FOOD PLANTS
OF
PAPUA NEW GUINEA
a compendium

Bruce R French

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Present address of author: 20 Main St.,
Sheffield,
Tasmania, 7306.
Australia.

Phone (003) 911350
This book is dedicated to our
CREATOR
for the fascinating variety of
food plants He has provided,
and to the hard working farmers
who cultivate them for their
subsistence.

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by a grant from the PAPUA NEW
GUINEA BIOLOGICAL FOUNDATION.
IT WILL PROBABLY HELP YOU UNDERSTAND THE PURPOSE AND USE OF THIS BOOK IF YOU READ THIS PAGE.

This is a first edition of a food crops compendium for Papua New Guinea. In it you are unlikely to find anything new or original. (If you do, it is probably a mistake which I have inadvertently let slip through!), My purpose has been to collect together in one volume bits of information that I have found useful as a field worker with food plants in Papua New Guinea.

The compendium is really just a list of lists - names, synonyms, altitudinal limits, propagation methods, pests, diseases, edible parts, food values etc.. Like most lists, they don't tell you much, but they remind you of things you already knew. IT IS NOT A "HOW TO GROW CROPS" MANUAL. Obviously it would be silly to try to use this book to find out how to grow rice commercially in P.N.G., or how to control scab moth in bananas. Instead you may be able to use the very brief summaries in this volume to help you to more reliably find the information in a more detailed reference book. e.g. if you know the plant, you may recognise the drawing. It would not be safe to identify the plant from the drawing!

The many gaps are obvious. Some are due to my ignorance - I don't have the information. Others are probably more genuine gaps in our scientific knowledge. Whichever, if any of them can be filled then they will result in a more complete and more reliable second edition when it occurs. The aim is to cover in plain English, on a one page format, some of the basic information about the plants, their names, where and how they grow, what parts are edible and how they are used; a list of pest and disease records and some comment on how I see its current importance within the country.

As I'm aware, very brief summaries often do not tell you the things you wish to know. To help fill this information gap, four other books are in the process of being prepared to complement this volume. They are:

1. Growing the 100 major food plants of Papua New Guinea.
2. Diseases of Food Plants of P.N.G. - a compendium.
3. Insect pests of Food Plants of P.N.G. - a compendium.
4. Reference lists for information on Food Plants of P.N.G..

Papua New Guinea along with its many other attractions has a rich diversity of very nice food plants. It is hoped this volume will stimulate both pride and a search for information.
PEOPLE I WOULD LIKE TO THANK.

My debt is immense to a very large number of people. Students in Vudal Agricultural College allowed me to learn along with them. Many agriculturalists and specialists throughout the country have given me their time and assistance. Village people have generously showed me their gardens, answered my questions, and spent many hours assisting me in locating plants, taking photographs and sharing their knowledge. Ladies in village markets have graciously showed me their produce and put up with my inquisitiveness. The Government of Papua New Guinea have employed me to work in rural development, lecture in college and assist in development projects. Many people who have worked with tropical crops before me have carefully recorded their observations for me to read and benefit from.

My specific debts are to the Papua New Guinea Biological Foundation who financially supported me for one year while I prepared this information for publication, and the Australia Pacific Science Foundation who have assisted with publication expenses.

My wife and family deserve thanks for continuing to put up with a preoccupied Dad!
HOW IS THIS BOOK ARRANGED?

The pages are grouped according to the types of food—root crops and staple foods; beans; edible green vegetables; root and other vegetables; nuts; fruits and then minor foods and flavourings. Within each group they are grouped roughly in order of importance or frequency, except that similar groups are put together.

You can also use the indexes of Scientific name, English name or Tok Pisin name, which are at the back of the book.

ROOT CROPS       pages 1 to 31
BEANS            pages 32 to 53
GREEN LEAFY VEGETABLES  pages 55 to 94
ROOT AND OTHER VEGETABLES  pages 96 to 155
NUTS             pages 157 to 200
FRUITS           pages 202 to 303
MINOR FOODS & FLAVOURINGS  pages 305 to 393.

Because some plants have leaves and fruit that are both eaten, you may have to look in different sections to find the plant you want.
ROOT CROPS
&
STAPLES
INDEX TO ROOT CROPS AND STAPLES.

Sweet potato 2
Taro family -taro 3
    Chinese taro 4
    Swamp taro 5
    Giant taro 6
    Elephant foot yam 7
Polynesian arrowroot 8
Yams -Greater yam 9
    Lesser yam 10
    Potato yam 11
    Five leaflet yam 12
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Operculina 15
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Potato 17
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Yam bean 19
Queensland arrowroot 20
Jerusalem artichoke 21
Oca 22
Anu 23
Ulluco 24
Banana 25
Sago 26
Solomons' sago 27
Breadfruit 28
Jackfruit 29
Fishtail palm 30
Coconut 31

In other sections of the book there are other root crops such as beetroot and parsnip, and other crops in the same family as those above. The ones above are grouped on the basis that village people do or could consider them a starchy main course, or energy supplying food.

Winged bean roots do form a starchy staple food in some areas of the country but are included with the beans. (page 34)
NAMEs
English: Sweet potato  Scientific name: Ipomoea batatas (L) Lam.
Tok pisin: Kaukau  Plant family: Convolvulaceae.

DESCRIPTION  This is a root crop which produces long creeping vines. The leaves are carried singly along the vine. At the end of the vine, trumpet shaped flowers grow. Under the ground fattened tubers are produced. There are a large number of varieties which vary in leaf shape and colour, tuber shape, colour, texture, and in several other ways.

DISTRIBUTION  They grow from sea level up to some of the highest gardens at about 2700m altitude. Plants can grow with a wide range of rainfall patterns and in different soils. Plants are killed by frost and can’t stand waterlogging.

CULTIVATION  Vine cuttings are used for planting. In grassland soils it is grown in mounds, ridges or other raised beds. In bush fallow, it is mostly planted in undug loose soils. It needs a sunny position. Tubers won’t form if the ground is waterlogged when tubers start to develop.

PRODUCTION  The time to maturity ranges from 5 months to 12 months depending on the variety planted and the altitude at which it is being grown. Yields range from 6-23t/ha.

USE  Tubers are boiled or baked. Leaves are edible.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>tubers</td>
<td>moisture 72% 108-115</td>
</tr>
<tr>
<td>leaves</td>
<td>moisture 87% 42cals</td>
</tr>
</tbody>
</table>

INSECTS
Sweet potato weevil burrows into tubers-Cylas formicarius elegantulus (Summers)
Sweet potato leaf miner in leaves-Bedellia somnulentella (Zeller)
Tortoise shell beetles chew leaves-Aspidiomerpha spp.
Hawkmoth larvae chew leaves-Agrius convolvuli (L) and Hippotion celerio (L)
and other insects- see book on insect pests on food plants.

DISEASES
Leaf spot due to a fungus - Pseudocercospora timorensis Cooke
Scab due to a fungus - Elsinoe batatas Jenkins & Viegas
Soft rot due to a fungus - Rhizopus stolonifer (Fr.) Lind.
Black rot due to a fungus - Cenatoxystis fimbriata Ell. & Hallst.
Fusarium wilt due to a fungus - Fusarium oxysporum Schlecht ex Fries.

PESTS  Rats commonly damage sweet potato in gardens.

IMPORTANCE  This is the most important food plant in P.N.G.. It is particularly important in highland grassland areas.
Names
English: Taro
Tok pisin: Taro tru
Scientific: *Colocasia esculenta* (L) Schott
Syn. *C. antiquorum* Schott
Plant family: Araceae

Description This plant has large flat leaves on the end of upright leaf stalks. The leaf stalk or petiole joins the leaf towards the centre of the leaf. Near the ground a thickened rounded corm is produced. Around this plant there is normally a ring of smaller plants called suckers. Many different varieties occur.

Distribution Taro grows from sea level up to about 2300 metres altitude. It grows well in humid places. It can stand damp soil and grow under light shade.

Cultivation The top pieces of large corms, and the side suckers are both used for planting. They are planted in a hole. Larger top pieces give larger yields. Taros are best grown in moist fertile soils.

Production

Use The corms, petioles and leaves are all edible after cooking.

Caution Some cultivars burn the throat due to oxalate crystals.

Food value

<table>
<thead>
<tr>
<th></th>
<th>/100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>75.4%</td>
</tr>
<tr>
<td>energy</td>
<td>94cal</td>
</tr>
<tr>
<td>protein</td>
<td>2.2 g</td>
</tr>
<tr>
<td>calcium</td>
<td>34mg</td>
</tr>
<tr>
<td>iron</td>
<td>1.2mg</td>
</tr>
<tr>
<td>provitA</td>
<td></td>
</tr>
<tr>
<td>provitC</td>
<td></td>
</tr>
</tbody>
</table>

| corm     | 75.4%    |
| leaves   | 81.4%    |
| ex 61cal | 4.1 g    |
| = 160mg  | 1mg      |

Insects Taro beetles *Papuana spp.*
Hawkmoths *Agrius convolvuli* (L) & *Hippotion celerio* (L)
Cluster caterpillars *Spodoptera littura* (Fab)
and others. See book on insect pests of food plants.

DISEASES Taro blight due to fungus *Phytophthora colocasiae* Racib.
Taro shot hole fungus *Phyllosticta colocassicola*
Diffuse yellow leaf spot fungus *Scolecosidium sp.*
Blossum blight fungus *Choanephora cucurbitarum* (Berk & Rav.) Th.
Leaf mould fungus *Cladosporium colocasiae* Sawada
Wrinkled leaves due to virus *Alomae &/or Bokonae* virus
Mosaic due to virus -Dasheen mosaic virus

PESTS

Importance It has been a very important food plant. In some areas it is still important but in other areas it has declined because of insect and disease problems.
NAMES

English: Chinese taro
Tok pisin: Singapo, kongkong

Scientific name: Xanthosoma sagittifolium (L.) Schott
Plant family: Araceae

DESCRIPTION A herb up to 2m tall with about 10 cormels produced on the underground corm. Leaves are large and the stalk joins to the edge of the leaf. There is a vein around the edge of the leaf.

DISTRIBUTION It suits tropical rainforest regions. It can stand high rainfall. It can tolerate light shade. It grows from sea level up to about 2000m. Soils need to be well drained.

CULTIVATION Tops of the main corm are planted. Cormels or pieces of the main corm can be used. A spacing of 0.9-1.2m is suitable. It can tolerate poorer soils.

PRODUCTION Harvesting occurs after about 9 months. Cormels can be removed without moving the mother plant. Corms can be stored for a few weeks.

USE Cormels are eaten roasted or boiled. Main corms are often fed to pigs. Young leaves can be eaten after cooking.

FOOD VALUE /100 g edible portion
moisture energy protein calcium iron provit A provit C
cormels 70-77% 1.3-3.7g

INSECTS Taro beetles Pupuana spp.

DISEASES Leaf spot. Cause unknown.
Leaf wrinkling. Cause unknown.
Probably corm rots caused by Pythium spp. & Sclerotium rolfsii.

PESTS

IMPORTANCE Of considerable importance in many coastal and mid altitude areas especially in wetter areas. A major root crop.
NAMES

English: Swamp taro

Scientific name: Cyrtosperma chamissonis (Schott) Merr.
(Syn. C. edule Schott)
Plant family: Araceae.

DESCRIPTION A large perennial taro family plant up to 2-3m high. The leaves are very large, upright and with points on the bottom lobes.

DISTRIBUTION It grows in fresh or brackish swamps up to 150m altitude. It can stand shade. It occurs on atoll islands.

CULTIVATION Parts of the main corm, or suckers can be used for planting. It can be intercropped with Colocasia taro. A spacing of 1.2 x 1.2 m is suitable. It normally receives little management.

PRODUCTION Yields of 10-15 tons/year/ha have been recorded. It takes 2-6 years to mature. 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.

FOOD VALUE / 100 g edible portion
food moisture energy protein calcium iron provitA provitC
corm .131cal 0.9g 334mg 1.2mg

INSECTS

DISEASES

PESTS

IMPORTANCE This taro is seen in some coastal areas but only becomes important in some of the coral atoll islands.
NAMES

English: Giant taro
Tok pisin: Paragum.

Scientific name: Alocasia macrorrhiza(L) Schott

Plant family: Araceae.

DESCRIPTION A taro family plant with upright leaves. Leaves have round lobes at the bottom. The corm is large, often curved and above the ground. It often has small cormels at the side.

DISTRIBUTION The plant grows wild from sea level up to 2600m altitude. It is only used as food in a few coastal areas.

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 x 1.2m is suitable.

PRODUCTION Corms of 8.5 to 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 The main corm is cooked and eaten after being carefully peeled.

The young leaves are edible.

CAUTION The mouth can be irritated by chewing improperly cooked plant parts due to chemicals called oxalates.

FOOD VALUE /100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>corm</td>
<td>81%</td>
<td>61cals</td>
<td>0.6g</td>
<td>30-153mg</td>
<td>0.5-1mg</td>
<td>5mg</td>
<td></td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES Leaf spot due to fungus Mycosphaerella alocasiae Sydow

Rust due to a fungus Uredo alocasiae P. Henn

PESTS

IMPORTANCE This taro is of local importance only in some coastal areas and islands e.g. Rabaul, Namatanai.
English: Elephant foot yam  Scientific name: *Amorphophallus campanulatus*  Blume

Plant family: Araceae.

**DESCRIPTION**  A taro family plant but with a very divided leaf. It has a straight stem and the leaf is divided into leaflets. Edible kinds have a smooth petiole. It has a large round tuber up to 25cm across. The large flower produces a nasty smell.

**DISTRIBUTION**  Mainly in seasonally dry areas and grassland up to 800m altitude.

**CULTIVATION**  The cormels are planted. Seeds will grow but flowers need hand pollination.

**PRODUCTION**  The stalk dies back when the plant is mature. The corm will keep for several months.

**USE**  The corm is cooked and eaten. The leaves are edible.

**CAUTION**  Some cultivars have oxalate crystals which burn the throat.

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>/100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>corm</td>
<td>moisture</td>
</tr>
<tr>
<td></td>
<td>78.5%</td>
</tr>
<tr>
<td>leaf</td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**  Leaf spot due to a fungus *Cercospora protensa* Sydow  Possibly virus.

**PESTS**

**IMPORTANCE**  A minor root crop grown and eaten in some coastal areas.
NAMES

English: Polynesian arrowroot. Scientific name: Tacca leontopetaloides (L.) O. Kuntze (Syn. T. pinnatifida J.R. Forst.)
Plant family: Taccaceae.

DESCRIPTION A perennial herb with no stem but leaves up to 1 metre long and divided into 3 segments. It has a large round tuberous root. The flowers are green and purplish on top of a 1m long flower stalk. Long thin threads hang from the flower. The leaf and flower stalks are hollow.

DISTRIBUTION It grows on the coast and up to 200m altitude. It suits drier areas. It is grown on some of the coral atoll islands.

CULTIVATION Plants are grown from division of the small tubers. Tubers are dug after the leaves die. A spacing 0.6m x 0.6m is suitable.

PRODUCTION Plants take 8-10 months to maturity. The tubers are scraped and mashed in cold water for 4-5 days. It is then prepared like sago.

USE The very bitter tubers are eaten after washing and extracting with water. The seeds are edible.

FOOD VALUE /100 g edible portion
moisture energy protein calcium iron provitA provitC
tuber 1.5g

INSECTS

DISEASES Leaf spot due to a fungus -Cercospora taccae (Sydow)Chupp

PESTS

IMPORTANCE A minor root crop. Of local importance in islands off North Solomons and in Milne Bay Province.
** NAMES 
English: Greater yam 
Scientific name: *Dioscorea alata* L. 
Tok pisin: Yam tru (except in Madang Province)

** DESCRIPTION ** A long angular vine with heart shaped leaves borne in pairs along it. One large but often irregular shaped tuber occurs under the ground. A very large number of different varieties occur.

** DISTRIBUTION ** It grows from sea level up to about 1800m. Yams are most important in seasonally dry areas. They need a well drained soil and it has to have reasonably fertility.

** CULTIVATION ** 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 support of the vine; space plants about 1m apart; and choose a smooth round cultivar.

** PRODUCTION ** The time to maturity ranges from 5 months on the coast to 9 or 10 months at higher altitudes. Yams will store well for over 6 months if given a dry, dark, well ventilated shed.

** USE ** The tubers are boiled, baked or mumuued.

** FOOD VALUE **

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td></td>
<td>76.4%</td>
</tr>
</tbody>
</table>

** INSECTS **
Yam hawk moth *Therataea nessus* (Dry.)
Cotton aphid *Aphis gossypii* Glover
Small beetle *Liliaceras papuana* (Jac.)
Yam mealy bug *Planococcus dioscoreae* Williams
Mirid sap sucker *Platypeltocoris similis* Popp
Passionvine bug *Leptoglossus australis* (Fab.)
Weevils *Eupholus nickeri* Hllr. & *Gymnopholus weiskei* Hllr.
Also *Harpedona plana* Popp.; *Nypolixus mules* Pasc.; *Tagiades tregelli* Hopf.; *Senoclida purpurata* (Smith) and Taro beetles.

** DISEASES **
Leaf spots due to fungi *Gloeosporium pestis* Masssee & *Phylosticta dioscoreae* Cooke
Leaf blotch due to bacteria *Xanthosoma sp.*
Rust due to fungi *Gopola dioscoreae* Cummins; *Uredo dioscoreae-sativae* Sydow; and *Uredo hiulca* Cummins.
Anthracnose due to fungus *Glomerella cingulata* (Stonem)Spaul. & *Schr.*

** PESTS **
Giant African snail.

** IMPORTANCE ** A very important ceremonial crop in some areas. A staple food in many seasonally dry areas.
NAMES
English: Lesser yam
Tok pisin: Mami (except in Madang Province)
Scientific name: Dioscorea esculenta (Lour.) Burkill (Syn. D. aculeata L.)
Plant family: Dioscoreaceae.

DESCRIPTION A yam which has a spiny vine. The leaves are round with a gap where the stalk joins. It produces a cluster (5-20) of tubers under the ground. In many varieties there are sharp thorns just under the ground. Often the tubers are sticky when cut. Many kinds occur.

DISTRIBUTION It grows from sea level up to about 1500m but is mostly below 800m. It cannot tolerate waterlogging. It needs a reasonably long rainy season. It needs a loose fertile soil.

CULTIVATION Normally small tubers are planted (50-75g). Planting in mounds makes harvesting easier. A spacing of 80-100cm between plants is suitable. Stakes are required. Stakes 2m long are sufficient.

PRODUCTION High yields can be obtained. Plants take about 9 months to reach maturity. Tubers will store for about 3 months.

USE Tubers are eaten boiled or roasted.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
73.6% 102cals 1.5g 12mg 0.8mg

INSECTS

DISEASES Leaf spot due to a fungus Cylindrosporium dioscoreae Miy & Ito
Leaf spot due to a fungus Guignandia sp.
Leaf spot due to a fungus Phyllosticta dioscoreae Cooke
Dark brown leaf blotch due to a bacterium Xanthomonas sp.
Mosaic leaf pattern probably due to a virus

PESTS Root knot nematodes can be a problem

IMPORTANCE The most important of the yams in P.N.G. for food. P.N.G. has the best varieties in the world.
NAME: Potato yam; Aerial yam. Scientific name: Dioscorea bulbifera L.

Plant family: Dioscoreaceae.

DESCRIPTION: A yam with a long smooth stemmed vine, round in cross section. The leaves are large and round. It produces bulbils (potatoes) in the angles of the leaves along the vine. Under the ground it has a smaller tuber normally covered with roots.

DISTRIBUTION: It will grow from the coast up to about 1700m. It is common near the edge of grassland and forest at mid altitudes.

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.

PRODUCTION

USE: Both the bulbils and underground tuber are eaten.

CAUTION: Some types are poisonous. In some, the bulbils are too bitter, and in other kinds the tuber underground is bitter.

FOOD VALUE / 100 g edible portion

- moisture
- energy
- protein
- calcium
- iron
- provitA
- provitC

bulbils: 73.4% 2.3-2.6g

tubers: 69%

INSECTS: Weevils chewing the leaves. *Eupholus spp.*

DISEASES: Brown mould underneath leaf due to a fungus *Cercospora uti* Racib.

A rust fungus on leaves - *Uredo dioscoreae-sativae* Sydow

PESTS

IMPORTANCE: This yam is widely distributed in lowland areas and is a supplementary starchy staple food.
NAMES
English: Five leaflet yam
Scientific name: *Dioscorea pentaphylla* L.
Plant family: Dioscoreaceae.

DESCRIPTION A yam with a climbing vine
2-5m long. The leaves have 3-5 lobes
and are finely hairy. The tubers vary
in colour and shape. Some kinds have
aerial tubers on the stem.

DISTRIBUTION They grow from sea level
up to 1800m. It needs a well drained,
well aerated soil.

CULTIVATION Grown from tubers or pieces
of tubers. They can be grown from
aerial tubers. They need stakes for
support. They often grow wild.

PRODUCTION Tubers are harvested after
the vines die back.

USE The tubers are cooked and eaten.

CAUTION Poisonous types of this yam also occur.

