 10.

Cultivation: Plants are normally grown by planting one bulb. It is best to plant them on slightly raised beds. Plants should be about 20 cm apart.

Production:

Use: The bulbs and leaves are eaten raw or cooked. The flowers are used raw or to flavour salads. This is becoming a well-accepted and popular vegetable for flavouring foods in most parts of Solomon Islands.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Bulb	81	281	1.9		0.8	Tr	2	
Leaf	91	126	1.8		3.7	945	19	
Flower								

Insects: Black cutworm (*Agrotis ipsilon*); Cape gooseberry budworm (*Helicoverpa assulta assulta*)

Names**English:** Japanese bunching onion, Spring onion**Scientific name:** *Allium fistulosum* L.**Pijin:****Synonyms:****Local:****Plant family:** Alliaceae

Description: A bulb plant, but the bulb is indistinct. It grows to 60 cm high and 20 cm wide. It has fibrous side roots. It grows in large clumps. The leaves are rounded in cross-section and hollow. They grow to 15 - 30 cm long by 5 - 20 mm wide. The bulbs are very small and 4 - 8 cm long, but only 5 - 25 mm across. The plant produces many side buds which develop as offshoots. Flowers grow on a stalk which comes from underground and there are many flowers on stalks around one head. The hollow stalk is 40 - 80 cm long. The flowers are yellow and they open from the top of the flower head downwards. There can sometimes be bulbils on the flower head.

Distribution: It is grown in many temperate and tropical countries. It prefers a sunny position and a light, well-drained soil. It prefers a pH in the range 6.5 - 7.5, but it tolerates a pH in the range 4.9 - 7.5. A hardy plant which produces leaves throughout the winter. It is also tolerant of high temperatures and can grow in the tropics. Plants yield better when grown above 1000 m in the tropics. Temperatures above 25°C give less production. It suits hardiness zones 5 - 9.

Cultivation: It can be grown from seed or division of the bulbs. Bulbs should be planted fairly deep. These multiply to produce more bulbs. Seeds are transplanted when 10 cm high. A spacing of 7 - 10 cm is suitable.

Production:

Use: The bulbs and leaves are eaten raw or cooked. The flowers are used raw to flavour salads.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Bulb								
Leaf								
Flower								

Insects:

Names**English:** Celery**Scientific name:** *Apium graveolens* var *dulce* L., (Mill.)
D.C.**Pijin:****Synonyms:** *Apium dulce* Mill.**Local:****Plant family:** Apiaceae

Description: A herb up to 1 m high. It has leaf stalks with ridges, and they are like a half circle when cut across. The plant has a strong smell. The plant is smooth and hairless. The leaves are divided into a compound leaf. The wild plant has leaves in tufts from the base or spread along creeping stems. The flowers are white and in small, compound arrangements, where each flower is on a stalk from the same point.



Distribution: It is a warm temperate plant. It is mainly grown in the highlands in the tropics. It grows up to about 2100 m altitude. It is damaged by frost. It often grows naturally in swampy conditions. In the tropical lowlands, it grows as a small leafy plant, but can be used for flavouring. It requires a rich, sandy loam soil. Because celery has shallow roots, it needs plenty of moisture and does best in humus-rich soils.

Cultivation: Plants are mostly grown from seed and transplanted. Soil is mounded up around the plant, or it is wrapped up, to exclude sunlight to produce white stalks. Newer varieties will naturally form whiter stalks. Plants should be grown close together to keep sunlight off the stalks. This applies especially for the naturally whitening (blanching) varieties. The stalks are cut before the plant flowers.

Production: Leaf stalks take about 9 months from seed until harvest.