FOOD VALUE / 100 g edible portion
moisture 75% 80-100
energy 80-100
protein calcium iron provitA provitC
cals 0.7-2.4g

INSECTS

DISEASES Leaf spot

PESTS

IMPORTANCE This yam is not widely used, but it can be found
occasionally in many areas.
NAMEs
English: Bitter yam
Scientific name: Dioscorea hispida Dennst.
(Syn. D. triphylla L.)
Plant family: Dioscoreaceae.

DESCRIPTION Leaves have 3 lobes. The vine winds to the left. Leaves are shiny and produced alternately along the vine. There are small prickles on the undersurface of the main vein. The tuber is covered with root hairs. It has lobes.

DISTRIBUTION
Outside P.N.G. it occurs in S.E. Asia and Indonesia.

CULTIVATION It can be grown from a tuber. The tuber can continue to increase in size over several years.

PRODUCTION

USE The tuber has been recorded as being eaten. Before eating, it needs to be sliced, soaked in sea water for a long time (3-4 days), covered with ashes, then washed and recooked several times.

CAUTION THIS YAM CAN BE VERY POISONOUS. NORMALLY SELECTED VARIETIES AND SPECIAL PROCESSES ARE NEEDED BEFORE IT IS USED.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A yam only occasionally used as an emergency food.
NAMES
English: Nummularia yam
Scientific name: Dioscorea nummularia Lam.
Plant family: Dioscoreaceae.

DESCRIPTION The leaves are oval to heart shaped. Often they are alternate lower on the vine then opposite higher up the plant. The stems are spiny near the base. Tubers are often deep in the soil and with several lobes.

DISTRIBUTION Mostly in coastal areas.
Outside P.N.G. it occurs in Fiji, Indonesia and Malaysia.

CULTIVATION It can be grown from pieces of the tuber. It can also be grown from aerial tubers.

PRODUCTION The leaves die off and regrow each year. The tuber does not store well.

USE The tuber is cooked and eaten.

FOOD VALUE / 100 g edible portion
moisture 68.9-75.3% energy 1.6-1.8g protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor edible yam.
NAMES
Tok ples: Hangar, at Arufe near Morehead.

Plant family: Convolvulaceae.

DESCRIPTION A tuberous rooted vine with large round leaves and large sweet potato like flowers. It is a vigorous climber reaching 4-5m high. The vine is irregular in cross section. The capsule is a large dry one with a fleshy lid and has 4 or less black seeds inside.

DISTRIBUTION It occurs at low altitudes probably up to 1300m. It is a plant of the drier open woodland areas.

CULTIVATION Plants are grown from top pieces of the fleshy root. They need a trellis, or tree for the long vines to climb over. The tubers are harvested when the leaves die back.

PRODUCTION The tuber is reported to be able to be stored.

USE The fleshy root is cooked and eaten like a yam.

FOOD VALUE

/ 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES Leaf spot probably due to a fungus.

PESTS

IMPORTANCE A moderately important root crop grown in yam gardens in the Morehead area.
NAMES

English: Cassava  
Tok pisin: Tapick  
Scientific name: *Manihot esculenta* Crantz  
(Syn. *Manihot utilissima* Fohl)  
Plant family: Euphorbiaceae.

DESCRIPTION Plants grow up to 2 or 3 metres high. Stalks have distinct scars where leaves have fallen. The leaves are divided like the fingers on a hand. It produces several long tubers.

DISTRIBUTION Plants grow from sea level up to about 1650m. They can grow in poor soil. They can survive drought.

CULTIVATION Plants are grown from stem cuttings.

PRODUCTION Plants can be harvested after 10 months in the lowlands. Yields in the range 20-45 t/ha have been recorded for 12-14 month experimental crops.

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.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>Food</th>
<th>Moisture</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Iron</th>
<th>Provit A</th>
<th>Provit C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubers</td>
<td>65.6%</td>
<td>135cal</td>
<td>1g</td>
<td>26mg</td>
<td>0.9mg</td>
<td>34mg</td>
<td>34mg</td>
</tr>
<tr>
<td>Leaves</td>
<td>44-95cal</td>
<td>4.7-10.5g</td>
<td>34g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

Cassava scale *Pseudaulacaspis pentagona* (Taeg)  
Nigra scale *Saissetia nigra* (Nietner)  
Amblypelta bug *Amblypelta spp.*  
Pumpkin beetles *Aulacophora spp.*  
Horned weevil *Apinnoculus cornutus* (Pascoe)  
Also *Brachysia exigua* Dist.; *Ectropis sakulosa* Walk.; *Hypiotactus nasalis* Fst.; *Leptoglossus australis* (Fab.); *Orikius sp.*

DISEASES

Leaf spot due to fungus *Cercospora henningsii* Allesch  
Leaf spot due to fungus *Cercospora vicosae*  
Associated with tip dieback *Colletothricium capsici* (Syd) But.  
Pink disease-fungus-*Cotylidium salmonicolor* Berk & Br. & Bis.

PESTS Mites *Tetranychus sp.*

IMPORTANCE Becoming a more widespread and important staple food especially in areas with poor soils and distinct drought.
English: Potato  Scientific name: Solanum tuberosum L.  
Tok pisin: Pateta  Plant family: Solanaceae

DESCRIPTION A branched annual plant up to 50cm high. The stems are soft and 4 angled with compound leaves. It has swollen stem tubers under the ground.

DISTRIBUTION They mostly grow at high altitude above about 1500m. But plants are grown between 900 and 2800m. Tubers form best when soil temperatures are 15.5°C. They are damaged by frost but slightly more frost tolerant than sweet potato.

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 intercrop.

PRODUCTION The time to maturity is between 17 and 24 weeks. Yields of 5 to 12 tons/ha can be expected.

USE The tubers are cooked and eaten. Leaves are also occasionally eaten.

CAUTION The green tubers and leaves are poisonous.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>tubers</td>
<td>moisture</td>
</tr>
<tr>
<td></td>
<td>81%</td>
</tr>
</tbody>
</table>

INSECTS
Potato tuber moth, Phthorimaea operculella (Zell.)  
Taro beetles, Papuana spp.  
Aphids, Aulacorthum solani (Klb.)  
and Myzus persicae (Sulz.)  
Small brown bug, Brachylykas dimorphus

DISEASES
Early blight due to fungus-Alternaria solani Soraure  
Late blight due to fungus-Phytophthora infestans (Mont) de Bary  
Dry rot & wilt-fungal-Fusarium oxysporum Schlecht ex Fr.  
Collar rot & wilt-fungal-Sclerotium rolfsii Sacc.  
Common scab -fungal- Streptomyces scabies (Thaxt.) Waksam & Henr.  
Bacterial wilt -Pseudomonas solanacearum E.F. Smith  
Pink rot -fungal-Phytophthora erythroseptica  
Viruses- leaf roll etc.

PESTS

IMPORTANCE It is gaining acceptance as a subsistence food crop above about 1900m.
NAMES
English: Kudzu
Scientific name: Pueraria lobata (Wild.) Ohwi
(Syn. P. thunbergiana (Sieb. & Zucc.) Benth.)
and P. novo-guineensis Warb.
Plant family: Fabaceae.

DESCRIPTION A slow growing climbing legume with a thickened edible tuber. It has a thick stem which is hairy at the base. The leaves are hairy. The tuber is shaped like a cassava root.

DISTRIBUTION Wild forms grow between 30 and 1860m. Cultivated forms are more common in high altitude areas up to 2700 m altitude.

CULTIVATION It is normally grown by stem cuttings. It grows slowly. Plants also grow self sown.

PRODUCTION The time to maturity is 2-3 years.

USE The tuber is cooked and eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root</td>
<td>68.6%</td>
<td>113cal</td>
<td>2.1g</td>
<td>15mg</td>
<td>0.6mg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES False rust due to a fungus - Synchytrium minutum (Pat) Gaum
Yellow mould due to a fungus - Mycovellosiella puerariae

PESTS

IMPORTANCE A minor root crop. It is used as a reserve food and for ceremonies.
Names

English: Yam bean
Scientific name: *Pachyrhizus erosus* (L) Urban
(Syn. *P. angulatus* Rich. ex A. DC.)
Plant family: Fabaceae.

Description
A climbing bean with hairy stems. It has a white fleshy tuber. The pod is 3-4 cm long, curved and hairy. The seeds are almost black.

Distribution
It grows in coastal areas up to about 70m altitude. A well-drained soil is needed.

Cultivation
It is grown from seeds and also grows wild. A spacing of 50cm between plants is suitable. Topping the plant by picking out the growing point and removing the flowers is supposed to help tubers form.

Production
Tubers are ready about 6 months after sowing.

Use
The tuber is eaten either raw or cooked. The young pods can be eaten.

Caution
Old pods and mature seeds can be poisonous.

Food Value

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>tubers</td>
<td>moisture</td>
</tr>
<tr>
<td></td>
<td>87.4%</td>
</tr>
</tbody>
</table>

Insects

Diseases

Pests

Importance
Only occasionally seen and mainly used by Asians.
NAMES

English: Queensland arrowroot  Scientific name: *Canna edulis* Ker.
Plant family: Cannaceae

DESCRIPTION A broad leafed plant with purple leaf sheaths. Flowers are red. 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.

DISTRIBUTION It is grown and used in some of the coastal areas. It will grow from sea level up to 1600m. It needs a heavy fertile soil.

CULTIVATION The end section of the rhizome is planted. A spacing of 1m x 1m is suitable. It can stand some shade.

PRODUCTION Harvesting occurs after about 8 months. Parts of the underground root are harvested as needed.

USE The rhizomes are eaten after cooking. The leaves and rhizomes are used for animals. Starch can be extracted from the roots.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>1g</td>
</tr>
<tr>
<td>energy</td>
<td>1g</td>
</tr>
<tr>
<td>protein</td>
<td>1g</td>
</tr>
<tr>
<td>calcium</td>
<td>1g</td>
</tr>
<tr>
<td>iron</td>
<td>1g</td>
</tr>
<tr>
<td>provitamin A</td>
<td>1g</td>
</tr>
<tr>
<td>provitamin C</td>
<td>1g</td>
</tr>
</tbody>
</table>

INSECTS Shot hole weevils - *Oxilius spp.*

DISEASES

PESTS

IMPORTANCE It is a starchy root crop of some importance in some coastal areas mainly on the Papuan side.
ENGLISH: Jerusalem artichoke  SCIENTIFIC NAME: Helianthus tuberosus L.
PLANT FAMILY: Asteraceae

DESCRIPTION: An upright perennial plant up to 2m high with fleshy underground stem tubers of irregular shape. The skin of these tubers is very thin and often coloured yellow or red. The flesh is white.

DISTRIBUTION: Plants grow best when the temperature is 18-26°C and frost free. They do best between 300 and 750m altitude.

CULTIVATION: Plants are grown from vegetative sets. These can be dormant for 7 months before they will grow. The flowers on the plants are removed to increase the yield.

PRODUCTION: Harvesting can start after 3 months.

USE: The tubers are eaten boiled or baked. They can be eaten raw. (They are suitable for people with diabetes)

FOOD VALUE: / 100 g edible portion
moisture 80.4%  energy 69cal  protein 1.8g  calcium 29mg  iron 1.6mg  provitA trace  provitC 6mg

INSECTS

DISEASES: Collar rot due to fungus Sclerotium rolfsii Sacc.

PESTS

IMPORTANCE: Not commonly seen.
NAMES

English: Oca
Scientific name: Oxalis tuberosa Molina
(Syn. O. caenata)
Plant family: Oxalidaceae

DESCRIPTION A small herb up to 30cm high
with leaves of 3 leaflets. The tubers
have scales.

DISTRIBUTION The plant is frost hardy.
In the hot lowlands, tubers perish
quickly.

CULTIVATION Plants are grown from tubers
or cut pieces of tubers which contain
1-3 eyes.

PRODUCTION

USE The tubers are acid when fresh but
are dried slightly then cooked and eaten.
The young leaves and shoots can be
eaten.

CAUTION Fresh tubers contain calcium oxalate.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>tubers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>84%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.1g</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE It has only recently been introduced to P.N.G. to try it
out.
NAMEs
English: Anu

SCIENTIFIC NAME: Tropaeolum tuberosum Ruiz & Pav
PLANT FAMILY: Tropaeolaceae.

DESCRIPTION A climbing herb which climbs by twining around objects. It can be 2m high. It does not have hairs. Leaves have 5 lobes. Tubers are yellowish green with purple marks. It sets seed easily.

DISTRIBUTION The plants are tolerant of frost.

CULTIVATION Plants are grown from tubers. A spacing of 70cm x 70cm is suitable.

PRODUCTION Plants mature in about 7 months. Tubers store satisfactorily. Tubers are often frozen or partially dried after harvest to improve the flavour.

USE Tubers are eaten boiled.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
54.6% 3.8g

INSECTS

DISEASES

PESTS

IMPORTANCE It has only recently been introduced into P.N.G. to try it out.
NAMES
English: Ulluco
Scientific name: Ullucus tuberosus Lozano
(Syn. U. tuberosus Cald.)
Plant family: Basellaceae.

DESCRIPTION A small herb with creeping pink stems. It puts up branches which can be 30cm high. The stems form roots where they touch the ground. The leaves are broad and heart shaped. In some kinds the leaves have red spots or a reddish blue edge. Small tubers form on the ends of the roots. Often they are yellow. Flowers are in the axils of leaves.

DISTRIBUTION It grows well in cool moist climates. It will probably suit high altitude places. It can stand light frosts.

CULTIVATION Plants are grown from tubers. They can be grown from cuttings. Soil needs to be earthed up around the growing plant. A spacing of 60-80cm between plants is suitable.

PRODUCTION Tubers mature in about 4-6 months.

USE The tubers are eaten.
The leaves are edible.

CAUTION Tubers need careful preparation to eliminate a toxic component.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
 tubers 80-85% 1g

INSECTS

DISEASES

PESTS

IMPORTANCE One variety has been introduced and is being tried out in P.N.G.
**NAMES**

English: Banana  
Tok pisin: Banana  
**Scientific name:** *Musa sp.* (A &/or B genome)  
**Plant family:** Musaceae.

**DESCRIPTION**  
These are the main group of cultivated bananas in P.N.G. 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.

**DISTRIBUTION**  
They grow throughout P.N.G. from sea level up to about 2000m altitude. They are rarely an important food above about 1600m.

**CULTIVATION**  
They are planted from sword suckers. Diploids need replating annually but many triploids can be resuckered from the base on the same site. Spacing depends on variety.

**PRODUCTION**  
Time to maturity varies from 6 to 18 months depending on variety and altitude. Triploids have larger bunches than diploids.

**USE**  
Fruit are eaten raw or cooked depending on variety. Male buds and flowers are eaten on some varieties. The central pith of the false stem and the underground rhizome are also sometimes eaten.

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>68%</td>
<td>112cal</td>
<td>0.9g</td>
<td>18mg</td>
<td>0.6mg</td>
<td>475 g</td>
<td>11mg</td>
</tr>
<tr>
<td>male bud</td>
<td>91%</td>
<td>26cal</td>
<td>1.6g</td>
<td>37mg</td>
<td>1mg</td>
<td>170 g</td>
<td>12mg</td>
</tr>
<tr>
<td>pith stem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rhizome</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS**

- Banana fruit fly *Dacus musae* (Try.)
- Banana scab moth *Nacoleia octasema* (Meyrick)
- Shot hole weevil *Oriplus cruciatus* Fst.
- Taro beetles *Oriplus spp*
- Banana butterfly *Taenaris myops kinschi* Stgr.
  and others.

**DISEASES**

- Sigatoka leaf spot *Mycosphaerella musicola* R.Leach
- Cordana leaf spot *Cordana musae* (Zimm.)Hohnel
- Black cross *Phyllachora musicola* C.Booth & D.Shaw
- Black spot *Deightoniella torulosa* (Syd.)M.B.Ellis
- Diamond leaf spot *Scolecothrichum musae* Zimm.
  and other leaf spots
- Corm rot *Amillaria mellea* (Vahl.ex Fr.)Krumavar
- Rust *Uredo musae* Cummins

**PESTS**  
Flying foxes; fruit bats; Burrowing nematode *Pratylenchus sp*

**IMPORTANCE**  
The major food in many areas and an important supplement in most other areas.
NAMES
English Sago
Tok pisin Saksak
Scientific name: *Metroxylon sagu* Rottb.
(Syn. *M. rumphii* Mart.)
Plant family: Arecaceae

DESCRIPTION A palm up to 10-17m high
with a fat trunk (50-75cm across). After
about 15 years the palm produces a large
flower on top, then the palm dies. The
palm has suckers near the base. Some
kinds 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 mostly grows in coastal
areas from sea level to 900m but is
sometimes seen up to 1200m altitude. It
grows in swampy but not permanently
flooded sites.

CULTIVATION Suckers or seedlings are
planted in fresh water swamps or along
creeks. Once stands are established
in swamps, they continue to regrow from
suckers. Plants are thinned by removing
some suckers.

PRODUCTION Palms are ready to harvest
after about 15 years. In swamps, about
10 to 60 trunks are ready per hectare
each year. An average processing rate is
2.2 kg/hr. of starch.

USE The starch extracted from the trunk
is cooked and eaten.

The sago palm young leaves in the
"heart" are eaten cooked.
Sago grubs are often cultivated and
eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>starch</td>
<td>20-45%</td>
<td>285cals</td>
<td>0.2g</td>
<td>30mg</td>
<td>0.7mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cabbage</td>
<td>70.5%</td>
<td>181cals</td>
<td>6.1g</td>
<td>461mg</td>
<td>4.3mg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS *Agapophyta bipunctata* Boisd.
*Oryctes centaurus* Sternberg -rhinoceros beetle
*Promecotheca papuana* Csiki -coconut leaf miner
*Rhynchophorus bilineatus* (Montr.) -black palm weevil
*Rhynchophorus ferrugineus* (Oliv.) -red palm weevil
*Scapanes australis* (Boisd.) -
*Trochochopalus strangulatus* Cyllehal

DISEASES Sooty mould due to a fungus *Borinquenia* sp.
Black mould on leaves due to fungi *Melenographium* sp.
and *Nipoporium* sp.

and *Zygosporium parasiticum* (Grove) Bunting and Mason

PESTS

IMPORTANCE A very important staple food in several swampy coastal
areas.
Names

English: Solomons' sago
Tok pisin: Saksak.

Scientific name: *Metroxylon solomonense* (Warburg) Becc.
(Syn. *M. kougainvillense* Becc.)
Plant family: Arecaceae.

Description
A sago palm with large seeds (10 cm across) and wide fronds. It has few or no suckers at the base. The flower is very large.

Distribution
It grows in North Solomons Province and the Solomon Islands. It grows in less swampy sites than sago.

Cultivation
Plants are grown from seeds.

Production
Time to maturity is 12-15 years.

Use
The starch is extracted from the trunk and eaten cooked. The palm cabbage is edible.

Food Value
/ 100 g edible portion
moisture energy protein calcium iron provitA provitC

Insects
Probably similar to sago

Diseases
Probably similar to sago

Pests
Pigs uprooting seedlings.

Importance
The sago starch is used as a reserve food and for special functions.
NAMES

English: Breadfruit
Tok pisin: Kapiak

Scientific name: Artocarpus communis J. & G. Forster
(Syn. A. altillis (Park) Rosberg.
and A. incisus (Thumb.) Linnaeus)
Plant family: Moraceae

DESCRIPTION A large tree up to 20m in height. Seeded, small seeded and non seeded types occur. There are a number of cultivars of each. Male and female flowers are separate but on the same tree.

DISTRIBUTION It occurs in the hot humid tropical lowlands. Trees grow from sea level up to 1150m. Seeded types are more dominant in the west.

CULTIVATION Seeded forms are self sown by birds or bats and also grown from seed. Seedless forms are propagated by root cuttings or root suckers. Seeds must not be allowed to dry out before planting.

PRODUCTION Trees begin to bear after 3-6 years. Large trees can give 700 fruits per year of 1-4kg each. An average seed weighs 5g.

USE The large seeds are roasted and eaten. The flesh of the fruit is eaten, cooked. The young leaves are edible. The male & female flowers are edible.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>flesh</td>
<td>80%</td>
<td>55cal</td>
<td>0.8g</td>
<td>30mg</td>
<td>0.8mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>seeds</td>
<td>52%</td>
<td>150cal</td>
<td>6g</td>
<td>60mg</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>leaves</td>
<td>75.5%</td>
<td>75cal</td>
<td>9g</td>
<td>170mg</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>flowers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Fruit flies - Dacus frauenfeldi
D. frenchi
D. obliquus
D. peculiaris

DISEASES Leaf spot due to a fungus - Cercospora artocarpi H. & P. Sydow
Rust due to a fungus - Uredo artocarpi Berk. & Br.

PESTS

IMPORTANCE A quite important supplementary seasonal food in many coastal areas.
**NAMES**

English: Jackfruit  
Scientific name: *Artocarpus heterophyllus* Lam.  
(Syn. *A. integrifolia* L.F. & *A. integra* Merr.)  
Plant family: Moraceae

**DESCRIPTION**  An evergreen tree up to 20m tall. Leaves of young trees have 1 or 2 lobes but mature leaves are long (15cm) and entire. The bark is smooth and dark green. The very large spiny fruits grow on main branches, and the trunk. The fruit has a strong smell when ripe. The flowers have sexes separate but both sexes occur on the same tree.

**DISTRIBUTION**  It grows in the tropical lowlands and up to about 1200m altitude. It can stand some drought but not water-logging. They are slightly more tolerant of cold than breadfruit.

**CULTIVATION**  Trees are usually sown from seeds but it is best to sow them in their final location as the plants don't transplant easily. Fresh seed must be used. Seeds germinate in 3-8 weeks. Soaking seeds in water for 24 hours helps germination. A spacing of 12m is suitable.

**PRODUCTION**  Trees begin bearing after about 8 years. The fruiting season lasts about 4 months. It is normally from Oct. to March. Fruit takes about 8 months to get ripe. Trees tend to have heavy crops every second year.

**USE**  Ripe fruits can be eaten raw. Unripe fruits can be cooked and eaten as a vegetable.

The seeds (5%) can be roasted and eaten. The young leaves and flowers are edible.

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
<td>energy</td>
</tr>
<tr>
<td>fruit</td>
<td>84.7%</td>
<td>53cal</td>
</tr>
<tr>
<td>young</td>
<td>72.9%</td>
<td>94cal</td>
</tr>
<tr>
<td>mature</td>
<td>65.9%</td>
<td>151cal</td>
</tr>
<tr>
<td>seeds</td>
<td>75.5%</td>
<td>75cal</td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**  Pinks disease due to a fungus *Corticium salmonicolor* Berk. & Br.

**PESTS**

**IMPORTANCE**  Gaining importance in some areas such as the Sepik. At present it is mainly only the seeds that are eaten.
NAMES

English: Fishtail palm  Scientific name: Caryota rumphiana var. papuana Becc.
Plant family: Arecaceae

DESCRIPTION A spineless palm with delta shaped leaflets. The leaflets are bipinnate (Two branches on the leaves) and up to 3m long. Long chains of fruits hang from near the leaves.

DISTRIBUTION The palm is common and widespread at low elevations. It grows up to at least 1200m altitude.

CULTIVATION It grows wild. It can be grown from seeds.

PRODUCTION

USE The pith of the young trunk is eaten. (Heart cabbage)
   The trunk is sometimes used to pound for sago starch.
   The trunk is also used to cultivate sago grubs.

CAUTION The juice of the fruit can irritate the skin.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>Heart cabbage</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>sago starch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A common palm in lowland areas but only of minor importance as a food. It has cultural significance in some areas e.g. Kaluli near Mt. Bosavi.
 NAMES

English: Coconut
Tok pisin: Kokonas

Scientific name: Cocos nucifera L.
Plant family: Areaceae

DESCRIPTION A palm with an unbranched trunk. The trunk has ring like leaf scars along it. At the base it is swollen and surrounded by a mass of roots. Clusters of large fruits develop beneath the fronds. Male and female flowers are separate on the one stalk. Female flowers are near the base. About 10-12 fruits/stalk is a good crop. Leaves are up to 5m long. Fruits can be 25cm across.

DISTRIBUTION Mainly in coastal areas but occasionally up to 1000m. Temperatures of 27-32°C are best. They need over 1000mm rain/year, preferably 1500mm. Soils need to be well drained. It requires plenty of sunlight. It is salt tolerant.

CULTIVATION Selected nuts are sprouted in a nursery then planted out. Seedlings are ready for transplanting when they have 3-4 leaves (about 1 year). The nut should be planted in a hole 0.6 x 0.6m. A spacing of about 7-8m is suitable.

PRODUCTION Early germinating nuts give early production in the field. They can commence production after 6-8 years. Palms can produce 15-30 nuts per year. Fruit take about 1 year to be mature. Tapping the flower stalk can give 1kg sap/day for 6 months.

USE The liquid of fresh nuts is drunk.
The flesh is eaten and the "apple" in sprouting nuts is eaten.
The flesh is grated and used in cooking as "coconut" milk.
The young shoots at the top of the palm can be eaten.
The sap from the flower stalk can be tapped for the sugary juice.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>flesh-imm</td>
<td>70-90%</td>
<td>180-180cal</td>
<td>0.7-4.8g</td>
<td>6-8mg</td>
<td>0.8-1.3mg</td>
<td>10 g</td>
</tr>
<tr>
<td>-mature</td>
<td>36-50%</td>
<td>351-500cal</td>
<td>4-7.7g</td>
<td>9-25mg</td>
<td>1.7-2.2mg</td>
<td>0</td>
</tr>
<tr>
<td>liquid</td>
<td>95.4%</td>
<td>11-18cal</td>
<td>0.1g</td>
<td>30mg</td>
<td>1-2.3mg</td>
<td>0</td>
</tr>
<tr>
<td>coconut milk</td>
<td>59%</td>
<td>330cal</td>
<td>2.5-4.3g</td>
<td>34mg</td>
<td>11-15mg</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Many insects are recorded including, Asiatic rhinoceros beetle; New Guinea Rhinoceros beetle; other Rhinoceros beetles; Elephant beetle; Black palm weevil; Coconut leaf miner; Coconut leaf hispine; Coconut treehoppers; Lesser leaf spathe moth; Leaf footed bugs; Coconut spathe bug; Tahitian coconut weevil; Lophopid treehopper; etc.

DISEASES Sooty mould - Capnodium sp.; Chelathrynia sp.; Meliola sp.
Black leaf mould - Cladosporium cocoicola M.B.Ellis & D.Shaw
Leaf spot - Epicoccum cocos F.L.Stevens
White thread blight - Corticium penicillatum Petch
Root rot - Fomes lignosus (Klot) Bros. & Fomes noxius

PESTS

IMPORTANCE A common and popular snack food and supplement in all coastal areas.
FOOD

LEGUMES
BEANS AND LEGUMES USED FOR FOOD IN P.N.G.

Herbaceous annual type plants:
Arachis hypogea L., - peanut 33
Canavalia ensiformis D.C., - jack bean 43
Canavalia gladiata (L.) D.C., - sword bean 44
Cicer arietinum L., - chickpea 53
Cyamopsis tetragonolobus (L.) Taub., - cluster bean or guar 52
Desmodium microphyllum (Thunb.) D.C. 81
Desmodium repandum (Vahl.) D.C. 81
Glycine max (L.) Merr., - soybean 39
Lablab purpureus (L.) Sweet, - lablab bean 35
Lathyrus tingitanus L. 358
Mucuna alburentii F.v. Muell. 50
Mucuna pruriens var. utiliss (Wall. ex Wight) Baker ex Burck, - Velvet bean 49
Pachyrhizus erosus (L.) Urb., - yam bean 19
Phaseolus lunatus L., - lima bean 40
Phaseolus coccineus L., - scarlet runner 48
Phaseolus vulgaris L., - common bean 41
Pisum sativum L., - pea 42
Psophocarpus tetragonolobus (L.) D.C., - winged bean 34
Pueraria lobata (Willd.) Ohwi, - kudzu 18
Vicia faba L., - broad bean 51
Vigna mungo (L.) Hepper, - mung bean 45
Vigna radiata (L.) Wilczek, - green gram 46
Vigna unguiculata subsp. sesquipedalis (L.) Verdc., - snake bean 36
Vigna unguiculata (L.) Wallp., - cowpea 37
Vigna umbellata (Thunb.) Ohwi & Ohashi, - rice bean 47

Shrubs and trees:
Adenanthera pavonina L. 75
Albizia sp., - leaves eaten, with caution 306
Cajanus cajan (L.) Millsp., - pigeon pea 38
Cassia sp., - leaves eaten, with caution 325
Castanospermum australe A Cunn. & Fraser ex Hook., - Moreton Bay chestnut 185
Crotalaria linifolia
Erythrina variegata L., - Indian coral tree 86
Inocarpus lagifex (Park.) Fosberg, - aila nut 180
Ornecarpum orientale (Spreng.) Merr. 71
Pithocellobium dulce (Roxb.) Benth, - madras thorn 376
Prosopis juliflora (Sw.) D.C., - mesquite 379
Samanea saman (Jacq.) Merr., - raintree 383
Sesbania grandiflora (L.) Persoon, - sesbania 385
Tamarindus indica L., - tamarind 302
English: Peanut  
Scientific name: *Anachis hypogea* L.  
Tok pisin: Pinat  
Plant family: *Fabaceae*

**DESCRIPTION** A spreading bushy plant up to about 40cm high. Leaves are made up of 2 pairs of leaflets arranged opposite each other. Flowers are produced in the axils of leaves. Virginia types have the 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.

**DISTRIBUTION** Plants grow from sea level up to about 1650m altitude. They cannot tolerate waterlogging.

**CULTIVATION** Normally shelled seeds are planted 2-5cm deep. It is best to plant at the end of the wet season. A good soil fertility is required.

**PRODUCTION** It takes from 3½ to 5 months till maturity. They are harvested when the top of the plant dies. The whole plant is pulled out.

**USE** The seeds can be eaten raw or cooked. The young leaves are edible cooked.

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>seeds raw</td>
<td></td>
<td></td>
<td>42.2%</td>
<td>303cal</td>
<td>15g</td>
<td>56mg</td>
<td>2.1mg</td>
<td>20g</td>
</tr>
<tr>
<td>cooked</td>
<td></td>
<td></td>
<td>7.1%</td>
<td>557cal</td>
<td>27.1g</td>
<td>48mg</td>
<td>2.3mg</td>
<td>40g</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS** Leaf roller *Adoxophyes melanichra*  
Cowpea aphid *Aphis craccivora* Koch  
Horned weevil *Apionocalus cononius* Pasc.  
Pumpkin beetle *Aulacophora coffeae* Hornstedt  
Mole cricket *Gryllotalpa africana* Beauv.  
Taro beetles *Pupuana &iroi* End.; *P.trinodosa* Prell; *P.woodlarkiana* Ment..  
Also *Eukorellia annulipes* Lucas; *Philia femorata* Walk.; *Nysius epiensis* China.

**DISEASES** Collar rot due to fungus *Conicium rolfsii* Sacc. and *Aspergillus niger* van Tieghem.  
Leaf spot due to fungi *Mycosphaerella arachidicola* Jenkins and *Mycosphaerella berkeleyii* Jenkins  
Rust due to fungus *Puccinia arachidis* Speg.

**PESTS** Root knot nematodes.

**IMPORTANTANCE** A very popular snack food in all areas where it can be grown.
NAMES

English: Winged bean  
Tok pisin: Asbin.  

Scientific name: Psophocarpus tetragonolobus (L.) D.C.  
Plant family: Fabaceae.

DESCRIPTION  A climbing perennial bean up to 3 or 4 m tall. Pods have wings and are 6-36 cm long with 5-20 seeds. Seeds can be white, yellow, brown or black. Nodules on the roots are many and large.

DISTRIBUTION  The bean grows from sea level up to about 1850m altitude. It normally only produces tubers between 1200 and 1850m.

CULTIVATION  Seeds are sown at the beginning of the rainy season. Seeds germinate and grow slowly for the first 3 to 5 weeks. For tubers, vines are pruned off at about 1m high (or left unstaked) and some flowers are removed.

PRODUCTION  The first green pods are ready about 10 weeks after sowing. Tubers are ready after 4-8 months. Seed yields of 1.2tons/ha and tuber yields of 4 tons/ha are possible.

USE  The young pods are edible.  
The ripe seeds are edible.  
The young leaves are edible.  
The flowers are edible.  
The root tubers are edible.

FOOD VALUE  / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>seeds</td>
<td>6.7-24.6%</td>
<td>29-37.4g</td>
<td>204-370mg</td>
<td>10mg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pods</td>
<td>76-92%</td>
<td>1.9-2.9g</td>
<td>63-330mg</td>
<td>1.5mg</td>
<td>0.54g</td>
<td>22-37mg</td>
<td></td>
</tr>
<tr>
<td>leaves</td>
<td>64.2-77.7%</td>
<td>5.7-15g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flowers</td>
<td>84.2%</td>
<td>5.6g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tubers</td>
<td>54.9-65.2%</td>
<td>12.2-15g</td>
<td>40mg</td>
<td>3mg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS  
Bean fly Ophiomyia phaseoli (Try.) 
Winged bean blotch miner Leucoptera sp. 
Pea blue butterfly Lampides boeticus L. 
Also Aphis craccivora Koch; Aphis gossypii Glov.; Hedylepta spp.; Maruca testulalis Geyer; Mesoapilachna signatipennis Bois.; Nezara viridula L.; Oxilinus inimicus Muhl.; Phaneroptera brevis Serv.; Prosoploss obliqueplagiatus Breun.; Riptortus annulicornis Boisd.; Spodoptera litura Fab. 

DISEASES  
False rust due to a fungus Synchytrium psophocarpi Racib. 
Leaf spot due to a fungus Cercospora psophocarpi 
Powdery mildew due to a fungus Erysiphe spp. 
Leaf curl and vein thickening due to a virus. 
Small leaves due to "little leaf" mycoplasma.

PESTS  Root knot due to nematodes - Meloidogyne incognita 
Mites - Tetranynychus sp.

IMPORTANCE  Very important for tubers in the Eastern and Western Highlands. Moderately common for beans in other places.
DESCRIPTION  A climbing bean which can have vines 1-5m long. Leaves are made up of 3 almost triangular leaflets. Often the plants are flushed purple. Flowers are often white but can vary from red to blue. The pods are flattened, pointed and up to 12cm long and 2cm wide. Inside there are 3-5 white or dark seeds. Seed pods have a wavy margin. (This bean is similar to Lima bean but 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 on the seed is longer.

DISTRIBUTION  It mostly grows between 750 and 2175m altitude. It is drought resistant and can grow in quite low rainfall areas.

CULTIVATION  Seeds are sown at 30 x 60cm spacing near stakes, or trees.

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

USE  The young pods, ripe seeds and young leaves are edible, cooked.

CAUTION  Many types can be poisonous. They should be boiled and the cooking water thrown away.

FOOD VALUE  / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitaminA</th>
<th>provitaminC</th>
</tr>
</thead>
<tbody>
<tr>
<td>young pods</td>
<td>82.4%</td>
<td>10cals</td>
<td>2.8-4.5g</td>
<td>0.8-1.2</td>
<td>0.3</td>
<td>80</td>
<td>4.5</td>
</tr>
<tr>
<td>ripe seeds</td>
<td>9.6%</td>
<td>65cals</td>
<td>21-25g</td>
<td>3.2</td>
<td>0.2</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td>3g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES  Leaf spot due to fungus *Ascochyta dolichi* Fragaso
Angular leaf spot due to fungus *Cercospora canescens* Ellis and Martin

PESTS

IMPORTANCE  A traditional bean common and quite widely used in some Highland areas.
NAMES

English: Snake bean  
Yard long bean  

(Syn. *Vigna sesquipedalis* (L.) Fruw.)  
Plant family: Fabaceae.

DESCRIPTION  A climbing bean with long pods. Dwarf kinds also occur. Leaves have 3 leaflets. The flowers can be white, yellow or blue. Pods are long (up to 90cm) and flexible.

DISTRIBUTION  Plants grow in coastal areas from sea level up to about 300m. It suits wet areas and cannot tolerate drought.

CULTIVATION  Plants are grown from seed. Seeds germinate quickly and plants grow rapidly. A spacing of 60cm is suitable. Plants need sticks to climb up. Often 5 or 6 seeds are sown around the one stick. Plants are often topped when growing too vigorously.

PRODUCTION

USE  Both the young pods and leaves are edible.

The ripe seeds can also be eaten.

FOOD VALUE  

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td>pods</td>
<td>88.3%</td>
</tr>
<tr>
<td>leaves</td>
<td>88.4%</td>
</tr>
</tbody>
</table>

INSECTS  
Bean fly boring stems - *Ophiomyia phaseoli* (Tryon.)
Cowpea aphid - *Aphis craccivora* Koch
Legume pod borer - *Manuca testulalis* (Geyer)
Pod borer - *Lampides boeticus* (L.)

and most other bean insects but often damage less.

DISEASES  
Leaf spot due to a fungus *Cercospora canecens* Ell. & Martin
Rust due to fungus *Uromyces vignae* Barcl.
Cowpea mosaic virus.

PESTS

IMPORTANCE  The most common and important bean in coastal areas.
NAMES
English: Cowpea
Scientific name: Vigna unguiculata subsp. unguiculata
(Syn. Vigna sinensis (L)Savi ex Hassk.)
Plant family: Fabaceae

DESCRIPTION A creeping bean type plant with straight firm pods. Both cover crop types (leafy) and grain types occur. Flowers occur often in pairs on the end of flowering shoots.

DISTRIBUTION It grows from sea level to 1800 metres altitude. Plants can stand high temperatures. Some kinds can tolerate drought.

CULTIVATION It is grown from seeds. Seed collection is easy.

PRODUCTION

USE The young leaves, young pods and ripe seeds are all eaten.
The seeds are also used for bean sprouts.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>Moisture</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Iron</th>
<th>Provitamin A</th>
<th>Provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td>young pods 88.7%</td>
<td>36 cal</td>
<td>3.7g</td>
<td>54mg</td>
<td>1.4mg</td>
<td>455 g</td>
<td>24mg</td>
</tr>
<tr>
<td>young leaves 89%</td>
<td>30 cal</td>
<td>4.8g</td>
<td>73mg</td>
<td>2.2mg</td>
<td>36mg</td>
<td></td>
</tr>
<tr>
<td>seeds (dry) 11.5%</td>
<td>340 cal</td>
<td>22.7g</td>
<td>110mg</td>
<td>6.5mg</td>
<td>10g</td>
<td>1mg</td>
</tr>
</tbody>
</table>

INSECTS Cowpea aphid Aphis craccivora Koch
Corn earworm Heliothis armiger Hubn.
Bean pod borer Manuca testulalis Geyer
Cluster caterpillar Spodoptera litura Fab.
Cuproctis sp nr. fulvistriata

DISEASES Leaf spot due to a fungus Cercospora canecencs
Associated with leaf spot Penicillia &spoides Pers. ex Schw.
Cowpea mosaic virus

PESTS

IMPORTANCE It has become well accepted in some areas e.g. Baiyer River.
ENGLISH: Pigeon pea

SCIENTIFIC NAME: Cajanus cajan (L) Millsp.

PLANT FAMILY: Fabaceae.

DESCRIPTION: An upright perennial shrubby legume. They can be up to about 4m tall. A leaf consists of 3 leaflets. Leaflets are narrow and green with a silvery green underneath. Leaflet size can be 10cm x 3cm. Flowers are red and yellow. It has a strong deep taproot. Pods are long straight and narrow often with 4-8 seeds.

DISTRIBUTION: Plants grow from sea level up to about 1800m. They can tolerate drought and are suited to a drier climate. It suffers in waterlogged soils and is damaged by frost.

CULTIVATION: They are grown from seeds. A spacing of 1.5m x 1.5m is suitable. Plants can be cut back and allowed to regrow.

PRODUCTION: Pods are ready after 5 months. 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.

FOOD VALUE:

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture       energy protein calcium iron provitA provitC</td>
</tr>
<tr>
<td>Pods</td>
<td>64.4%          114cal     8.7g    72mg 72mg 45g 32mg</td>
</tr>
<tr>
<td>Leaves</td>
<td>9g</td>
</tr>
<tr>
<td>Seeds</td>
<td>10%</td>
</tr>
<tr>
<td>Ripe</td>
<td>20g</td>
</tr>
<tr>
<td>Young</td>
<td>7g</td>
</tr>
</tbody>
</table>

INSECTS: Pea weevil Lampides Boeticus L.
Crusader bug Mictis profana F
Legume pod borer Manuca testulalis (Geyer)
Corn earworm Heliothis armigera (Hubner)
Agapophyla spp
Coptosoma pygmaeum Mont.
Polyommatus caeculus (L)
Phaneroptera brevis Aud.-Serv.

DISEASES: Leaf spot-fungus Mycelioblastella cajani(P. Henn) Rangel ex Trot.
Pink disease-fungus Corticium salmonicolor Berk. & Br.

PESTS

IMPORTANCE: A crop being tried out in many villages.
**Names**

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

**Description** A small erect bean up to 60cm tall. Stems, leaves and pods are softly hairy. The leaves have 3 leaflets. Flowers are small and white or blue. They occur in groups in the axils of leaves. Pods have 2-4 seeds. The seeds can be yellow to black.

**Distribution** It suits lowland areas. It can be grown from sea level to 2000 metres altitude. Many varieties will not flower in the tropics (short days). It needs fertile soil. The best soil acidity is pH 5.5 to 7.0. It is damaged by frost.

**Cultivation** It is grown from seed. Seeds need to be inoculated with bacteria before planting. Plants need to be about 20cm apart.

**Production** Plants flower about 8 weeks after sowing and pods mature about 16 weeks after sowing. Often plants are pulled up and hung up before threshing out the seed.

**Use** The young pods and ripe seeds are eaten. Sometimes the young leaves are eaten. The seeds are also used for sprouts, and for making cooking oil and soya sauce etc.