Use: The leaf stalks are eaten raw or used to flavour foods. The leaves can also be used for flavouring. The dry, ripe fruit can be used for flavouring, e.g. in salt.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf stalk	94.6	67	0.8		0.4	13	7	0.1
Leaf	95.7	88.2	0.6		0.4	13	5	0.1

Insects:

Names**English:** Okra**Pijin:****Local:****Scientific name:** *Abelmoschus esculentus* (L.) Moench**Synonyms:** *Hibiscus esculentus* L**Plant family:** Malvaceae

Description: A tropical annual plant. It grows erect, often with hairy stems. It mostly grows about 1 m tall, but can be 3.5 m tall. It becomes woody at the base. The leaves have long stalks up to 30 cm long. Leaves vary in shape, but are roughly heart shaped with lobes and teeth along the edge. The upper leaves are more deeply divided than lower ones. The flowers are yellow with red hearts. The fruits are green, 7.5 - 15 cm long, and have 5 - 7 ribs. The seeds are 4 - 5 mm across. They are round and dark green. There are many varieties.



Distribution: It grows in a range of tropical countries around the world. It suits the hot, humid tropical lowlands, but is unsuited to the highlands. It cannot tolerate drought. It is very sensitive to frost. It grows best where temperatures range from 20 - 36°C. It can grow well in dry climates, with irrigation. It suits hot, humid environments. It does best on well-drained, well-manured soils, but will grow on many soils. A pH of 5.5 - 7.0 is best. It suits plant hardiness zones 8 - 12.

Cultivation: It is grown from seeds, which are easy to collect. It needs high temperatures for germination (over 20°C) and a sunny position. Seeds are often soaked for 24 hours before sowing to give quick germination. Seeds are sown 1.5 - 2.5 cm deep with 2 - 3 seeds per hole. These are later thinned out to one plant. Seeds can be sown in nurseries and the seedlings transplanted. Pinching out the tops of plants when 30 cm high encourages branching. To select seed of a particular variety, seedlings must be separated at least 40 cm from other varieties. A spacing of about 90 cm x 45 cm is suitable. About 8 - 10 kg of seed are required for one hectare. Most kinds respond to fertiliser.

Production: Plants maintain production if the fruits are harvested regularly. Plants are ready to harvest 8 - 10 weeks after sowing. Seed yields of 500 - 800 kg/ha have been recorded. Pod yields of 4 - 6 t/ha occur. It takes 2 - 4 months from sowing to produce young pods. Pods develop 5 - 10 days after flowering. Pod harvests can continue for 1 - 2 months. Leaving pods on the plants stops new pods developing.

Use: Pods are eaten cooked. They are slimy, but less so if fried. Dried, powdered seeds can be used to thicken soups. Young leaves can be eaten cooked. They are slimy unless fried or steamed. Flowers can also be eaten. The seeds are roasted and used as a coffee substitute. Okra is frozen and canned.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Pod	90.0	134	1.9		0.5	58	16.3	0.6
Seed								
Leaf	81.0	235	4.4		0.7	385	59	
Flower								

Insects: Cotton semi-looper (*Anomis flava*); Red cotton bug (*Dysdercus cingulatus*); Corn earworm (*Helicoverpa armigera*); Coffee leaf roller (*Homona coffearia*); Green vegetable bug (*Nezara viridula*); White scale (*Pseudaulacaspis pentagona*)

Names**English:** Asparagus**Pijin:****Local:****Scientific name:** *Asparagus officinalis* L.**Synonyms:****Plant family:** Liliaceae/Asparagaceae

Description: A herb. A perennial plant with fern-like leaves and underground root stock. It grows to 1.5 m high and spreads to 1 m across. The stems are erect but often hang over at the tips. The branches are soft. The leaves are feathery and a rich, green colour. The flowers are small and greenish. They are of both sexes and occur either singly or in clusters of 2 - 4. The fruit are red berries. They are produced on female plants. They are 7 - 8 mm across. They have 2 or 3 seeds.