**Food Value** / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds young</td>
<td>68.2%</td>
<td>137cal</td>
<td>13g</td>
<td>78mg</td>
<td>3.8mg</td>
<td>360 g</td>
<td>27mg</td>
</tr>
<tr>
<td>Old</td>
<td>10.2%</td>
<td>400cal</td>
<td>35.1g</td>
<td>226mg</td>
<td>8.5mg</td>
<td>10 g</td>
<td>0</td>
</tr>
<tr>
<td>Sprouts</td>
<td>81.5%</td>
<td>62cal</td>
<td>7.7g</td>
<td>52mg</td>
<td>1.1mg</td>
<td>25 g</td>
<td>10mg</td>
</tr>
</tbody>
</table>

**Insects** Bean fly boring stems Ophiomyia phaseoli (Tryon.)  
Pod sucking bug Riptortus obscuricornis Dallas  
Green vegetable bug Nezara viridula L.  
Lady bird Henosepilachna signatipennis Bois.  
Pumpkin beetle Aulacophora pallidifasciata Jac. and others. Cassena intermedia Jac.; Coelophora inaequalis F.  
Demonax collaris Pasc.; Medylepta indica F.; Orsius inimicus Mahl.; Rhinoscapha funebris Chev.

**Diseases** Leaf spot due to a fungus Ascochyta sp.  
Rust due to a fungus Phakopsora pachyrhizi Sydow  
Leaf distortion probably due to a virus.

**PESTs** Root knot nematode Meloidogyne sp.

**Importance** These beans can be found in small amounts in many places throughout the country.
Names
English: Lima bean  Scientific name: **Phaseolus lunatus** L.
Plant family: Fabaceae.

**DESCRIPTION** A perennial climbing bean.
Pods are flat and have 3-4 seeds which
are very variable in colour. It is
often a tall vigorously climbing plant.
It is one of the traditional beans of
the Highlands.

**DISTRIBUTION** It is common between 500
and 2100m altitude but grows to the
limit of cultivation (2700m). For
germination it must have a soil
temperature above 15.5 °C and cannot
withstand frost. In very hot weather
seeds often do not set. It is sensitive
to a pH less than 6.

**CULTIVATION** Sow 3-4 seeds in a hill
and put a stick 2-3m tall in the middle.
Hills should be about 1m apart. Seeds
should be 2-4cm deep.

**PRODUCTION** Harvesting can begin after
about 100 days. Dried beans can be
stored for several months. Yields of
0.12kg of seeds per square metre have
been obtained.

**USE** The leaves, young pods and seeds
are all eaten.
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.

**FOOD VALUE** / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds</td>
<td>12.6%</td>
<td>60cal</td>
<td>21g</td>
<td>90mg</td>
<td>6mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pods</td>
<td>66.5%</td>
<td>23cal</td>
<td>2.5-7.5g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaves</td>
<td></td>
<td>3-7.5g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS** Bean pod borer *Maruca testulalis* (Geyer)
Probably also other bean insects.

**DISEASES** Rust due to a fungus - *Phakopsora vignae* (Bres.) Arth.
Probably other bean diseases as well.

**PESTS** Root knot nematode - *Meloidogyne incognita var. acrita* Chitwood.

**IMPORTANCE** A quite important and common bean in many highland areas.
NAMES
English: Common bean  Scientific name: Phaseolus vulgaris L.
Plant family: Fabaceae.

DESCRIPTION Both short and climbing cultivars of this bean occur. Flowers are white to purple and pods smooth. Pods often have 10-12 seeds which are kidney shaped and coloured.

DISTRIBUTION It mostly grows from 700m to 2000m altitude. In the lowlands it suffers from pest and disease but it can be grown to sea level.

CULTIVATION Plants are grown from seed. Seed should preferably be planted on raised beds. Climbing types need stakes.

PRODUCTION Dwarf kinds take 6-8 weeks to mature and climbing types take 10-12 weeks.

USE The young pods, leaves and mature seeds are edible.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>pods</td>
<td>91.5%</td>
<td>28cal</td>
<td>1.9g</td>
<td>75mg</td>
<td>1.2mg</td>
<td>323 g</td>
<td>18mg</td>
</tr>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Bean fly boring stems - Ophiomyia phaseoli Tryon
Pod sucking bug - Riptortus annulicornis Boisd.
Pumpkin beetles - Aulacophora spp.
Green vegetable bug - Nezara viridula (L)
Ladybird - Rhosepilachna signatipennis Boisd.
Cassena intermedia Jacoby
and other insects.

DISEASES Anthracnose-fungus - Colletotrichum lindemuthianum (Sacc. & Mag.)
Angular leaf spot - fungus - Isaniopsis griseola Sacc.
Collar rot - fungus - Pellicularia filamentosa (Pat.) Rogers.
White mould - fungus - Ramularia deusta (Fuckel) Karakul.
Rust - fungus - Uromyces appendiculatus (Pers.) Unger.
Collar rot - fungus - Sclerotium rolfsii Sacc.
Mosaic due to a virus.

PESTS Root knot nematode - Meloidogyne arenaria (Neal) Chitwood and Meloidogyne incognita var. acrita Chitwood

IMPORTANCE Of considerable importance at high altitude locations.
NAMES

English: Pea

Scientific name: Pisum sativum L.

Plant family: Fabaceae.

DESCRIPTION A creeping plant with white flowers. Leaves are made up of 1-3 pairs of leaflets and a branched tendril at the end. The pods are swollen and green and can have up to 10 seeds inside.

DISTRIBUTION Plants grow best at altitudes over 1000m. They suit a humid climate. They are frost tolerant except at flowering.

CULTIVATION Plants are grown from seed. Seed can be collected for resowing. A spacing about 5cm apart in rows 25cm apart is suitable. If rotting is a problem, plants can be supported off the ground. Plants need inoculation with bacteria for good production.

PRODUCTION

USE Mostly the young seeds are eaten. Sometimes the young pods and leaves are eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitamin A</th>
<th>provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peas</td>
<td>75.6%</td>
<td>94cal</td>
<td>6.2g</td>
<td>32mg</td>
<td>1.2mg</td>
<td>405 g</td>
<td>27mg</td>
</tr>
</tbody>
</table>

INSECTS Corn earworm Heliothis armigera (Hubner) and others.

DISEASES Leaf spot due to a fungus Mycosphaerella pinodes (Berk & Blex) Mosaic due to a virus. Vest.

PESTS

IMPORTANCE Gaining importance in some highland areas.
ENGLISH: Jack bean  

**Scientific name:** Canavalia ensiformis D.C.  
**Plant family:** Fabaceae

**DESCRIPTION**  
A perennial climber although short kinds do occur. Pods are long and sword shaped. Pods can be 25 cm long. Flowers are red/purple. Seeds are white with a light brown hilum half as long as the seed.

**DISTRIBUTION**  
It requires a fairly high temperature (15-30°C). It will possibly grow up to 900 m altitude. It is fairly drought resistant and also has some resistance to waterlogging and salt in the soil. It can tolerate shade.

**CULTIVATION**  
It is grown from seeds. They preferably need a support to climb over.

**PRODUCTION**  
Green pods are produced in 3-4 months but ripe seeds need 6-9 months.

**USE**  
The leaves and topshoots are eaten.  
The young pods are eaten.  
The flowers can be eaten.  
The young and ripe seeds are eaten.

**CAUTION**  
Because of toxic substances in the skin of the seed, the cooking water should be changed during cooking. The outer skin should be removed.

**FOOD VALUE**  

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitamin A</th>
<th>provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pods young</td>
<td>79%</td>
<td>82 cal</td>
<td>6.9 g</td>
<td>60 mg</td>
<td>3 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeds young</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ripe</td>
<td>11.2%</td>
<td>348 cal</td>
<td>21 g</td>
<td>134 mg</td>
<td>8.6 mg</td>
<td></td>
<td>2 mg</td>
</tr>
<tr>
<td>Leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-7 g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DISEASES**

**PESTS**

**IMPORTANCE**  
Being accepted and grown in some coastal and mid-altitude areas.
NAMES
English: Sword bean
Scientific name: *Canavalia gladiata* (Jacq) D.C.
Plant family: Fabaceae

DESCRIPTION A climbing or sometimes bushy and upright bean plant. The leaves have 3 large leaflets. The flowers are in groups and white. The pods are long (20cm) and curved. Seeds are coloured red or pink. The hilum is dark brown and almost as long as the seed.

DISTRIBUTION It requires a tropical climate. It grows from sea level to about 1000m altitude. They are drought and salt resistant. They can tolerate some shade.

CULTIVATION They are grown from seeds. Seeds can be sown 5 cm deep. Plants should be 60-70 cm apart. Climbing types need support.

PRODUCTION

USE Young pods are cooked and eaten. Seeds can be cooked and eaten but the water should be changed.

CAUTION The seeds can be poisonous due to hydrocyanic acid and saponin.

FOOD VALUE /100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>pods</td>
<td>89.2%</td>
<td>34cals</td>
<td>2.8g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>seeds-dry</td>
<td>15%</td>
<td>318cals</td>
<td>27.1g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-fresh</td>
<td>88.6%</td>
<td>23cals</td>
<td>2.7g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Only occasionally grown
English: Mung bean
Urd

Scientific name: *Vigna mungo* (L.) Hepper
(Syn. *Phaseolus mungo* L.)
Plant family: Fabaceae.

DESCRIPTION A small annual bean with hairy pods. Leaves have 3 leaflets.
Flowers are yellow. Seeds are small and black. There are 4 to 10 seeds per pod.

DISTRIBUTION Mainly coastal but probably will grow up to 1800 m altitude.
It suits dry areas. It is drought resistant. It cannot stand frost or long periods of cloud.

CULTIVATION It is grown from seed. Seed collection is easy.

PRODUCTION Pods are ready to harvest 2 to 4 months after planting. Pods shatter easily. It is easiest to pull the whole plant, dry them for a week then thresh out the seeds.

USE The ripe seeds are eaten.
The young pods and young leaves are also edible.
The beans are also used for bean sprouts.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>10.6%</td>
</tr>
<tr>
<td>energy</td>
<td>341cal</td>
</tr>
<tr>
<td>protein</td>
<td>22.9g</td>
</tr>
<tr>
<td>calcium</td>
<td>105mg</td>
</tr>
<tr>
<td>iron</td>
<td>7.1mg</td>
</tr>
<tr>
<td>provitA</td>
<td>55 g</td>
</tr>
<tr>
<td>provitC</td>
<td>4mg</td>
</tr>
<tr>
<td>seeds ripe</td>
<td></td>
</tr>
<tr>
<td>leaves</td>
<td></td>
</tr>
<tr>
<td>sprouts</td>
<td>2-6g</td>
</tr>
</tbody>
</table>

INSECTS Larvae of the blue butterfly *Lampides boeticus* L.
Pod sucking bug *Riptortus sukrochoticus* Blote
Grass bug *Hahticus tibialis* Reut.
*Cassena papuana* Jac.

DISEASES Leaf spot due to a fungus *Myrothecium roridum* Tode ex Fr.

PESTS Root knot nematodes *Meloidogyne incognita* var.*acrita* Chitwood

IMPORTANCE It is being encouraged and grown in a number of coastal areas.
**NAMES**

**English**: Green gram  
**Scientific name**: *Vigna radiata* (L) Wilczek  
(Syn. *Phaseolus aureus* Roxb.  
& *Vigna aureus* (Roxb.) Hepper  
& *Phaseolus radiatus* L.)  
**Plant family**: Fabaceae.

**DESCRIPTION** An upright hairy bean plant which can be 1m tall. It has many branches. Flowers are pale yellow. Pods are black and the 10-20 seeds are usually green.

**DISTRIBUTION** The plant will grow from sea level up to probably 2000m. It is drought resistant but can't stand waterlogging. Plants are damaged by frost.

**CULTIVATION** Plants are grown from seed. Often 2-3 seeds are sown in holes 50-60cm apart.

**PRODUCTION** Green pods are ready after about 2 months, and ripe pods may take another 1-2 months.

**USE** Seeds are eaten ripe.  
Young pods can be eaten.  
Young leaves can be eaten.  
The seeds can be germinated for sprouts.

**FOOD VALUE** / 100 g edible portion  
moisture energy protein calcium iron provitA provitC

Seeds
Young pods
Leaves
Sprouts

**INSECTS** Probably similar to other beans

**DISEASES** Probably similar to other beans.

**PESTS**

**IMPORTANCE** Not widely grown.
**NAMES**

English: Rice bean  
Scientific name: *Vigna umbellata* (Thunb.) Ohwi & Ohashi  
(Syn. *Phaseolus calcaratus* Roxb.)

**DESCRIPTION** A climbing bean plant.  
Stems are hairy. Leaves have 3 leaflets which can vary in shape. Seeds are small (5-8 mm long) and yellow to brown in straight pods about 10 cm long and 5 mm wide.

**DISTRIBUTION** It grows from 0-1800 m altitude. It suits wet climates.

**CULTIVATION** It is grown by seeds. Seed collection is easy. Seeds often have a hard skin which must be broken (e.g. by scraping) before seeds will germinate easily.

**PRODUCTION**

**USE** The young pods and ripe seeds are eaten.  
The young leaves can be eaten.  
The seeds are used in bean sprouts.  
(Seeds should be cooked or crushed if fed to pigs.)

**FOOD VALUE**  
/ 100 g edible portion  
moisture  energy  protein  calcium  iron  provitA  provitC  
seeds  14%  335 cal  18.5 g  80 mg  5 mg  0  9 mg  
leaves  86.4%  

**INSECTS**  
Bean pod borer *Maruca testulalis* Geyer  
Ladybird *Epilachna signatipennis* Boisd.  
Green vegetable bug *Nezara viridula* L.

**DISEASES**  
Blossom blight due to a fungus *Choanephora cucumbitana* (Berk. & Rav.) Thaxter  
False rust due to fungus *Synchytrium phaseoli* Weston  
Mosaic probably due to a virus

**PESTS**  
Root knot nematode *Meloidogyne javanica* Chitwood  
*Meloidogyne arenaria* Chitwood

**IMPORTANCE** Seen occasionally in several areas but only of minor importance as a food.
Names

English: Scarlet runner bean
Scientific name: *Phaseolus coccineus* L.
(Syn. *Phaseolus multiflorus* Willd.)
Plant family: Fabaceae.

Description
This climbing bean has bright red flowers. The stems are often hairy. The pods are long (30 cm.) and with a wavy edge. The seeds are large and can be several different colours. It sometimes has a root tuber.

Distribution
It is grown in the highlands. On the coast, seedlings die and pods are not formed. It is damaged by frost.

Cultivation
It is grown from seeds. It needs sticks to climb up. It can be allowed to regrow from the tubers or the tubers replanted.

Production

Use
The very young pods can be eaten. The seeds are edible. The tubers can be eaten after they are cooked and the cooking water thrown away.

Food Value

<table>
<thead>
<tr>
<th></th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>energy</td>
</tr>
<tr>
<td>pods</td>
<td>58.3% 7.4g 50mg 2.6mg</td>
</tr>
<tr>
<td>seeds-fresh</td>
<td>34.2% 2.6g 60.6mg 4.1mg</td>
</tr>
<tr>
<td>tuber</td>
<td>4.2g</td>
</tr>
</tbody>
</table>

Insects

Diseases

Pests

Importance
Only occasionally grown.
NAMES
English: Velvet bean
Scientific name: *Mucuna pruriens* (L) D.C. var. *utilis* (Wall. ex Wight) Baker ex Burck.
(Syn. *M. utilis* Wall.)
Plant family:

DESCRIPTION A climbing bean with vines 2-3m long. Leaves are without hairs and leaflets are about 10cm x 8cm. Flowers are purplish. Pods are 9-14cm. long, hard, curved and covered with soft hairs. There are 4-6 white seeds inside.

DISTRIBUTION A bean of low altitudes. The wild species is used as a cover crop in coconut plantations.

CULTIVATION Plants are grown from seed.

PRODUCTION

USE The young leaves, young pods and ripe seeds are edible cooked.

CAUTION Wild *M. pruriens* is both poisonous and has itchy hairs.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td></td>
</tr>
<tr>
<td>energy</td>
<td></td>
</tr>
<tr>
<td>protein</td>
<td></td>
</tr>
<tr>
<td>calcium</td>
<td></td>
</tr>
<tr>
<td>iron</td>
<td></td>
</tr>
<tr>
<td>provitA</td>
<td></td>
</tr>
<tr>
<td>provitC</td>
<td></td>
</tr>
</tbody>
</table>

young leaves
young pods
ripe seeds

INSECTS

DISEASES

PESTS

IMPORTANCE Plants are grown and used occasionally in some coastal areas.
50

NAMES
Tok ples: Ularat
(Mendi)

Scientific name: Mucuna albertisii F.v Muell
Plant family:

DESCRIPTION A climbing legume with a brown rusty appearance and short hairs on the stem and leaves. Normally there are a clump of white or yellow flowers together. The pod has wings along the edge and sides. The seeds can be black or grey. The leaflets are about 12cm across.

DISTRIBUTION It grows in rainforest and bush from near sea level to over 2000m altitude.

CULTIVATION It grows wild.

PRODUCTION

USE The seeds are cooked and eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provita provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor wild edible plant. Eaten at least in the Mendi area.
English: Broad bean  
Scientific name: *Vicia faba* L.  
Plant family: Fabaceae

**DESCRIPTION**  An upright plant up to 1m tall. It has square stems and white flowers with black spots. Pods are large and contain several large beans inside.

**DISTRIBUTION**  It is only suitable for the highlands, over about 1200m. It mainly occurs between 1900 and 2700m altitude. It is frost tolerant.

**CULTIVATION**  Seeds are sown at 15 to 40 cm spacing. If the seed pod formation is poor, it can be improved by pinching out the tops of the plants when in flower. Hand pollination also helps.

**PRODUCTION**  Time to maturity is 12-16 weeks.

**USE**  It is mostly the young beans that are eaten.  
The ripe beans and leaves are also edible.

**FOOD VALUE**  

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>young seeds</td>
<td>75.6%</td>
<td>92cal</td>
<td>8.2g</td>
<td>26mg</td>
<td>1.8mg</td>
<td>135g</td>
<td>26mg</td>
</tr>
<tr>
<td>ripe beans</td>
<td>13.8%</td>
<td>328cal</td>
<td>25g</td>
<td>104mg</td>
<td>4.2mg</td>
<td>65g</td>
<td>0</td>
</tr>
<tr>
<td>leaves</td>
<td>5.6g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE**  Moderately common in some highland areas but does not produce well.
52

NAMES
English: Guar bean or Cluster bean.  Scientific name: *Cyamopsis tetragonolobus*(L) Taub.
Plant family: Fabaceae

DESCRIPTION An upright bushy plant often only 1m high. It produces clusters of thick, fleshy pods. The leaf stalks have grooves.

DISTRIBUTION It is a hardy drought resistant plant. It suits drier areas.

CULTIVATION They are grown from seed.

PRODUCTION Plants mature in 3 to 3½ months.

USE The green immature pods are eaten.

FOOD VALUE /100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>pods</td>
<td>82.5%</td>
<td>3.7g</td>
<td>330I.U.</td>
<td>49mg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE This bean has only been tried in small trial plots.
Names

English: Chickpea  Scientific name: *Cicer arietinum* L.
Plant family: Fabaceae

Description
An annual legume with many branches and pink flowers. Plants are 40-50cm high and all parts are hairy. It has leaves made up of 9-15 leaflets along a stalk. The flowers are produced singly. Pods are 2-3cm long and have 1 or 2 seeds. The seeds are angular and up to 1cm across. The seed colour can vary.

Distribution
It suits high altitudes because it needs cold nights with dew. It is well suited to semi arid regions.

Cultivation
It is grown from seed.

Production

Use
Mainly the ripe seeds are eaten. The young leaves, shoots, and pods are sometimes eaten.

Food Value

<table>
<thead>
<tr>
<th></th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td>seeds</td>
<td>11%</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
</tr>
</tbody>
</table>

Insects

Diseases

Pests

Importance
Very rarely grown.
GREENS
Leafy green vegetables.

Amaranth 55
Aibika 56
"Tu-lip" 57
Water dropwort 58
Rungia 59
Blackberried nightshade 60
Kumu musong 61
Highlands kapiak 62
Fig 63
Dye fig 64
Kangkong 65
Chili 66
Tree ferns 67
Watercress 68
Nasturtium schlechteri 69
Dicliptera papauna 70
Kalava 71
Waterleaf 72
Climbing swamp fern 73
Valanguard 74
Adenanthera pavonina 75
Ceylon spinach 76
Kumugras 77
Celosia 78
Asian pennywort 79
Wandering Jew 80
Desmodium microphyllum 81
Diplazium asperum 82
Diplazium cordifolium 83
Diplazium esculentum 84
Kongakonga 85
Indian coral tree 86
Hibiscus 87
Nettles 88
Nephrolepis biserrata 89
Pipturus argenteus 90
Purslane 91
Yellow marsh grass 92
Comfrey 93
New Zealand Spinach 94

Many other trees, vegetables and root crops in other sections also have edible leaves.
NAMES

English: Amaranths
Scientific names: Amaranthus caudatus L.
Amaranthus cruentus L.
Amaranthus dubius Thell.
Amaranthus tricolor L.
Amaranthus lividus L.
Amaranthus viridis L.

DESCRIPTION A small annual leafy green. Some types have coloured leaves or patterns on the leaves. It has a clumpy seed head at the top. Six different species are used as food in P.N.G. and there are several varieties of some of them.

DISTRIBUTION They grow from sea level to 2400m altitude. The different species may suit different altitudes.

CULTIVATION The very small seeds of these plants are scattered over the ashes or fine soil in fertile ground. The seed are normally spread by rubbing the dry seed heads between the hands. Some types are self sown. These plants grow in most tropical countries.

PRODUCTION Plants can be harvested when small by thinning out and 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 2 months.

USE The young leaves or whole plants are eaten cooked.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>85%</td>
<td>48cal</td>
<td>5g</td>
<td>250mg</td>
<td>4mg</td>
<td>1800g</td>
<td>100ng</td>
</tr>
</tbody>
</table>

INSECTS Beetle webworm Hymenia recurvalis (Fab.)
Cluster caterpillar Spodoptera litura (Fab.)

DISEASES Damping off of seedlings -fungus Rhizoctonia solani Kuhn-
Wet rot of leaves due to fungus Choanephora cucurbitarum (Berk. & Rav.)Thaxt.

PESTS

IMPORTANCE Some species occur in most parts of the country and it is one of the commonest cultivated greens.
English: Tok pisin: Aibika
Scientific name: Hibiscus manihot L. (Syn. Abelmoschus manihot (L.)Medik)

DESCRIPTION A branched shrub up to 2m or more high. Plants can last for a year or for several years. Leaf shapes and colours vary. Old plants produce a hibiscus type flower.

DISTRIBUTION It is well suited to the lowlands but grows only poorly at 1800 metres. It needs fertile soil. The plant occurs in countries from India, China, Japan, Malaysia and Indonesia to the Pacific Islands.

CULTIVATION It is grown from cuttings. Cuttings with 2-3 nodes are sufficient. It can be grown from seeds.

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

USE Young leaves are cooked and eaten. They are slimy unless steamed or fried.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>47-103cal</td>
<td>12.6-57.7g</td>
<td>580mg</td>
<td>3mg</td>
<td>90g</td>
<td>118mg</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Aibika shoot boring grub Earias vitella
Cluster caterpillar Spodoptera litua (F)
Cotton leaf roller Sylepta decogata F
Cotton looper Anomis flav a Fab.
and others e.g. Cassena sp., Parascisettia nigra ; Aphis gossypii ;
Valanga sp., Phaneroptera kaevis ; Colgar tricolor ; Nisotra sp.
Eunicania disciuta ; Onilus cruciatus.

DISEASES Leaf spot due to fungus Myrothecium roridum Tode ex Fr
Powdery mildew due to a fungus Oidium sp.
Green mottle probably due to a virus.

PESTS Giant African snail Achatina fulica

IMPORTANCE The most important edible leafy green in coastal areas.
NAMES
English: Tulip
Tok pisin: Gnetum gnemon L.
Scientific name: Gnetum gnemon L.
Plant family: Gnetaceae

DESCRIPTION A shrub or small tree about 10m high. The leaves are produced in pairs opposite each other. They are dark green and shiny. Trees are either male or female. Flowers are produced as cones made up of rings of scales along stalks 3-6cm long. Fruits are oval and green when young but red when ripe. Fruits are 2-3cm long and contain one seed.

DISTRIBUTION Trees occur in tropical rainforest from sea level to about 1200 metres altitude.
These trees grow in Malaysia, Indonesia and islands out to Fiji.

CULTIVATION Trees are grown from seed. Because of the hard coat of the seed, filing a hole in the seed helps it grow more quickly. Trees can be grown from cuttings. A spacing of 6m is suitable although in rows they are often put more closely. Trees can stand some shade. Trees can be topped to keep them shorter.

PRODUCTION Trees grow by flushes of young reddish leaves. Flowers are produced throughout the year.

USE Young leaf tips are eaten cooked.
Young flowers are eaten cooked.
Young fruits are eaten, cooked.
Ripe fruits are eaten raw, or cooked.
(Fruits should be crushed before cooking, or they can explode.)
Young flowers and fruits need cooking to get rid of irritating substances.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
</tr>
<tr>
<td>flowers</td>
<td></td>
</tr>
<tr>
<td>fruits</td>
<td>80%</td>
</tr>
<tr>
<td>seeds-dry</td>
<td>75.4%</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A particularly well liked green occurring in almost all lowland areas either cultivated or wild.
NAMES

English: Water dropwort  Scientific name: Oenanthe javanica D.C.
(Syn. O. stolonifera Wall.)
Plant family: Apiaceae.

DESCRIPTION A hollow stemmed plant in the carrot family. Leaves are finely divided. The leaf sheaths clasp the stem. It mostly grows near water and will float on water. It has white flowers. Several kinds occur with different colours and leaf sizes.

DISTRIBUTION It mostly occurs between 700 and 2800m altitude. But it also grows down to the coast where it is becoming more popular. It also grows in China, Indonesia and other Asian countries.

CULTIVATION Often the plant is found growing wild near creeks and is just harvested. It is also grown in gardens from cuttings or by dividing the root stock. It establishes quickly in moist soil.

PRODUCTION

USE The plant is often eaten raw or cooked.

CAUTION Although not known to contain the very poisonous oenanthotoxin it contains a hallucinatory drug myristicin.

FOOD VALUE / 100 g edible portion

leaves 90.6% 28cal 1.8g 113mg 3mg 2190 g 14mg

INSECTS

DISEASES

PESTS

IMPORTANCE A common green in most highland areas.
NAMES

English: Rungia
Scientific name: Rungia klossii S.Moore
Plant family: Acanthaceae

DESCRIPTION A small clumpy much branched leafy vegetable. Dark green and yellow and green marked leaf colours occur. It grows to about 40cm high. It produces a pale blue flower.

DISTRIBUTION It mostly grows from 1000 to 2000 metres altitude but will grow down to sea level. It is only know from Papua New Guinea and Irian Jaya.

CULTIVATION The plant is grown from cuttings. Often these are about 25cm long and a clump are sown together. Regular picking keeps branches short and productive of leaves.

PRODUCTION It grows reasonably slowly. The shoots tips and upper leaves are harvested starting about 2-4 months after planting and continuing at 1-2 monthly intervals for 2 years or more. Yields can be 2kg / plant / year. The harvested tips weigh about 0.8g each.

USE The leaves are eaten raw or cooked.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>moisture</td>
</tr>
<tr>
<td></td>
<td>87.9%</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE One of the main and most popular greens in the highlands.
NAMES

English: Blackberried nightshade.  
Scientific name: Solanum nigrum L.  
(Syn. S. nodiflorum Jacq.)  
Tok pisin: Karakap.  
Plant family: Solanaceae

DESCRIPTION An upright highly branched plant up to 80cm tall. Stems are green and somewhat 3 angled. Leaves are pointed at both ends. The flowers are white and fruits small black berries about 5mm across.

DISTRIBUTION It grows from sea level up to high altitudes such as 2700m. It often comes up self sown after fires. It is grown in most tropical countries as a green leafy vegetable.

CULTIVATION Normally in the highlands this plant is not sown but merely comes up when new gardens are cleared. It is then looked after. In other areas it is sown by seed. A spacing of 40 x 40cm is suitable. Topping 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 5cm of each branch. High yields can be obtained. 5-8 harvests over 6-8 weeks are possible.

USE The leaves are eaten cooked. The berries are also eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>1.7-1.9g</td>
<td>274mg</td>
<td>4mg</td>
<td>0.3-0.5g</td>
<td>17mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fruit</td>
<td>1.5-5.9g</td>
<td>204-420mg</td>
<td>4mg</td>
<td>0.6-3.6g</td>
<td>11-40mg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Aphids

DISEASES Bacterial wilt

PESTS Root knot nematode.

IMPORTANCE A commonly used green in most areas of the country. It mostly grows wild in the highlands and is cultivated on the coast.
ENGLISH: English: Scientific name: *Ficus copiosa* Steud. 
Tok pisin: Kumu musong 
(It is similar to *Ficus wassa* Roxb.) 
Plant family: Moraceae

DESCRIPTION A tree up to 10 m high. 
Young stems and 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. Fruit 
are 1-2 cm across and often on old twigs 
in small clusters. 
*F. wassa* is a smaller tree with less 
variable and smaller leaves.

DISTRIBUTION Trees grow from sea level 
up to about 1800 m above sea level. 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. In some areas trees are 
grown as a hedge and pruned to increase 
branching. Plants occur both wild and 
cultivated.

PRODUCTION Young tips of 3-5 g are 
picked.

USE The young leaves are eaten cooked. 
The fruit are eaten raw.

FOOD VALUE / 100 g edible portion
leaves
moisture energy protein calcium iron provitA provitC
fruit

INSECTS Cacao mirid sucks sap - *Helopeltis clavifer* (Walker)

DISEASES Sooty mould fungus on leaves - *Capnodium thuemenii* Sacc. 
Rust due to a fungus - *Ceratelium ficis* (Cast.)Arth. 
Tar spot due to a fungus - *Phyllachora kaenbachii* P.Henn.

PESTS

IMPORTANCE Probably the most widely used fig leaf in P.N.G. It is 
fairly common throughout the country and important in some areas.
**NAME**

**English:** Highlands kapiak.  

**Tok pisin:** Highlands kapiak.  

**Scientific name:** Ficus dammanopsis Diels  

**Syn:** Dammanopsis kingiana Warb.  

**Plant family:** Moraceae

---

**DESCRIPTION** A fig tree of which the large young leaves are eaten. The branches are strong and flexible and contain a milky juice. Seedling trees vary considerably in size of leaves and colour of young leaves and veins. The fruit is large (15cm across) and made up of large overlapping scale leaves.

**DISTRIBUTION** Trees occur from 900m to 2700m but is most common between 1600 and 1750m altitude.

---

**CULTIVATION** Trees grow from seeds and are transplanted. Cuttings of branches do not normally establish.

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**PRODUCTION**

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**USE** The young leaves are eaten with meat.  

The outside layer of the fruit is edible.

---

**FOOD VALUE**

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fruit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**INSECTS** Fruit flies are common in the ripe fruit.  

A weevil damages plants - Rhinoscapha cobaltinata Hell.  

Longhorn beetles collect sap of damaged trees - Rosenbera weiskei Hell.

---

**DISEASES** Sooty mould fungus - Chaeothyrium boedignii Hansf.

---

**PESTS**

---

**IMPORTANCE** Leaves are fairly widely used at pig kills and for mumus in the highlands. Fruit are less widely eaten.
A fig with no common English or Tok pisin name. Scientific name: *Ficus pungens* Reinw. ex Bl. Plant family: Moraceae.

**DESCRIPTION** A tall tree with large leaves 25cm x 30 cm. Young leaves are light green. Stalks have very sharp thorns. The fruits are small (0.5cm) and in clusters along long stalks hanging from the trunk.

**DISTRIBUTION** Normally near streams and drains. Trees grow from sea level up to about 1600m.

**CULTIVATION** Trees are mostly self sown.

**PRODUCTION**

**USE** The young leaves are cooked and eaten with meat.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** The leaves are moderately commonly eaten with meat in areas where the tree occurs.
NAMES
English: Dye fig
Scientific name: Ficus tinctoria Forst.
Plant family: Moraceae

DESCRIPTION A small tree or shrub 2-4m high. The leaves of the tree are yellowish with purple veins and short leaf stalks. The leaves are 4-13cm long and 2-6cm wide. The small branchlets are yellow or pale brown. The figs are in the leaf axils, they are up to 2cm across and orange coloured.

DISTRIBUTION Trees are common on limestone or coral rocks near the sea shore.

CULTIVATION It normally grows wild.

PRODUCTION

USE The young tips are picked and eaten.
    The fruit has been recorded as eaten.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>leaves</th>
<th>fruit</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>protein</td>
<td></td>
<td></td>
</tr>
<tr>
<td>calcium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iron</td>
<td></td>
<td></td>
</tr>
<tr>
<td>provitA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>provitC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Mostly reported as a wild occasional food on the Gazelle Peninsula and New Ireland.
English: Kangkong  Scientific name: Ipomoea aquatica Forskal
(Tok pisin: Kangkong Syn. I. reptans Poir and I. repens Roth.)
Plant family: Convolvulaceae.

DESCRIPTION  A hollow stemmed creeping
sweet potato like plant. It creeps over
mud or floats on water. It roots at the
nodes. The leaves have long petioles.
Leaf shape can vary. Flowers and purple
and white; or pink in some kinds.

DISTRIBUTION  It commonly grows from sea
level up to 670m but will probably grow
up to 1200m altitude. It grows in moist
and swampy places. It can grow in
brackish water.

CULTIVATION  It is normally grown in
P.N.G. from stem cuttings. It can be
grown from seed. Top cuttings 25-40 cm
long can be planted beside a pond.

PRODUCTION  First shoots can be plucked
3 months after planting. Yields up to
60 000 kg/ha have been recorded in other
countries.

USE  The young tips are cooked and eaten.

FOOD VALUE  / 100 g edible portion
moisture energy protein calcium iron provitA provitC
89%  30cals 2.7-4 g 50-110mg 4mg 3000 g 37-60mg

INSECTS

DISEASES  Leaf spot

PESTS

IMPORTANCE  Common in most swampy coastal areas.
NAMES
English: Chili  
Tok pisin: Sili  
Scientific name: Capsicum frutescens L.  
Plant family: Solanaceae

DESCRIPTION It is a shrubby plant that lasts for several years. It is about 1m tall and has small pointed fruit about 1-2cm long and they are red when ripe. They have a very hot taste when eaten or touched on the lips.

DISTRIBUTION The plants grow from sea level up to about 1800m altitude. They can't stand waterlogging or frost.

CULTIVATION The seeds are dried in the sun. They are small. 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 0.8m spacing. Pruning out the tops can increase branching.

PRODUCTION

USE The leaves are eaten. The fruit can be used in very small quantities to spice food.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>82%</td>
<td>53cal</td>
<td>5.8g</td>
<td>246mg</td>
<td>1.4mg</td>
<td>68mg</td>
<td></td>
</tr>
<tr>
<td>fruit</td>
<td>91%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS
Aphids Myzus persicae  
Cutworms Agrotis spp.  
Banana fruit fly Dacus musae  
Idiopsodes coerules Faust.  
Solenopsis geminata v. rufa Jend.

DISEASES Fruit rot due to fungus Glomerella cingulata (Stonm.)Sp. & Sch.  
Leaf distortion due to virus.

PESTS

IMPORTANCE It is used in small amounts in many areas of the country where it can be grown.
NAMES
English: Tree ferns.
Scientific name: *Cyathea angiensis* (Gepp) Dom also *Cyathea contaminans* (Wall ex Hook.) Copel also *Cyathea rubiginosa* (Brause) Domin. (Syn. *Alsophila* spp.)

DESCRIPTION Tree ferns which can have trunks 2-3m tall. The fronds are over a metre long and have scales on all surfaces.

DISTRIBUTION They require abundant moisture and do best in part shade. They grow in open forest, often near streams. 
*C.angiensis* 600-2200m 
*C.contaminans* 200-1600m 
*C.rubiginosa* 1100-2840m They are frost tender.

CULTIVATION These ferns mostly grow naturally. They are preserved when bush is being cleared for gardens. They can easily be raised from spores on the back of fronds. They can be transplanted if some roots are included and the fronds are trimmed.

PRODUCTION

USE The young fronds are cooked and eaten with meat.

NOTE Leaves of *Cyathea* ferns are known to contain chemicals called flavonoid glycosides.

FOOD VALUE / 100 g edible portion moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A very common and important green leafy vegetable especially at pig feasts.
ENGLISH: Watercress
Tok pisin: Wara kebis

SCIENTIFIC NAME: Nasturtium officinale R.Br.
(Syn. Rotippa nasturtium aquaticum Hayek)

DESCRIPTION: A small leafy plant that grows in water and lasts for several years. It has hollow stems and roots freely from the nodes. It branches freely. It has white flowers which grow in a cluster. Pod like fruits about 2cm long can develop. It grows attached to the banks of streams.

DISTRIBUTION: It is common in highland creeks especially those flowing off limestone hills. It needs to be in running water. It occurs up to at least 2900m altitude.

CULTIVATION: It is grown from cuttings planted along the edges of clear running water.

PRODUCTION: Regular picking encourages branching and increases production.

USE: The leaves and stems are eaten raw or cooked.

FOOD VALUE: / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaves</td>
<td>93.8%</td>
<td>18cal</td>
<td>1.7g</td>
<td>114mg</td>
<td>1.9mg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES: Leaf spot

PESTS

IMPORTANCE: It is becoming accepted as an important and popular green in the highlands.
English: M*asturtium schlechteri
Tok pisin: (May be renamed Rorippa )
Scientific name: O.E.Schultz
Plant family: Brassicaceae

DESCRIPTION A cabbage family plant with yellow flowers and short seed pods. The leaves are divided and it has a tap root.

DISTRIBUTION It is common in highland areas from 1000 to 2200m altitude but it also grows down to the coast.

CULTIVATION The seeds are normally broadcast over the garden.

PRODUCTION Plants are harvested after 4-6 weeks.

USE The leaves and whole plant are cooked and eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

IMSECTS Cabbage cluster caterpillar Crocidolomia binotalis Zeller

DISEASES

PESTS

IMPORTANCE A common and widely cultivated green.
NAME

English: Scientific name: Dicliptera papuana Warb.
(It may be renamed Hemigraphis sp.)

DESCRIPTION A herb up to 1m high. It is somewhat similar to Rungia klossii but taller and with longer leaves. It is less popular than Rungia. Flowers are blue. The stems have grooves along them.

DISTRIBUTION It grows wild in the highlands, especially along creeks. It is also cultivated. It grows between at least 700m to 2600m altitude.

CULTIVATION It can be grown from cuttings.

PRODUCTION

USE The leaf tips are eaten cooked.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A less popular green cultivated in some areas, harvested from the wild in others and not used in other areas.
**NAME**

English: Kalava in Tok ples: Kalava in
Tok kuanua

**Scientific name:** *Ormocarpum orientale* (Spreng.) Merr.
(Syn. *O. sennooides* D.C.) Plant family: Leguminosae

**DESCRIPTION** A small tree up to 7.5m tall with light brown bark which strips off showing a greener bark underneath. Flowers are pale yellow. Pods have 2-8 joints. Flowers and pods are rare. It is a legume.

**DISTRIBUTION** It grows along the beach and in mud flats. It also comes up in old gardens. It mostly occurs naturally below about 30m altitude. It is planted in gardens up to 500m altitude.

**CULTIVATION** In gardening situations it is normally grown from cuttings.

**PRODUCTION**

**USE** The young leaf tips are used cooked as a vegetable.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** It is mostly grown and used in the Gulf Province and along the South Coast or by people from there. It is grown in the Gazelle.
NAMES
English: Waterleaf  Scientific name: Tolinum triangulare(Jacq.) Willd.
Plant family: Portulacaceae

DESCRIPTION  A small leafy branching herb up to 35cm high. It has pink flowers on a 3 sided stalk. Seeds are very small and black.

DISTRIBUTION  It occurs in coastal areas and up to about 1000m altitude.

CULTIVATION  It can be grown from seeds or stem cuttings. Cuttings about 15cm long of the more mature woody stems are used. It grows better in fertile soil, but will grow in fairly low fertility soils. It needs plenty of moisture.

PRODUCTION  The leaves and tender stems can keep being produced for up to a year. They start producing after 4-6 weeks.

USE  The leaves and tender stems are eaten raw or cooked. They are slightly sour.

FOOD VALUE  / 100 g edible portion
moisture  92.4%  energy  23cal  protein  1.8g  calcium  90mg  iron  4.8mg  provitaminA  3  provitaminC  60mg

INSECTS

DISEASES

PESTS

IMPORTANCE  At present not widely distributed but being accepted and liked in areas where it occurs.
**Names**

English: Climbing swamp fern  
Scientific name: *Stenochlaena palustris*  
(Syn. *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. The fronds have several leaflets and are often red in colour. Fertile fronds when they occur are at the top and are thin.

**Distribution**
It likes warm, water-logged partly cleared forest sites. It is frost sensitive.

**Cultivation**
It is easily grown.

**Production**

**Use**
The young shiny leaflets are eaten cooked.

**Food Value**

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td></td>
</tr>
<tr>
<td>provitA</td>
<td></td>
</tr>
<tr>
<td>provitC</td>
<td></td>
</tr>
</tbody>
</table>

**Insects**

**Diseases**

**Pests**

**Importance**
A common fern in lowland areas and eaten in several different places in P.N.G.. Also eaten in other countries.
**NAMES**

**Scientific name:** Polyscias spp  
*English:* Valanguar (Gazelle)  
*Tol ples:* Valanguar (Gazelle)  
*(Syn. Nothopanax spp etc.) Species are probably:* P. cumingiana (Presl.) F. Vill.  
**DESCRIPTION** A shrub grown as a hedge and of which the young leaves are eaten. The leaf sheaths form a flat section clasping the leaf stalk. Leaf shapes, colours and size vary between species and varieties.