Distribution: This is a temperate or mediterranean plant grown in some places in the tropics, including Solomon Islands. It needs a temperature of 16 - 24°C for good growth. It needs a lower temperature for 60 - 100 days when the plants are dormant. In Papua New Guinea, it is grown mainly in the highlands at over 1000 m altitude. It grows up to 2600 m. It can be grown on the tropical coast with special management. It prefers humus-rich, moist, well-drained soils. A pH of 6 - 6.8 is suitable. It does best in an open, sunny position. It is frost-resistant but drought-tender. It grows naturally on the steppes in NW Xinjiang, China. It suits hardiness zones 4 - 8.

Cultivation: Plants can be grown from seed. It is best to soak the seeds for 24 hours, then sow them in a nursery. They are transplanted after 8 - 12 months. A spacing of 1 m x 1 m is suitable. If white shoots are required, the shoots need to be kept covered with soil. Shoots turn green in sunlight. Plants can also be grown by division of the clump. These are planted 15 cm deep. For seed production, a male plant is needed for each 4 female plants. Bees help pollination.

Production: The first harvest is 18 - 24 months after planting. The shoots are cut before they open out into the ferny, erect stems. They are cut below ground level when about 15 - 20 cm high.

Use: The young shoots are eaten cooked. They should be washed only just before cooking. The tuberous roots of some wild asparagus plants are eaten in China. Young roots should be used. The seeds have been used as a substitute for coffee. There are far more useful and suitable plants to grow in Solomon Islands.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Shoot	95.4	52	1.7		0.6	50	16	0.3
Root								

Insects: Spherical mealybug (*Nipaecoccus viridis*)

Names**English:** Long cayenne pepper**Scientific name:** *Capsicum annuum* var. *acuminatum*
Fingerh.**Pijin:****Synonyms:****Local:****Plant family:** Solanaceae**Description:****Distribution:** It is grown in several Asian countries and also in Solomon Islands.**Cultivation:****Production:****Use:** The fruit are used as a vegetable and a spice.**Food Value:** Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit								

Insects:

Names**English:** Capsicum, Bell pepper**Scientific name:** *Capsicum annuum* var. *grossum* (L.)
Sendt.**Pijin:****Synonyms:****Local:****Plant family:** Solanaceae

Description: An annual plant up to 1.5 m high. Leaves are solitary or paired. The petiole, or leaf stalk, is 4 - 7 cm. The leaf blade is oblong and 4 - 13 cm long by 1.5 - 4 cm wide. The flowers are produced singly and are yellow or white. Fruit are about 10 cm long and 6 cm wide and red when fully ripe. Seeds are pale yellow, kidney-shaped and 3 - 5 mm. Types with different shaped fruit also occur.



Distribution: It is grown in many tropical and warm climate countries, including Solomon Islands. Plants grow from sea level up to about 2400 m altitude in the tropics. They are killed by frost. Soils need to be well-drained and fertile. The fruit and plants can rot in the middle of the wettest seasons.



Cultivation: Plants are grown from seed. It is possible to save seed for re-sowing. Seed will keep for 2 - 3 years. Seeds germinate in 6 - 10 days. Plants can be transplanted. Plants need to be about 50 cm apart.



Production: The first fruit can be harvested after 3 - 4 months.

Use: The fruit are edible raw or cooked. The leaves are edible cooked. It is a popular vegetable.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	93.5	65	0.9		0.4	59	100	0.2
Leaf								

Insects: Shootfly (*Atherigona orientalis*); Corn earworm (*Helicoverpa armigera*); *Planococcus pacificus*); White scale (*Pseudaulacaspis pentagona*); Green shield scale (*Pulvinaria psidii*); Cottony urbicola scale (*Pulvinaria urbicola*); Brown coffee scale (*Saisettia coffeae*)

Names**English:** Bird's eye chillies**Pijin:****Local:****Scientific name:** *Capsicum frutescens* L.**Synonyms:****Plant family:** Solanaceae

Description: It is a shrubby, perennial plant about 1 m tall. The leaves are smaller than round capsicums or bell peppers. Two or more flowers occur together in the axils of leaves. They have small pointed fruit about 1 - 2 cm long and they are red when ripe. They have a very hot taste when eaten or touched on the lips.