**DISTRIBUTION** It occurs in coastal areas and probably up to 1000m altitude. It is mostly planted around houses.

**CULTIVATION** Plants are grown by cuttings. They are often used as an ornamental hedge.

**PRODUCTION**

**USE** The young leaves are cooked and eaten.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>Nutrition</th>
<th>Grams</th>
<th>Edible Portion</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Iron</th>
<th>ProvitA</th>
<th>ProvitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>82%</td>
<td>100 g</td>
<td>54 cal</td>
<td>3.7g</td>
<td>475mg</td>
<td>4mg</td>
<td>33mg</td>
<td>85mg</td>
</tr>
</tbody>
</table>

**INSECTS** Cacao mirid *Helopeltis clavifera* (Walker)

**DISEASES**

**PESTS**

**IMPORTANCE** It is moderately common as an ornamental in coastal areas, but not always eaten.
NAMES
(No common name)

Scientific name: *Adenanthera pavonina* L.
Plant family: Leguminosae

DESCRIPTION A tree up to 20m high that grows in many areas in the lowland rainforest. The fruit is a long (20cm) dark brown pod with red seeds. The pod twists up as it opens. It is a legume.

DISTRIBUTION It grows in the lowlands and up to 600m. It is often planted as a shade and ornamental tree. It also grows wild in the rainforest.

CULTIVATION It is grown from seeds. The seeds should be soaked before sowing.

PRODUCTION It grows quickly.

USE The leaves are eaten as a vegetable. The seeds have been recorded as eaten in Indonesia.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor edible leafy vegetable.
NAMES

English: Ceylon spinach
Scientific name: Basella alba L.
(Syn. Basella rubra L.)
Plant family: Basellaceae

DESCRIPTION
An annual or perennial climbing herb with thick fleshy leaves.
It has pink flowers in short spikes.
The seeds are round and black.

DISTRIBUTION
It occurs mostly in the tropical lowlands but will grow up to about 1600m altitude.

CULTIVATION
It can be sown from seeds or cuttings. Normally sticks are provided for support. If seeds are used, 3kg of seed will sow one hectare and they are best sown in a nursery and transplanted.

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.

USE
The young shoots and leaves are eaten cooked. They are somewhat slimy.

FOOD VALUE

<table>
<thead>
<tr>
<th>Per 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitamin A</th>
<th>provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td>93.4%</td>
<td>199 cal</td>
<td>1.6g</td>
<td>105mg</td>
<td>1.6mg</td>
<td>3.5g</td>
<td>85mg</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS
It is susceptible to root knot nematode damage.

IMPORTANCE
It has been encouraged and accepted in some coastal areas.
NAMES
English: Kumugras
Tok pisin: Kumugras

Scientific name: Callipteris prolifera(Lam.) Bory

Plant family: Athyriaceae

DESCRIPTION  A fern with a tufted woody black rhizome covered with black scales. The fronds are erect and up to 2m long. They are fleshy and pale green. The spore groups are arranged in long V shaped pairs under the fronds. Small plantlets often grow along the fronds.

DISTRIBUTION  It likes hot humid places. It occurs in East and West New Britain and Manus.

CULTIVATION  It can be grown from the small plantlets on the fronds. It is best to grow it in soil, in gardens.

PRODUCTION

USE  The fronds are edible.

FOOD VALUE  / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE  A commonly used fern in New Britain and Manus.
NAMES

English: Celosia

Scientific name: Celosia argentea L.

Plant family: Amaranthaceae

DESCRIPTION An erect short lived annual herb up to 1m tall. The flower spike grows on the end of the main stem and is red or purple.

DISTRIBUTION It suits damp humid places and is often on clayey soil. The plant is widespread as a wild plant at low altitudes.

CULTIVATION The plant can be grown by seeds. The seeds are very small so can be mixed with sand to allow more even sowing. These plants are often grown just as ornamentals.

PRODUCTION Tops can be cut over a period of 3-5 months. It grows slowly at first therefore repeated picking of tips gives better production than harvesting whole small plants.

USE The leaves and young flowers are eaten.

CAUTION Leaves can contain calcium oxalate crystals.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>88%</td>
<td>38cal</td>
<td>2-4g</td>
<td>323mg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES Leaf spot due to a fungus Alternaria sp

PESTS. Plants are susceptible to root knot nematode damage.

IMPORTANCE Grown as an ornamental but not often used as a food.
Names

English: Asian pennywort  Scientific name: *Centella asiatica* (L.) Urban
(Syn. *Hydrocotyle asiatica* L.)
Plant family: Umbelliferae

Description A slender perennial weed with creeping stems which root at the nodes. Groups of leaves develop in clumps at the nodes. Leaves are round with a wavy edge. The stems and flowers are dull red.

Distribution It is a ground cover plant in old gardens in light rainforest. It grows best in sunny moist fertile places. It grows mostly up to about 500m altitude but will probably grow up to 2500m.

Cultivation New plants can be produced by seeds or by runners. Mostly plants grow and spread naturally.

Production

Use The whole plant is eaten raw or cooked.

The plant is also used for medicine.

Food Value

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

The plant is high in Vitamin B.

Insects

Diseases

Pests

Importance A minor edible green only occasionally eaten in a few coastal areas.
NAMES
English: Wandering Jew  
Scientific name: Commelina diffusa Eurm.f.  
Plant family: Commelinae

DESCRIPTION  A small leafed straggling plant with blue flowers. The stem is fleshy and it roots at the nodes.

DISTRIBUTION  It grows in moist places. It occurs from sea level up to about 1600m altitude.

CULTIVATION  It grows easily from stem pieces. It prefers poorly drained soil in open sunny situations, but can grow quite well in shady places. Plants can also be grown from seed.

PRODUCTION

USE  The young leaf tips are cooked and eaten.

FOOD VALUE  / 100 g edible portion

moisture  energy  protein  calcium  iron  provitA  provitC

INSECTS

DISEASES  Rusts due to fungi Phakopsora lecta Jackson & Holloway and Uromyces commelinae Cooke

PESTS

IMPORTANCE  It is declining in importance as a cultivated crop but still harvested from the wild in a number of places.
NAMES

English: Scientific name: *Desmodium microphyllum* (Thunb.) and *Desmodium repandum* (Vahl.) D.C. DC.
Plant family:

DESCRIPTION A low creeping legume with hairy stems. It has 3 leaflets the edges of which are slightly wavy. The flowers are on long unbranched terminal groups. *D. microphyllum* is more upright and has cream, pink and blue flowers. *D. repandum* has red and yellow flowers.

DISTRIBUTION *D. microphyllum* occurs between 360 and 2000m altitude. *D. repandum* occurs between 1080 and 2700m altitude.

CULTIVATION They are mostly self sown ingrassland and old garden sites in the bush.

PRODUCTION

USE The young leaves are eaten. The seeds of *D. repandum* are cooked and eaten.

FOOD VALUE / 100 g edible portion
leaves moisture energy protein calcium iron provitA provitC
5.8g

INSECTS

DISEASES A pale leaf spot.

PESTS

IMPORTANCE *D. repandum* is widespread as a self sown plant in the highlands. The leaves and seeds are eaten in several areas as a minor vegetable.
NAMES

English: Scientific name: Diplazium asperum Bl. (Syn. Athyrium asperum (Bl.) Copel)
Plant family: Polypodiaceae.

DESCRIPTION A fern which grows on land with fronds 3 metres high. The stem is mostly underground and densely covered with roots. The leaves are crowded and have long stalks. Leaves can be 3m long. The leaf stalk is rough.

DISTRIBUTION These ferns mostly occur between 250 and 1500 metres above sea level. They grow best in humid, moist and lightly shaded places near creeks and on forest edges.

CULTIVATION They grow wild.

PRODUCTION

USE The young, not quite unfolded leaves are eaten cooked.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A wild edible leaf eaten occasionally in mid altitude areas.
Scientific name: Diplazium cordifolium Bl.  
(Syn. Athyrium cordifolium (Bl.) Copel)  
Plant family: Polypodiaceae

DESCRIPTION A fern with a tufted 
rhizome covered with brown or black 
scales. The fronds are up to 50cm long 
and 12 cm wide and stick straight up. 
The fronds are entire.

DISTRIBUTION It grows in small areas 
of the tropical rainforest. It is 
temperature sensitive needing a 
minimum temperature over 10°C. It likes 
a moist protected situation.

CULTIVATION

PRODUCTION

USE The fronds have been recorded as 
eaten.

FOOD VALUE  

<table>
<thead>
<tr>
<th>100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE
NAMES

English:

Scientific name: *Diplazium esculentum* Swartz
(Syn. *Athyrium esculentum* (Retz.) Copel and *Anisogonium esculentum* (Retz.) Presl.)
Plant family: Athyriaceae

DESCRIPTION A large fern with an upright stem. The leaf stalks are black near the bottom. The end sections of the leaf are many, about 8cm. long and 1cm wide.

DISTRIBUTION It mostly occurs in coastal areas. It is common in wet areas. It also occurs in Malaysia, Indonesia, Philippines and Fiji and is used as a food there.

CULTIVATION

PRODUCTION

USE The fronds are eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>91.5%</td>
<td>20-26cal</td>
<td>2.4-3.4g</td>
<td>20-24mg</td>
<td>6mg</td>
<td>3000 g</td>
<td>12-15mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE One of the commonly used and popular ferns of the lowland areas.
NAMES
Tok ples Kuanua: Kongakonga
Scientific name: Diplocyclos palmatus
(Syn. Bryanopsis affinis) C.Jeffrey
(Endl.) Cogn.
Plant family: Cucurbitaceae.

DESCRIPTION
A climbing plant with angular stems. The leaves have 3 or 5 lobes and are 10-15 cm long. There are fine teeth on the top edges of the leaves. Flowers are small and yellow. Male and female flowers are separate but often together near a leaf. The fruit is 4 cm long and green with pale streaks along it.

DISTRIBUTION
It occurs on the coast in P.N.G. and grows up to about 1000 m above sea level. The plant also grows in Africa, India, Malaysia, China and Australia.

CULTIVATION

PRODUCTION

USE
The leaves are eaten, cooked.

CAUTION
A related plant (Bryanopsis laciniosa) is considered to be poisonous in Australia, but is eaten in India.

FOOD VALUE

<table>
<thead>
<tr>
<th>nutrient</th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td></td>
</tr>
<tr>
<td>energy</td>
<td></td>
</tr>
<tr>
<td>protein</td>
<td></td>
</tr>
<tr>
<td>calcium</td>
<td></td>
</tr>
<tr>
<td>iron</td>
<td></td>
</tr>
<tr>
<td>provitamin A</td>
<td></td>
</tr>
<tr>
<td>provitamin C</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE
A reasonably common wild creeper in coastal areas. Leaves are used in the Gazelle peninsula.
ENGLISH: Indian coral tree  SCIENTIFIC NAME: ENYTHRINA VARIEGATA L.  
Tok pisin: Balbal  PLANT FAMILY: Fabaceae  

DESCRIPTION A deciduous tree up to 27m tall and it has large scattered prickles on the branches. The leaves are shiny green on top and a dull flat green underneath. Flowers are red. Pods are up to 25cm long. Seeds are dark red.  

DISTRIBUTION It mostly grows naturally along the dunes very close to the coast but is transplanted as an ornamental. It will grow up to 900m altitude.  

CULTIVATION Trees can be grown from seeds. Cuttings also grow easily.  

PRODUCTION  

USE The leaves are eaten cooked.  

CAUTION Some similar coral trees contain alkaloids and are used as medicine. The seeds are poisonous raw.  

FOOD VALUE / 100g edible portion  
<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>81.5%</td>
<td>60cal</td>
<td>4.6g</td>
<td>57mg</td>
<td>1.8mg</td>
<td>2300g</td>
<td>3mg</td>
</tr>
</tbody>
</table>

INSECTS  

DISEASES  

PESTS  

IMPORTANTANCE The tree occurs in many lowland areas but the leaves are only eaten by Sepik people at present.
English: Hibiscus  Scientific name: *Hibiscus rosa-sinensis* L.  Plant family: Malvaceae

**DESCRIPTION** A shrubby hibiscus used for hedges.

**DESCRIPTION** A common ornamental in most areas of P.N.G.

**CULTIVATION** It is mostly grown from cuttings.

**PRODUCTION**

**USE** The leaves are eaten cooked. In other countries the flowers have been recorded as eaten pickled.

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>89.8%</td>
<td>36cal</td>
<td>0.4g</td>
<td>4mg</td>
<td>1.7mg</td>
<td>4mg</td>
<td></td>
</tr>
<tr>
<td>flowers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES** Leaf spot due to fungus *Ascochyta abelmoschi* Hartner  Blossum blight fungus *Choanephora cucurbitarum* (Berk. & Br.) Thaxt.  Leaf spot fungus *Colletotrichum sp.*  White thread blight  Probably virus

**PESTS** Root knot nematode *Meloidogyne incognita* var.*acrita* Chitwood

**IMPORTANCE** It is mostly grown as an ornamental but is eaten in some areas.
NAMES

English: Nettles  Scientific name: Laportea interrupta (L) Chew
Tok pisin: Salat  (Syn. Fleurya interrupta (L) Gaud.)
(includes other nettles) Plant family: Urticaceae

DESCRIPTION A small herb up to 60cm high. It has stinging hairs. The leaves are toothed at the edge. The flowers are greenish in small clusters. They grow in the axils of leaves on a longish stalk.

DISTRIBUTION It is widespread in the lowlands mostly below 700m altitude. It grows best in part shade.

CULTIVATION It mostly grows wild. It can be grown by seeds or cuttings.

PRODUCTION

USE The young leaves are eaten.

CAUTION The stinging hairs cause mild pain to the skin when touched.

FOOD VALUE

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture energy protein calcium iron provitA provitC</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A fairly common plant. It is mainly eaten by Tolais and is called Kari in Tok Kuanua.
NAMES

English:  Scientific name: Nephrolepis biserrata (Sw.) Schott
Plant family: Davalliaceae

DESCRIPTION  A tufted fern with slender runners. The fronds can be up to 2.5m long, erect and bright green. It is a coarse woody fern that grows in tangled colonies.

DISTRIBUTION  It prefers open or lightly shaded areas often among rocks. It can grow as an epiphyte on the trunks of palms. It is very frost tender. It probably grows up to about 1000m altitude.

CULTIVATION  The ferns are easily grown in warm areas, but they are not easily transplanted.

PRODUCTION

USE  The fronds have been reported as being eaten.

FOOD VALUE  / 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC

INSECTS

DISEASES

PESTS

IMPORTANCE
NAMES

English:  Scientific name: *Pipturus argenteus* (Forst.) Wedd.

Plant family: Urticaceae

DESCRIPTION  A small tree up to 8m tall. The leaves are alternate 15cm x 8cm. The leaves are green on top and woolly white underneath. They have a long stalk and 3 prominent veins. The flowers are greenish white and the fruit fleshy.

DISTRIBUTION  It grows in forests and areas that are not too dry. It occurs from the coast up to at least 1600m altitude.

CULTIVATION  It grows wild.

PRODUCTION

USE  The bark and leaves are eaten. The fruit is also recorded as eaten.

FOOD VALUE  / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS  *Brachyplatis papuus* Guer

Horned weevil *Apizocalus connatus* Pasc.

Weevil *Eupholus schonkerni* Guer.

*Rhinoscapha thomsoni* Waterh.

*Pantoshytes* spp

DISEASES  Thread blight possibly due to *Rhizoctonia solani*

Zonate leaf blotch

Leaf spot

PESTS

IMPORTANCE  A minor edible leaf and fruit.
Names

English: Purslane
Pigweed

Scientific name: *Portulaca oleracea* L.

Plant family: Portulacaceae

Description
A small fleshy creeping
herb up to 50 cm long. The leaves are
flat fleshy and about 2 cm long. The
plant is often bluish. Flowers are
yellow.

Distribution
It is a common self sown
plant in lowland areas and up to 1700m
altitude. It prefers sandy well drained
places.

Cultivation
It roots easily from broken
pieces.

Production

Use
Usually the skin is scraped off then
the plant is boiled and mashed.

Food Value

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>87.5%</td>
<td>34cal</td>
<td>2.2g</td>
<td>115mg</td>
<td>1.4mg</td>
<td>1300 g</td>
<td>20mg</td>
</tr>
</tbody>
</table>

Insects
Cacao armyworm *Tipula plagiata* (Walker)
Diacrisia niceta (Stal.)
Beet webworm *Spoladea/Myenia/Recurvalis* Fab.

Diseases
White leaf spot - cause unknown

Pests

Importance
Now only very rarely used by older people in some
costal areas.
NAMES
English: Yellow marsh grass
Scientific name: Rorippa islandica (Ced)
Plant family: Brassicaceae

DESCRIPTION A small cress plant with yellow flowers and short pods (less than 1 cm). The leaves have deep lobes.

DISTRIBUTION It grows from 2000 to 2700m altitude. It is more common in ditches and near swamps and creeks.

CULTIVATION It is mostly self sown from seed.

PRODUCTION

USE The leaves are cooked and eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A self sown plant in high altitude areas used as a minor edible green.
English: Comfrey

Scientific name: *Symphytum officinale* L.
and/or *S. pereginum*
Plant family: Boraginaceae

**DESCRIPTION** A low clumpy plant with large long rough leaves. A dense crown of leaves and shoots develops.

**DISTRIBUTION** It grows satisfactorily from sea level up to at least 2200m altitude. It will grow in very poor soil.

**CULTIVATION** It is grown by breaking up the clump and replanting a portion of it.

**PRODUCTION**

**USE** The young leaves are cooked and eaten.

**CAUTION** In some countries caution has been stressed about this plant because of toxic alkaloids in similar plants.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ 100 g edible portion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES** Leaf blotch

**PESTS**

**IMPORTANCE** It occurs quite widely in small amounts and is probably increasing in importance because it grows so easily.
NAMES

English: New Zealand Spinach
Scientific name: *Tetragonia tetragonoides* (Pall.) Ktze.
(Syn. *Tetragonia expansa* Miers)
Plant family: Aizoaceae

DESCRIPTION A perennial branched herb with small yellow flowers. It starts growing erect but after this lies over. The leaves are small and thick on round fleshy stems. The fruit is up to 1cm long and with 4 or 5 horns on top.

DISTRIBUTION It is better suited to high altitude areas above 1000m. It grows up to 2700m.

CULTIVATION It is grown from seeds or cuttings. It is easy to save seed. Seed can be bought in stores. Seeds often grow better if soaked in water overnight. Seedlings are not easy to transplant, so it is better to sow direct.

PRODUCTION Plants grow rapidly. The tips of plants can be cut regularly.

USE The fleshy leaves and tops are eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>91.5%</td>
<td>22cal</td>
<td>2.8g</td>
<td>178mg</td>
<td>3.8mg</td>
<td>3540 g</td>
<td>27mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE At present only very rarely seen.
VEGETABLES
<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highlands pitpit</td>
<td>96</td>
</tr>
<tr>
<td>Coastal pitpit</td>
<td>97</td>
</tr>
<tr>
<td>Corn</td>
<td>98</td>
</tr>
<tr>
<td>Ginger</td>
<td>99</td>
</tr>
<tr>
<td>Choko</td>
<td>100</td>
</tr>
<tr>
<td>Cucumber</td>
<td>101</td>
</tr>
<tr>
<td>Pumpkin</td>
<td>102</td>
</tr>
<tr>
<td>Marrow</td>
<td>103</td>
</tr>
<tr>
<td>Melon</td>
<td>104</td>
</tr>
<tr>
<td>Snake gourd</td>
<td>105</td>
</tr>
<tr>
<td><em>Trichosanthes pulleana</em></td>
<td>106</td>
</tr>
<tr>
<td>Bottle gourd</td>
<td>107</td>
</tr>
<tr>
<td>Wax gourd</td>
<td>108</td>
</tr>
<tr>
<td>Bitter gourd</td>
<td>109</td>
</tr>
<tr>
<td>Smooth loofah</td>
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<tr>
<td>Angled loofah</td>
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<tr>
<td>Cabbage</td>
<td>112</td>
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<tr>
<td>Chinese cabbage</td>
<td>113</td>
</tr>
<tr>
<td>Indian mustard</td>
<td>114</td>
</tr>
<tr>
<td>Swede</td>
<td>115</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>116</td>
</tr>
<tr>
<td>Brussels sprouts</td>
<td>117</td>
</tr>
<tr>
<td>Kohl rabi</td>
<td>118</td>
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<tr>
<td>Broccoli</td>
<td>119</td>
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<td>Turnip</td>
<td>120</td>
</tr>
<tr>
<td>Radish</td>
<td>121</td>
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<tr>
<td>Japanese radish</td>
<td>122</td>
</tr>
<tr>
<td>Onions</td>
<td>123</td>
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<tr>
<td>Shallots</td>
<td>124</td>
</tr>
<tr>
<td>Leek</td>
<td>125</td>
</tr>
<tr>
<td>Garlic</td>
<td>126</td>
</tr>
<tr>
<td>Chives</td>
<td>127</td>
</tr>
<tr>
<td>Chinese chives</td>
<td>128</td>
</tr>
<tr>
<td>Celery</td>
<td>129</td>
</tr>
<tr>
<td>Arenga palm</td>
<td>130</td>
</tr>
<tr>
<td>Asparagus</td>
<td>131</td>
</tr>
<tr>
<td>Small bamboo</td>
<td>132</td>
</tr>
<tr>
<td>Bamboo</td>
<td>133</td>
</tr>
<tr>
<td>Highlands bamboo</td>
<td>134</td>
</tr>
<tr>
<td>Silver beet</td>
<td>135</td>
</tr>
<tr>
<td>Capsicum</td>
<td>136</td>
</tr>
<tr>
<td>Job's tears</td>
<td>137</td>
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<tr>
<td>Globe artichoke</td>
<td>138</td>
</tr>
<tr>
<td>Okra</td>
<td>139</td>
</tr>
<tr>
<td>Lettuce</td>
<td>140</td>
</tr>
<tr>
<td>Tomato</td>
<td>141</td>
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<tr>
<td>Arrowroot</td>
<td>142</td>
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<tr>
<td><em>Monochoria hastata</em></td>
<td>143</td>
</tr>
<tr>
<td>Lotus</td>
<td>144</td>
</tr>
<tr>
<td>Waterlilies</td>
<td>145</td>
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<tr>
<td>Rice</td>
<td>146</td>
</tr>
<tr>
<td>Parsnip</td>
<td>147</td>
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<tr>
<td>Eggplant</td>
<td>148</td>
</tr>
<tr>
<td>Spinach</td>
<td>149</td>
</tr>
<tr>
<td>Salsify</td>
<td>150</td>
</tr>
<tr>
<td>Corn salad</td>
<td>151</td>
</tr>
<tr>
<td>Carrot</td>
<td>152</td>
</tr>
<tr>
<td>Beetroot</td>
<td>153</td>
</tr>
<tr>
<td>Chickory</td>
<td>154</td>
</tr>
<tr>
<td>Endive</td>
<td>155</td>
</tr>
</tbody>
</table>

Other plants in the legume, green vegetables and root crops may also be classed as vegetables.
NAMES
Tok pisin: Hailans pitpit. Scientific name: *Setaria palmifolia* (Koenig) Stapf (Syn. *Panicum palmaefolium* Koenig)
Plant family: Poaceae

DESCRIPTION A grass with a broad leaf blade. The leaf blade is folded like a fan and is hairy. The plant forms a clump of shoots and is about 1m high. The shoots are thickened near the end in cultivated types. The flower is a loose open grass flower. A range of different varieties occur.

DISTRIBUTION It grows from near sea level up to about 2400m. It can grow in shady places and suits wet climates.

CULTIVATION Wild plants grow from seed. Garden types grow from pieces of the shoots.

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

USE The shoots are eaten raw or cooked.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
23-27cal 0.5-2.3g 7.21mg 0.9-2mg 500 g 12-33mg

INSECTS Borers in the shoots.

DISEASES Leaf spot but the fungus causing it is unknown. Rust due to fungi - *Uredo palmifoliae* Cummins - *Uromyces leptodermus* Sydow Tar spot due to a fungus - *Phyllachora* sp.

PESTS

IMPORTANCE An important vegetable in Highland areas.
**NAMES**

English: Coastal pitpit  
Tok pisin: Pitpit

**Scientific name:** *Saccharum edule* Hasskarl  
**Plant family:** Poaceae

**DESCRIPTION** A plant in the sugarcane family grown for the edible unopened flower. They grow 2-3m tall and have thinner canes than sugarcane. A clump of stalks is produced. Several cultivars occur which differ in color, height, and season of flowering.

**DISTRIBUTION** It is common in coastal areas and will grow up to about 1800m altitude. 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 reshoot from the base. The cuttings need adequate moisture at planting. Cuttings about 30cm long are used.

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

**USE** The unopened flower is eaten raw or cooked. Often it is cooked in coconut milk.

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>92.4%</td>
</tr>
<tr>
<td>energy</td>
<td>23-38cal</td>
</tr>
<tr>
<td>protein</td>
<td>4.1-4.6g</td>
</tr>
<tr>
<td>calcium</td>
<td>10-40mg</td>
</tr>
<tr>
<td>iron</td>
<td>8mg</td>
</tr>
<tr>
<td>provitA</td>
<td>0</td>
</tr>
<tr>
<td>provitC</td>
<td>21-50mg</td>
</tr>
</tbody>
</table>

**INSECTS**

- *Anomala anoguttata* Burm.
- *Athaenius spinator* Harold
- *Parastasia guttulata* Fairmaire

And probably borers and others similar to sugarcane.

**DISEASES**

- Veneer blotch due to fungus *Deightoniella papuana* D.Shaw
- Red rot due to fungus *Glomerella tucumanensis* (Spel) Ark & Mull.
- Tar spot due to fungus *Phyllachora sacchari* P.Henn
- Rust due to fungus *Puccinia kuehrii* (Kruger) Butler
- Downy mildew fungus *Sclerospora sp.*

**PESTS**

**IMPORTANCE** A very important vegetable in most lowland areas and up to 1600m.
Names

English: Corn; maize
Scientific name: Zea mays L.
Tok pisin: Kon
Plant family: Poaceae

Description
An annual plant 2-3m high.
It is a large grass family plant with
prop roots near the base. In the axils
of the leaves it produces a large cob
wrapped in leaves. The male flower is
at the top.

Distribution
Seeds need a soil
temperature more than 10°C to germinate.
It grows best less than 1800m altitude.
It is grown in most areas of the
country.

Cultivation
It is grown from seeds. It
is normal to plant one seed per hole at
1-2cm depth. A spacing of about 30cm
between plants is suitable. For saving
seed, it should be from gardens of over
200 plants and the seed from several cobs
mixed to avoid inbreeding depression.

Production
Cobs are harvested when the
grains are full and the tassel is just
starting to turn brown. It is sweetest
eaten soon after harvesting.

Use
The cobs are eaten cooked.
The dried grains can be crushed
and used.

Food Value

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>cobs</td>
<td>62.5%</td>
<td>134cal</td>
<td>4.2g</td>
<td>5mg</td>
<td>0.9mg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Insects

Corn borer Ostrinia furnacalis (Cuen.)
Lawn armyworm Spodoptera mauritia (Boisd.)
Corn earworm Heliothis armigera (Hubner)
Cacao armyworm Tinalola plagiata (Walker)
Corn leaf aphid Rhopalosiphum maidis (Fitch)
and others e.g. Locusta migratoria (Linnaeus); Creaonotus
gangis (L.); Orthaca cincticornis Walk.;

Diseases

Tropical rust due to fungus Puccinia polysora Underw.
Rust due to fungus Puccinia sorghi Seh.
Downy mildew due to fungus Sclerospora sp.
Leaf blotch due to fungus Trichometasphaeria turcica Luttr.
Leaf spot due to fungus Cercospora sorghi Ell. & Ev.
Corn leaf blight fungus Drechslera sacchari
Corn blister smut fungus Ustilago maydis (Dc)Cda.

Pests

Importance
Common in most areas of the country but never as a
staple food.
NAMES
English: Ginger
Tok pisin: Kawaware
Scientific name: Zingiber officinale Rosc.
Plant family: Zingiberaceae

DESCRIPTION A perennial herb with
swollen underground stems. The leaves
are long (30 cm) and narrow (4 cm). The
flower is a cone 6 cm long on a stalk up
to 30 cm long.

DISTRIBUTION It is mainly grown from
sea level up to 1900 m altitude but will
grow at higher places. It needs a loose
fertile soil.

CULTIVATION A portion of the rhizome
is planted 5-7 cm below the surface of
the soil. Sometimes light shade is used
but it can be grown without shade.

PRODUCTION It takes 12 months to mature.
It can be harvested several times.

USE The underground rhizome is eaten.
The young shoots are spicy and can
be eaten.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitamin A</th>
<th>provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td>rhizome</td>
<td>87.4%</td>
<td>46cal</td>
<td>1.6-2.5g</td>
<td>19 mg</td>
<td>1.2-2.5 mg</td>
<td>55 g</td>
<td>4 mg</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

- Lema variator Gres.
- Lema wauensis Gres.
- Dichocrocis sp nr. punctiferalis Guenee
- Dindymus pyrochrous Boisd.
- Henosepilachna signatipennis Boisd.
- Cardamom mirid Ragweelullus korvathi Poppius

DISEASES Leaf blotch due to bacteria Corynebacterium sp
Associated with leaf blotch - fungus Glomerella cingulata
(Stonem) Spauld and Shrenk

LEAF SPOT

PESTS

IMPORTANCE Common in most areas of the country and eaten in quantity
as a vegetable and as a spice.
NAMES

English: Choko  Scientific name: Sechium edule (Jacq.) Swartz
Tok pisin: Sioko  Plant family: Cucurbitaceae

DESCRIPTION A vigorously growing climber that can last for several years. The fleshy fruits contain only one large seed. The stems have furrows along them. The flowers are separate. Male flowers are in clusters and female flowers are on their own. It can have a large edible tuber. Fruit can be green or white and can have soft spines.

DISTRIBUTION It will grow from sea level to about 2200m altitude, but does best between 350 and 1000m altitude. In the lowlands it is best in shade.

CULTIVATION The entire fruit is planted as the seed cannot withstand drying out. It is planted flat and thinly covered with soil. A spacing 2m apart along a fence is suitable. A well drained fertile soil is needed. Cuttings can be used for planting.

PRODUCTION Fruit can be picked starting 3-5 months after planting, and continued for many months. The fruit can be stored for several weeks. Tips can be picked regularly.

USE The fruit are edible.
The young leaf tips are eaten.
The seed can be eaten.
The fleshy root can be eaten cooked.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provit A</th>
<th>provit C</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>89-92%</td>
<td>6-8cal</td>
<td>0.8-0.9g</td>
<td>10mg</td>
<td>0.4mg</td>
<td>650 g</td>
<td>20mg</td>
</tr>
<tr>
<td>leaves</td>
<td>89%</td>
<td>25cal</td>
<td>4g</td>
<td>60mg</td>
<td>1.4mg</td>
<td>25mg</td>
<td></td>
</tr>
<tr>
<td>roots</td>
<td>79%</td>
<td>17-23cal</td>
<td>2g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Amblypelta bugs Amblypelta lutescens papuensis Brown
Horned weevil Apinocalus terrestris Thompson
Shot hole weevil Orithius inimicus Mshl.

DISEASES Leaf blotch - cause unknown.

PESTS

IMPORTANCE Moderately common throughout the country but most important in mid altitude areas.
NAMES
English: Cucumber
Tok pisin: Kukamba
Scientific name: Cucumis sativus L.
Plant family: Cucurbitaceae

DESCRIPTION A hairy annual climber with tendrils and yellow flowers. Fruits are long and often with a slightly lumpy skin. The flesh inside is greenish white.

DISTRIBUTION It occurs from sea level up to at least 2200m. It is a traditional vegetable in the highlands. Protection from wind is needed. It is killed by frost.

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

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

USE Usually unripe fruits are eaten raw. Young stem tops and leaves are edible. The kernels of the seeds are edible.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
fruit  96% 0.3-0.7g 2-3.5g 42g
leaves  
seed kernels  

INSECTS Pumpkin beetles Aulacophora spp.
Pussion vine bug Leptoglossus australis (Fab.)
Melon aphid Aphis gossypii Glover
Fruit flies Dacus alniisetosus Perkins & D. cucurbitae Coq
Monolepta semiviolacea Fab.

DISEASES Powdery mildew due to a fungus Oidium sp.
Downy mildew due to a fungus Pseudoperonospora cubensis

PESTS Root knot nematode Meloidogyne sp.

IMPORTANCE A common and well liked vegetable.
NAMES

English: Pumpkin
Tok pisin: Pamkin

Scientific names: Cucurbita moschata Duchez Poir
and Cucurbita maxima Duchez Lam

Plant family: Cucurbitaceae

DESCRIPTION
A creeping vine with tendrils. C. moschata does not have hairy stems but has fruit with a stalk thickened near where it joins the fruit.

DISTRIBUTION
They are grown throughout the country from sea level to 2400m altitude. They need a fertile soil. C. moschata is better suited to coastal areas. Frost sensitive.

CULTIVATION
They are grown from seed. Usually 2 or 3 seeds are planted together in a mound. The distance apart depends on the cultivar. Some kinds are better for leaf tips. It is good to save seed of adapted kinds.

PRODUCTION
Fruit are ready for harvest after about 3-4 months. Seed can be saved from fruit for resowing but as pumpkins cross pollinate different types become mixed.

USE
The young leaf tips are eaten cooked.
The fruit can be eaten cooked.
The seeds are edible.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture energy protein calcium iron provitA provitC</td>
</tr>
<tr>
<td>fruit</td>
<td>91.9% 27cal 0.7g 24mg 0.7mg 785 g 14mg</td>
</tr>
<tr>
<td>leaves</td>
<td>92.6% 21cal 3g 37mg 2.1mg 1940 g 11mg</td>
</tr>
<tr>
<td>seeds(dry)</td>
<td>3.7% 542cal 29.4g 33mg 9.9mg 235 g 0</td>
</tr>
</tbody>
</table>

INSECTS
Pumpkin beetles Aulacophora spp.
Passion vine bug Leptoglossus australis (Fabricius)
Fruit fly Paradacus sp and Dacus strigifinis atritus May
Ladybird Henosepilachna signatipennis (Boisd.)
Cotton aphid Aphis gossypii Glover
Leptothea csikii Weise

DISEASES
Powdery mildew due to fungus Oidium sp.
Mosaic due to a virus

PESTS
Root knot nematode Meloidogyne sp.

IMPORTANCE
A widely distributed and popular vegetable especially for leaf tips.
NAMES
English: Marrow
Scientific name: Cucurbita pepo L.
Plant family: Cucurbitaceae

DESCRIPTION A bristly hairy annual vine in the pumpkin family. It has branched tendrils. The leaves have shallow lobes and are toothed around the edge. The fruit stalks have furrows along them but are not fattened near the stalk. The fruit vary in shape.

DISTRIBUTION They are more suited to drier areas. Frost sensitive.

CULTIVATION Grown from seeds. The seeds germinate after about one week. They can be grown from cuttings. They are best planted on mounds. A spacing of 2-3m between plants is needed.

PRODUCTION

USE The young fruits are cooked and eaten.
The young leaves and the ripe seeds can also be eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
fruit 90% 1g
leaves
seed kernel 30g

INSECTS

DISEASES

PESTS

IMPORTANCE Not widely distributed. Not as common as pumpkins.
104

NAMES

English: Melon
Cantaloupe

Scientific name: *Cucumis melo* L.
Plant family: Cucurbitaceae

DESCRIPTION An annual climber with tendrils and yellow flowers. The leaves have lobes and often a wavy or toothed edge. The fruit is round, mostly with a rough or streaky skin. It is green or yellow inside. Different kinds of melons occur.

DISTRIBUTION It is not suited to places with high rainfall. They suit hot dry places with a fertile well drained soil.

CULTIVATION They are grown from seed. The seeds are planted about 4cm deep. Plants need to be 1-2m apart.

PRODUCTION

USE The ripe fruits are eaten. The seeds are sometimes eaten.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td>fruit</td>
<td>92.3%</td>
</tr>
</tbody>
</table>

INSECTS Black leaf footed bug *Leptoglossus australis* (Fabricius)

DISEASES Powdery mildew fungus *Oidium sp.*
Downy mildew fungus *Pseudoperonospora cubensis* (Berk. & Curt.) Rostow

PESTS Root knot nematode *Meloidogyne incognita* var. *acrita* Chitwood

IMPORTANTANCE Only occasionally seen.


NAMES

English: Snake gourd

Scientific name: *Trichosanthes cucumerina* L.
(Syn. *T. anguina* L.)

Plant family: Cucurbitaceae

DESCRIPTION A climber in the pumpkin family with tendrils. The vine has furrows along it. The long fruit tend to curve. When ripe they turn orange or red, but are grey and green when young. The leaves have 3 to 7 lobes.

DISTRIBUTION It is common in the lowlands up to 500m.

CULTIVATION It is grown from seed. Plants need supports to climb.

PRODUCTION Harvesting starts after 6 weeks and continues 1 or 2 months.

USE The long fruits are eaten when young.

The young leaves are eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>94.3%</td>
<td>18cal</td>
<td>0.5-0.9g</td>
<td>19mg</td>
<td>1mg</td>
<td>810 g</td>
<td>6mg</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES Associated with leaf spot-fungus *Colletotrichum lagenarium* (Pass.) Ell. & Hallst.

Leaf spot possibly due to bacteria

PESTS

IMPORTANCE Most commonly seen in the Sepik or in gardens of Sepik people.
NAMES

Scientific name: *Trichosanthes pulleana* Cogn. (Syn. *T. papuana* Pulle) ex Harms
Plant family: Cucurbitaceae

DESCRIPTION A creeping plant in the pumpkin family. It has tendrils. It bears green fruit which turn orange when ripe. Inside it is filled with seeds in a bright red pulp. Leaf shape varies considerably.

DISTRIBUTION It occurs in many areas of the country but is probably more common in the highlands. It occurs up to at least 2200m altitude.

CULTIVATION It grows wild in highland areas but better types are also sown from seeds. It is normally allowed to climb up trees.

PRODUCTION Fruiting is somewhat seasonal.

USE The seeds are eaten cooked.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS Fruit fly maggots.

DISEASES

PESTS

IMPORTANCE A minor but widely distributed vegetable.
Scientific name: *Lagenaria siceraria* (Molina) Standley
(Syn. *L. leucantha* (Duch.) Rusby and *L. vulgaris* Seringe)
Plant family: Cucurbitaceae

**DESCRIPTION** A pumpkin family plant. It is an annual vine with large leaves. The thick stems have furrows along them. Flowers of both sexes are borne on the same plant. Flowers are large and white. Fruits vary in shape. They have brown seeds in a whitish green pulp.

**DISTRIBUTION** It grows from sea level up to 2700m altitude. It grows best in a warm humid climate. It is sensitive to frost. It prefers full sunlight.

**CULTIVATION** Seeds are best sown in raised beds. Because plants cross pollinate plant and fruit types vary. Removing the young fruits to use as a vegetable will prolong the life of the plant. Large fruits can be obtained by removing some of the small fruits. A spacing of 2m is suitable. It prefers a trellis to climb.

**PRODUCTION** It is fast growing and flowers 2 months after seeding.

**USE** The young fruits are boiled as a vegetable.
Young tips and leaves are edible.
(Old fruits are used as a container, and seeds are not normally edible.)

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>moisture 96.1% energy 12cal protein 0.2g calcium 20mg iron 0.7mg provitA 0 provitC 6mg</td>
</tr>
<tr>
<td>leaves</td>
<td>2.3-3.3g</td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES** Powdery mildew
Anthracnose

**PESTS**

**IMPORTANCE** It occurs occasionally in many areas for containers. As a vegetable it is only important in some areas e.g. Mendi.
NAMES

English: Wax gourd
Scientific name: Benincasa hispida (Thunb.) Cogn.
(syn. B. cerifera Savi) Plant family: Cucurbitaceae

DESCRIPTION A long vined (3m) climbing pumpkin family plant. The plant regrows from seed each year. The vines are hairy. The leaves are heart shaped with 5 or 7 lobes. Flowers are yellow. The fruit is up to 30cm long and 20 cm across and green with a waxy covering. The flesh is firm and white. The fruits are heavy up to 8 kg.

DISTRIBUTION It is suited to warm lowland conditions. It does better in dry areas or drier seasons.

CULTIVATION It is grown from seeds. They are usually planted in mounds and allowed to grow over a strong trellis. They can be allowed to stay on the ground.

PRODUCTION Fruits are ready 3-5 months after planting. The fruit keeps well.

USE The white flesh is added to stir fried dishes. The seeds are fried and eaten. Young leaves and flower buds can be eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>Moisture</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Iron</th>
<th>ProvitA</th>
<th>ProvitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>96%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.4g</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Mainly grown near coastal towns for sale to Chinese. They sell for a high price.
**NAMES**

English: Bitter gourd  
Scientific name: *Momordica charantia* L.  
Plant family: Cucurbitaceae

**DESCRIPTION**  
A slender annual climber with flowers of both sexes on the one plant. Fruits are green when young and orange when ripe. The fruits have a lumpy appearance and when fully ripe, burst open. It has bright red seeds inside.

**DISTRIBUTION**  
It grows from sea level up to about 500m and will probably grow to 1000m altitude.

**CULTIVATION**  
Seeds are planted at 50cm spacing and need a stick to climb up.

**PRODUCTION**  
Fruits are ready to harvest 45-55 days after planting.

**USE**  
The young bitter fruits are cooked and eaten.  
The seed mass of the ripe fruit is used as a food flavouring.  
The tender shoots and leaves are sometimes eaten.