Distribution: It is grown in most tropical countries. It grows from sea level up to about 1800 m altitude in the equatorial tropics. It can't tolerate water-logging or frost. It tolerates high temperatures and a wide range of rainfall. Very high rainfall leads to poor fruit set and rotting of fruit. Soil needs to be well-drained and, preferably, fertile with adequate organic material. Light, loamy soils rich in lime are best. It suits hardiness zones 10 - 12.

Cultivation: The seeds are dried in the sun. They are small. For large-scale plantings, 1.8 - 2.3 kg/ha of seed is needed. Seed is best sown in nurseries and the seedlings transplanted when they have 4 - 5 leaves (after 3 - 4 weeks). They can be transplanted at about 0.8 m spacing. Pruning out the tops can increase branching. This is often done 10 days before transplanting. Excessive nitrogen can reduce fruit setting.

Production: The first picking of fruit can occur 3 months after planting and continue about every two weeks. Plants continue to be harvested for about 4 - 5 years before replanting. For dried chillies, the fruit are dried in the sun for 3 - 15 days. The fresh weight is reduced by about two thirds during drying. Yields of dry chillies can be from 300 - 2,500 kg/ha depending on growing conditions, irrigation, etc.

Use: The leaves are eaten for their mild, spicy taste. The leaves are eaten cooked. The fruit can be used in very small quantities to spice food. The small, red fruit are very hot to eat due to a chemical called capsaicin. They are used to add spice and flavour to other foods. It would not be appropriate to eat sufficient of Bird's eye chilli fruit to significantly affect nutrition.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf								
Fruit	74.0	395	4.1		2.9	7140	121	

Insects:

Names**English:** Eggplant**Pijin:****Local:****Scientific name:** *Solanum melongena* L.**Synonyms:****Plant family:** Solanaceae

Description: A perennial shrubby herb up to 1 m tall. It is often grown as an annual. It has a deep taproot and branched side roots. The stem is thick and covered with many woolly hairs. The plant has many branches. The plant is often spiny. The leaves are large, alternate and simple. They are angular and unequal near the stalk. Leaves can be 20 cm long and wavy along the edge. Leaves are covered with hairs. Flowers are bluish red and 5 cm across. They are either solitary or in small groups opposite the leaves. They have five, large, woolly lobes which continue to surround the base of the fruit. The berry fruit are white, blue, green or purple. The fruit colour and shape vary. The fruit is sometimes spiny. The fruit are 10 - 20 cm long and 5 - 8 cm wide. The flesh of the berry has numerous, kidney shaped seeds.



Distribution: It is grown in many subtropical and tropical countries including Solomon Islands. It is a plant of the warm tropics. Plants grow from sea level up to 2200 m altitude in the tropics. It suits wet climates, but does well in dry climates with irrigation. It needs a long, warm growing period. A daily mean temperature of 20 - 30°C is most suitable. It is frost-susceptible. It needs a rich, friable, well-tilled soil. In the subtropics, it can be grown as a summer crop. In Nepal, plants grow to 1500 m altitude. It suits hardiness zones 9 - 12.

Cultivation: Plants are grown from seeds. Seeds germinate slowly. Seed are sown in nursery beds. Seedlings can be transplanted when about 8 cm tall or 4 - 6 weeks old. Plants need to be about 60 - 100 cm apart. Because some cross-pollination can occur, seed crops need to have varieties planted 400 m apart.

Production: Fruit are ready for harvest after 3 months. They continue to yield for 3 - 4 months.

Use: Fruit are mostly fried, then eaten. They can also be grilled, baked, stuffed and stewed. They are used in curries. The fruit are also dried and stored. The leaves, although edible, are hairy and do not have good flavour.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit								
Leaf								

Insects: Coffee leaf roller (*Homona coffearia*); Paddy bugs (*Leptocorisa acuta*); *Planococcus pacificus*); Cottony urbicola scale (*Pulvinaria urbicola*); Brown coffee scale (*Saisettia coffeae*); Cacao armyworm (*Tiracola plagiata*)

Names**English:** Tomato**Pijin:****Local:****Scientific name:** *Lycopersicon esculentum* Miller**Synonyms:** *Solanum lycopersicum* L**Plant family:** Solanaceae

Description: A short-lived, perennial plant. It is upright, but with weak stems. It can grow to 2 m tall with support for the stems. The stems have long hairs. It has a strong smell. The leaves are deeply lobed with an odd number of leaflets. They have irregular teeth around the edge. There are up to 12, star-shaped flowers on each raceme (flower cluster). Flowers are yellow. The fruit are round and red when ripe. Yellow coloured fruit also occur. There are many varieties.



Distribution: It is grown in most warm, temperate countries and most tropical countries, including Solomon Islands. It grows from sea level to 2400 m altitude in the tropics. It needs to be grown in fertile soil. A pH of 6.0 - 7.9 is best. For best production, it requires much water, plenty of sunshine and low night temperatures. For germination, it does best between 20 - 30°C. It is frost-susceptible. In Nepal, it grows to 1400 m altitude. It suits hardiness zones 9 - 12.



Cultivation: Plants are sown from seeds. These are normally sown in a nursery and transplanted. They are transplanted when 40 - 45 days old or 15 cm high. They are spaced about 60 - 90 cm apart. Seeds can also be sown directly in the field. They can also be grown from cuttings. The side branches of upright types are removed to give fewer and larger fruit. Upright plant types need to be tied to stakes. Plants are often grafted into stronger rootstocks.



Production: Harvesting commences after about 14 weeks. Yields can be 3 - 4 kg of fruit per plant.

Use: The fruit are eaten raw or cooked.

CAUTION: Leaves and green fruit are poisonous.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Fruit	93.0	88	1.0		0.6	45	26	0.1

Insects: Black cutworm (*Agrotis ipsilon*); Shootfly (*Atherigona orientalis*); Foxglove aphid (*Aulacorthum solani*); Green looper (*Chrysodeixis eriosoma*); Corn earworm (*Helicoverpa armigera*); Cape gooseberry budworm (*Helicoverpa assulta assulta*); Seychelles scale (*Icerya seychellarum*); Green vegetable bug (*Nezara viridula*); *Planococcus pacificus*; Cottony urbicola scale (*Pulvinaria urbicola*); Cacao armyworm (*Tiracola plagiata*)

Names**English:** Carrot**Pijin:****Local:****Scientific name:** *Daucus carota* L.**Synonyms:****Plant family:** Apiaceae

Description: A root crop grown from seed. It normally grows a fattened root one year, then forms a flower the next year, depending on temperature. It can be 60 cm high and spread to 50 cm wide. The root is long in shape and orange in colour. The stem is erect, tough and furrowed. The leaves are feathery and divided 3 times. The leaves have a sheath clasping the stalk at the base. The flowers are white and lacy. They form a dense compound cluster at the top of the plant.



Distribution: It is a temperate plant grown in most countries of the world, including tropical regions. In the tropics, it is mostly grown in the highlands, but will grow from sea level to 2600 m altitude. Sometimes, on the coast, only leaves are produced. Carrots are frost-resistant. In Nepal, carrots are grown up to 1700 m altitude. It needs a deep, loose soil. It grows best with a pH of 6.0 - 7.0. Seed germinate well in the temperature range 7 - 24°C. Plants grow well with a temperature about 15°C. It suits hardiness zones 3 - 9.

Cultivation: They are grown from seeds sown directly. Because seed are very small, seed are mixed with sand before sowing to allow a more even distribution of plants. A spacing 5 cm apart in rows 15 - 20 cm apart is suitable. This spacing is often achieved by thinning out plants. For seed production, a low temperature of 4 - 9°C for 40 - 60 days is needed before flowering to break the dormancy.

Production: There are tropical varieties that mature within 90 - 110 days.

Use: Both the roots and the leaves are edible. The roots can be eaten raw or cooked. The young leaves are used in soups.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Root	91.5	79	0.6		0.4	2455	4	0.3
Leaf								

Insects: Black cutworm (*Agrotis ipsilon*)

Names**English:** Lettuce**Pijin:****Local:****Scientific name:** *Lactuca sativa* L.**Synonyms:****Plant family:** Asteraceae

Description: A leafy vegetable which forms a heart or clump of tightly-wrapped leaves under cool temperature conditions. The leaves are often pale green. Plants are about 20 cm high. It is a leafy annual grown for its succulent, crisp, radial leaves. The lowland species has loose leaves, crumpled with frilly margins, while the leaves of the highland variety fold over the growing point to form a head, with light green, almost white, leaves of a greasy texture, and coarse veins and prominent mid-rib. There are many lettuce varieties.



Distribution: A temperate plant grown in most temperate countries, and also in many tropical countries, including Solomon Islands. Plants are grown throughout the country but particularly in higher places, and often for sale. Leafy forms are used in cooking in many parts of Asia. It suits hardiness zones 6 - 11.

Cultivation: Plants are grown from seeds and often transplanted. Seedlings are transplanted after 30 - 35 days and spaced 45 cm apart. Seeds need to be sown very shallowly. In hot places, lettuce develop a bitter taste if transplanted or checked in their growth. Cutting the tap root can stop plants seeding quickly.

Production: Leafy varieties are harvested after 50 - 60 days.

Use: Leaves are eaten raw or used in soups.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Leaf	94.0	84	1.2		0.7	180	15	0.2

Insects: Corn earworm (*Helicoverpa armigera*); Cape gooseberry budworm (*Helicoverpa assulta assulta*); Seychelles scale (*Icerya seychellarum*)

Names**English:** Ginger**Pijin:****Local:****Scientific name:** *Zingiber officinale***Synonyms:****Plant family:** Zingiberaceae

Description: A perennial herb with swollen, underground stems. It can grow 30 - 100 cm tall. The underground stem, or rhizome, branches and is horizontal near the soil surface. It is about 1.5 - 2.5 cm thick. Inside the rhizome is yellow, and it is covered with scales forming a circle around it. The leaves are 30 cm long and 4 cm wide. Each leafy shoot usually has 8 - 12 leaves in two vertical lines on opposite sides. The leaf blade narrows evenly to the leaf tip. The flower is a cone, 6 cm long on a stalk up to 30 cm long. (Flowers are not produced in all locations.)



Distribution: It grows in many tropical countries including Solomon Islands. It is a tropical plant. It is mainly grown from sea level up to 1900 m altitude in the tropics, but will grow at higher altitudes. It needs a loose, fertile soil. It does best with plenty of humus. It requires a rainfall of 1500 mm or more per year. It does best where there is a short, dry season and hot temperatures. It cannot stand water-logging. In Nepal, it grows to about 2500 m altitude. It suits hardiness zones 9 - 12.

Cultivation: A portion of the rhizome is planted 5 - 7 cm below the surface of the soil. Light shade is sometimes used but it can be grown without shade.

Production: It takes 12 months to mature. It is harvested several times. The young shoots are cut when about 7.5 cm high.

Use: The underground rhizome is eaten. The young shoots are spicy and can be eaten as a vegetable. The rhizome can be dried, powdered and used as a spice. Oil of ginger is used as a flavouring. Ginger is used for drinks. It is common in most areas of Solomon Islands and eaten in quantity as a vegetable and as a spice.

Food Value: Per 100 g edible portion

Edible part	Moisture %	Energy kJ	Protein g	Calcium mg	Iron mg	proVit A µg	proVit C mg	Zinc mg
Rhizome	87.4	193	1.6		1.3			
Shoot								

Insects: Seychelles scale (*Icerya seychellarum*); Banana aphid (*Pentalonia nigronervosa*); *Pharangispa purpureipennis*; *Planococcus pacificus*