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

**FOOD VALUE**  

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>0.8-2.1g</td>
</tr>
<tr>
<td>energy</td>
<td>46cal</td>
</tr>
<tr>
<td>protein</td>
<td>4-6g</td>
</tr>
<tr>
<td>calcium</td>
<td>288mg</td>
</tr>
<tr>
<td>iron</td>
<td>5mg</td>
</tr>
<tr>
<td>provitA</td>
<td>8500 g</td>
</tr>
<tr>
<td>provitC</td>
<td>170mg</td>
</tr>
</tbody>
</table>

The seeds have 32% oil

**INSECTS**  
Cacao armyworm *Tinacola plagiata* (Walker)  
Black leaf footed bug *Leptoglossus australis* (Fabricius)  
*Rhipogynum sp.*

**DISEASES**  
Leaf spot due to a fungus *Cercospora citrullina* Cooke  
Downy mildew fungus *Pseudoperonospora cubensis* (Berk. & Curt.)  
Powdery mildew fungus *Rostow*

**PESTS**

**IMPORTANCE**  
Only of minor importance and used by Asians.
English: Smooth loofah  
Scientific name: *Luffa cylindrica* (L) M. Roemd.  
(Syn. *L. aegyptiaca* Roxb.)  
Plant family: Cucurbitaceae

**DESCRIPTION**  
An annual climber up to 10 cm long. The stem is five angled and slightly hairy. Leaves are 10-20 cm across. Male and female flowers are separate and yellow. The fruit is fairly smooth and can be 30 cm long.

**DISTRIBUTION**  
It grows well in the lowlands.

**CULTIVATION**  
Plants are grown from seed. It is best to have a trellis for it to climb on.

**PRODUCTION**

**USE**  
The young fruits are eaten. The seeds yield an edible oil after extraction. The young leaves and flowers are edible.

**CAUTION**  
Older fruits are bitter and fibrous and contain poisonous substances.

**FOOD VALUE**  
/ 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>94.3%</td>
<td>19 cal</td>
<td>1.1 g</td>
<td>2 mg</td>
<td>0.7 mg</td>
<td>170 g</td>
<td>10 mg</td>
</tr>
<tr>
<td>leaves</td>
<td>90.1%</td>
<td>27 cal</td>
<td>5.1 g</td>
<td>56 mg</td>
<td>11.5 mg</td>
<td>9240 g</td>
<td>95 mg</td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE**  
A minor vegetable seen in several coastal areas.
NAMES
English: Angled loofah  Scientific name: Luffa acutangula (L) Roxb.
Plant family: Cucurbitaceae

DESCRIPTION An annual climber with square stems. 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. The leaves have a bad smell when rubbed. Fruit can be up to 40 cm long and with 10 long ridges. It is green brown outside and white inside.

DISTRIBUTION It grows from sea level to 500 m altitude. It won't tolerate excessive rainfall.

CULTIVATION Seeds are sown direct at 40 x 80 cm spacing and need stakes to climb. It benefits from full sunlight.

PRODUCTION Fruits are ready 6-10 weeks after planting.

USE The immature fruits are cooked. The leaves are edible.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td>fruit</td>
<td>94.6%</td>
</tr>
<tr>
<td>leaves</td>
<td>90.1%</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE It is of minor importance in some coastal areas.
NAMES
English: Cabbage
Tok pisin: Kebis

Scientific name: Brassica oleracea var. capitata L.
Plant family: Brassicaceae

DESCRIPTION A short leafy plant with a thick stalk. In cold areas it forms a thick tightly packed ball of leaves called a "head". If left in the ground it will later produce a flower stalk.

DISTRIBUTION It does best at higher altitudes where there is a greater difference between day and night temperatures. It is mostly above 1000m. They are frost resistant.

CULTIVATION Plants are normally first grown from seeds. But in most places they are regrown 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.

FOOD VALUE / 100 g edible portion
moisture 93% energy 22cal protein 1.6g calcium 55mg iron 0.8mg provitamin A 280 g provitamin C 46mg

INSECTS Vegetable looper Plusia chalcites (Esper)
Black cutworm Agrotis ipsilon (Hufn.)
Cabbage moth Plutella xylostella (L.)
Taro beetles Pupana spp
Cluster caterpillar Crocidolomia binotalis Zell.
Cluster caterpillar Spodoptera litura (F.)
Also Phaneroptera kevis Serv.; Colias ethylidens Dist.; Eunica discigutta (Walk.); Valanga sp.

DISEASES Black rot due to bacteria Xanthomonas campestris (Pamm) Dowson

PESTS Root knot nematodes Meloidogyne incognita var. acrita Chitwood

IMPORTANCE Cabbages are very common and popular in high altitude areas.
NAMES
English: Chinese cabbage
also petsai, pakchoi, and wongbok.
Scientific name: Brassica chinensis L.
Also Brassica chinensis var. pekinensis (Rup.) Sun
Plant family: Brassicaceae

DESCRIPTION A leafy cabbage grown as an annual. The variety pekinensis forms a heart. Flowers are yellow.

DISTRIBUTION More common in lowland areas, but will grow in the highlands.

CULTIVATION Plants are grown from seed and often transplanted. A spacing of 40cm x 40cm is suitable.

PRODUCTION The whole plant is harvested after 2-3 months.

USE The leaves are cooked and eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitamin A provitamin C
85-94% 16-40cal 1.7-2.7g 102-192mg 2.4-3.1mg 2000g 0-62mg

INSECTS Cluster caterpillar Spodoptera litura (F)
Beet webworm Spoladea (Hymenia) recurvalis Fab
Cabbage cluster caterpillar Crocidolomia binotalis Zeller
Grass bug Halticus tilialis Reut.
Also Diachrysia orichalcea (F.); Phaneroptera brevis Serv.
Colgan tricolor Dist.; Euricania discigutta (Walk.)
Valanga sp.

DISEASES Leaf spot

PESTS

IMPORTANCE They are common and popular in lowland areas.
NAMES
English: Indian mustard  Scientific name: *Brassica juncea* (L) Czern & Cass
Plant family: Brassicaceae

DESCRIPTION It is an erect leafy annual cabbage family plant. The plant can vary a lot. It produces a flower and seed pods at the top.

DISTRIBUTION It is grown in some highland areas. It needs a fertile well drained soil.

CULTIVATION The seed is broadcast. They can be put in a nursery and transplanted. A spacing of 25cm x 25cm is suitable.

PRODUCTION Leaves can be harvested one month after planting. Leaves can be harvested several times.

USE The leaves are cooked and eaten. They can have a bitter taste so the cooking water needs changing.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>91.8%</td>
<td>24cal</td>
<td>2.4g</td>
<td>160mg</td>
<td>2.7mg</td>
<td>1825 g</td>
<td>73mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Only grown occasionally.
DESCRIPTION The plant has a round tap root which mostly has yellow flesh. The outside is often of various colours. It has a "neck" near the ground level, and this helps distinguish it from a turnip. The leaves have a waxy appearance.

DISTRIBUTION They are not common in the tropics. They do best in the highlands and in the dry season.

CULTIVATION They are grown from seed.

PRODUCTION

USE The tubers are cooked and eaten. The leaves can be eaten cooked.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>87%</td>
</tr>
<tr>
<td>energy</td>
<td>46cal</td>
</tr>
<tr>
<td>protein</td>
<td>1.1g</td>
</tr>
<tr>
<td>calcium</td>
<td>66mg</td>
</tr>
<tr>
<td>iron</td>
<td>0.4mg</td>
</tr>
<tr>
<td>provitA</td>
<td>350 g</td>
</tr>
<tr>
<td>provitC</td>
<td>43mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Not very popular as a vegetable.
NAMES

English: Cauliflower

Scientific name: *Brassica oleracea* var. *botrytis* L.

Plant family: Brassicaceae

DESCRIPTION A cabbage family plant which develops a thick white edible flower in the centre. It has broad leaves around a thick stalk.

DISTRIBUTION It mostly grows in the highlands, but has been grown from sea level to 2600m altitude. Frost resistant.

CULTIVATION They are normally grown from seeds and transplanted. Because plants cross pollinate and seed production requires low temperatures, seed collecting is neither easy nor very successful.

PRODUCTION

USE The thick white flower is cooked and eaten.
The leaves are edible.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitamin A provitamin C
90.5% 29cal 2.8g 30mg 1mg 55g 72mg

INSECTS Cabbage moth *Plutella xylostella* L. and probably others similar to cabbage

DISEASES Leaf spot due to a fungus *Alternaria brassicicola* (Schw.) Wilt.
Black rot due to bacteria *Xanthomonas campestris* (Famm.) Dows.

PESTS Root knot nematode *Meloidogyne* sp.

IMPORTANCE Mainly only grown by a few people for sale to Europeans.
NAMES

English: Brussels sprouts  Scientific name: *Brassica oleracea* var. *Gemmifera* Zenk

Plant family: *Brassicaceae*

DESCRIPTION A cabbage family plant with small sprouts of compact leaves up the stem. It grows up to about 1m high.

DISTRIBUTION It suits the highlands. Normally it needs to be above 800m and in places with cool nights. It grows in the highlands up to 2600m. Frost tolerant.

CULTIVATION It is normally grown from imported seed. Seedlings are transplanted after 5 to 6 weeks. The spacing needs to be about 60cm x 60cm.

PRODUCTION The sprouts can be harvested about 4 months after transplanting.

USE The sprouts are cooked and eaten. The leafy tops can also be eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitamin A</th>
<th>provitamin C</th>
</tr>
</thead>
</table>

INSECTS Cabbage cluster caterpillar *Crocidoloma binotalis* Zeller
Cabbage moth *Plutella xylostella* L.
Shot hole weevil *Orilicus inimicus* Mshl
Long horned grasshopper *Phaneroptera brevis* Serv.
Also *Atractomorpha crenaticeps* Blanch; *Phytomeira orichalcaea* (F.); *Acleris sp.*

DISEASES

PESTS

IMPORTANCE Mainly only grown by a few people for sale to Europeans.
NAMES

English: Kohl rabi

Scientific name: *Brassica oleracea* var. *gongylodes* L.

Plant family: *Brassicaceae*

DESCRIPTION A cabbage family plant with a swollen bulb above the ground. Leaves come off around the side of this bulb.

DISTRIBUTION It does best in the highlands but is reasonably tolerant of heat and drought. It can be grown from sea level to 2600m altitude. Frost tolerant.

CULTIVATION They are grown from imported seed. The seed can be sown direct or in a nursery and transplanted.

PRODUCTION

USE The bulb is mostly cooked and eaten. It can be eaten raw. The leaves are edible.

FOOD VALUE

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>89.9%</td>
<td>31cal</td>
<td>2.6g</td>
<td>52mg</td>
<td>1.3mg</td>
<td>2000 g</td>
<td>68mg</td>
</tr>
</tbody>
</table>

INSECTS Cabbage cluster caterpillar *Crocidolomia binotalis* Zeller
African armyworm *Spodoptera exempta* (Walker)
*Chrysodeixus chalcites* Esp.

DISEASES

PESTS

IMPORTANCE It is not commonly grown and is mainly by or for sale to Europeans.
NAMES

English: Broccoli

Scientific name: *Brassica oleracea* var. *italica* Plenck

Plant family: Brassicaceae

DESCRIPTION A cabbage family plant. It has a thickened green or blue flower at the centre. The flower is often in several small heads. They are surrounded by broad leaves attached to a thick stalk.

DISTRIBUTION It is mostly grown in the highlands. It is frost resistant.

CULTIVATION It is normally grown from imported seed. The seeds are planted in a nursery then transplanted. A spacing of 60cm x 60cm is suitable.

PRODUCTION Plants are ready for harvest about 3 months after transplanting.

USE The central flower is cooked and eaten.

The leaves are edible.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS Cabbage cluster caterpillar *Crocidoloma binotalis* Zeller

Diamond back moth *Plutella xylostella* (L).

DISEASES

PESTS

IMPORTANCE Only grown in a few highland areas mostly for sale to Europeans.
NAMES
English: Turnip
Scientific name: Brassica rapa L.
Plant family: Brassicaceae

DESCRIPTION It has a round white fleshy taproot. The leaves are divided and have hairs. Where the leaves join the root it is not raised into a "neck".

DISTRIBUTION It will grow in both the lowlands and highlands but does best in the highlands between 1700 and 2600 m altitude. Frost resistant.

CULTIVATION It is grown from imported seed. In the lowlands they are best grown in the shade.

PRODUCTION The roots are ready after 8 - 10 weeks.

USE The swollen root is cooked and eaten. The leaves can be eaten.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>root</td>
<td>92.8%</td>
<td>21cal</td>
<td>1g</td>
<td>43mg</td>
<td>0.9mg</td>
<td>20 g</td>
<td>22mg</td>
</tr>
<tr>
<td>leaves</td>
<td>92.7%</td>
<td>23cal</td>
<td>1.9g</td>
<td>168mg</td>
<td>2.6mg</td>
<td>1330 g</td>
<td>47mg</td>
</tr>
</tbody>
</table>

INSECTS Cabbage cluster caterpillar Crocidolomia binotalis Zeller
Leaf miner Liriomyza harrisca (Riley)
Cabbage moth Plutella xylostella L.
Plutella seriata Meyr.

DISEASES Leaf spot due to a fungus Alternaria brassicae (Berk.) Sacc.
Black rot due to a bacteria Xanthosoma campestris (Pamm.) Dows.

PESTS

IMPORTANCE Not popular with Papua New Guineans.
NAMEs

English: Radish
Scientific name: Raphanus sativus L.
Plant family: Brassicaceae

DESCRIPTION A small, quick growing plant with a thickened edible root. The leaves are divided along the middle nerve and are hairy.

DISTRIBUTION It grows from the coast up to at least 2400m. Frost resistant.

CULTIVATION Plants are grown from seed planted at 5cm spacing. In highland areas seeds can be saved from plants to resow.

PRODUCTION Plants can be ready after 3 weeks.

USE The young tender roots are mostly eaten raw. The leaves are edible.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC
92.6% 26cal 1g 32mg 1.4mg trace 26mg

INSECTS Cabbage cluster caterpillar Crocidoloma binotalis Zeller
False wireworm Gonocephalum ochthekioides Ful
A beetle Onthophagus latenasutus Arrow

DISEASES Leaf spot due to a fungus Alternaria raphani Groves & Skolko

PESTS

IMPORTANCE Tried out by many people and not liked.
NAMES

English: Japanese radish  Scientific name: *Raphanus sativus var. longipinnatus* Bailey

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.

DISTRIBUTION It is more common in lowland areas. It needs a rich loose fertile soil.

CULTIVATION Plants are grown from seeds. A spacing of 15 cm apart in rows is suitable. Often plants are sown thicker and seedlings are thinned out and eaten. It is possible to save seed from plants.

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 / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>root</td>
<td>93%</td>
<td>24cal</td>
<td>1g</td>
<td>27mg</td>
<td>0.4mg</td>
<td>0</td>
<td>42mg</td>
</tr>
<tr>
<td>leaves</td>
<td>88.5%</td>
<td>33cal</td>
<td>3.3g</td>
<td>220mg</td>
<td>4.1mg</td>
<td>2470 g</td>
<td>81mg</td>
</tr>
</tbody>
</table>

INSECTS

*Gonocephalum ochtheloides* Fulf

DISEASES Leaf spot due to a fungus *Alternaria raphani* Groves & Skolko

PESTS

IMPORTANCE Rarely grown or eaten by village people. It is seen at schools and institutions and sometimes in coastal markets.
NAMES
English: Onions (bulb)  Scientific name: Allium cepa var. cepa
Plant family: Amaryllidaceae

DESCRIPTION  A herb with a two year life cycle. Normally it develops fattened bulbs at the base. Leaves are thin and long.

DISTRIBUTION  It is more easy to get onions to grow and form bulbs in the highlands, but they can be grown from sea level to 2600m altitude.

CULTIVATION  They are grown from imported seed. For bulbs, a tropical cultivar is needed and bulbing is normally better at higher altitudes. Cultivars which form flowers early need to be avoided. Seedlings can be transplanted.

PRODUCTION

USE  The bulbs and leaves are used as flavouring raw or cooked.

FOOD VALUE  / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>88.6%</td>
<td>38cal</td>
<td>1.6g</td>
<td>30mg</td>
<td>1g</td>
<td>trace</td>
<td>9mg</td>
</tr>
</tbody>
</table>

INSECTS  Black cutworm  Agrotis ipsilon  (Hufn.)
Onion thrips  Thrips tabaci  Lind.
Aphid  Neolothoptera formosana  Takahashi
Shot hole weevil  Orilus inimicus  Mshl.

DISEASES  Smudge due to fungus  Colletotrichum cincinans  (Berk.) Voglino

PESTS

IMPORTANCE  Not widely grown although popular and imported for sale.
NAMES

English: Shallots
Tok Pisin: Anian

Scientific name: *Allium cepa* var. *aggregatum* G.Don
Plant family: Amaryllidaceae

DESCRIPTION These onion like plants produce a cluster of bulbs. The leaves are round and hollow.

DISTRIBUTION They can be grown throughout the country, but do best in the cooler higher places. They need a fertile well drained soil. Frost resistant.

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

PRODUCTION

USE The bulbs and leaves are eaten raw or cooked.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>86.6%</td>
<td>48cals</td>
<td>1.9g</td>
<td>26mg</td>
<td>0.7mg</td>
<td>0</td>
<td>6mg</td>
</tr>
</tbody>
</table>

INSECTS Onion thrips - *Thrips takaci* Lind.
Aphids

DISEASES Leaf tip wither due to a fungus - *Botrytis cinerea* Pers. ex Fries

PESTS

IMPORTANCE This is becoming a well accepted and popular vegetable for flavouring foods in most parts of P.N.G..
English: Leek
Scientific name: Allium porrum L.
Plant family: Amaryllidaceae

DESCRIPTION An onion like plant
without a bulb and with flat leaves.

DISTRIBUTION It does best with a day
temperature below 24°C. So it is mostly
over 800m altitude and grows up to 2600m.
It needs a fertile soil. It is very
frost resistant.

CULTIVATION They can be grown from
seed. Seedlings can be transplanted.
The base of plants, or suckers are more
commonly used for planting. It is
difficult to save seed in the wet tropics.
If plants are planted in a hole 10-15cm
depth they develop long white edible
stalks.

PRODUCTION Plants are ready for harvest
after 16-20 weeks.

USE The whole plant is boiled except
for the tops of the leaves.
They can also be eaten raw.

<table>
<thead>
<tr>
<th>FOOD VALUE</th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td></td>
<td>89.4%</td>
</tr>
</tbody>
</table>

INSECTS Cluster caterpillar Spodoptera litura Fab.

DISEASES Leaf spot due to a fungus Alternaria porri (Ell) Cif

PESTS

IMPORTANCE Moderately common in the highlands.
NAMES

English: Garlic
Scientific name: Allium sativum L.
Plant family: Amaryllidaceae

DESCRIPTION
This onion family plant has a number of tightly packed bulbs (clove)s wrapped in papery scale leaves. The true leaves of the plant are long flat and solid.

DISTRIBUTION
It grows in the highlands mostly between 1600 and 2200m. There are kinds that will grow in hot coastal places. It is frost resistant.

CULTIVATION
Plants are grown by planting individual cloves. A spacing of 20cm is suitable.

PRODUCTION

USE
The cloves are used in small amounts to flavour food.

The leaves can also be used.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>bulbs</td>
<td>67.8%</td>
<td>117cal</td>
<td>3.5g</td>
<td>18mg</td>
<td>1.5mg</td>
<td>trace</td>
<td>10μg</td>
</tr>
<tr>
<td>leaves</td>
<td>86.4%</td>
<td>44cal</td>
<td>2.6g</td>
<td>58mg</td>
<td>0.6mg</td>
<td></td>
<td>920μg</td>
</tr>
<tr>
<td>flowers</td>
<td>88.6%</td>
<td>39cal</td>
<td>1.4g</td>
<td>25mg</td>
<td></td>
<td></td>
<td>44μg</td>
</tr>
</tbody>
</table>

INSECTS
Probably thrips

DISEASES

PESTS

IMPORTANCE
At present not widely grown or used.
English: Chives

Scientific name: Allium schoenoprasum L.
Plant family: Amaryllidaceae

DESCRIPTION A narrow leaved onion which forms dense clumps. The flowers are purple. The leaves are hollow.

DISTRIBUTION It is tolerant of cold and suits the highlands. It needs a well drained soil. They can tolerate drought and grow on a wide variety of soils.

CULTIVATION Plants are grown by division of the clump, or by seeds. A spacing of 15cm between plants is suitable. The leaves can be cut off sever-l times.

PRODUCTION

USE The mild flavoured leaves are eaten raw or used to flavour food.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>92%</td>
<td>21cal</td>
<td>2.7g</td>
<td>33mg</td>
<td>0.5mg</td>
<td></td>
<td>32mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE It is becoming more common in the highlands.
128

**NAME**

English: Chinese chives  
Scientific name: *Allium tuberosum* Rott.ex Spreng  
(Often as *Allium odoratum* L.)

**DESCRIPTION**

These onions have rhizomes but no real bulbs. The leaves are flat and solid. Flowers are white. A dense clump of plants is produced.

**DISTRIBUTION**

**CULTIVATION**

Plants can be grown by dividing the clump of plants or by seed. Seed production is not easy.

**PRODUCTION**

**USE**

The leaves and young flowers are used to flavour foods.

**FOOD VALUE**

/ 100 g edible portion

moisture  energy  protein  calcium  iron  provitA  provitC

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE**

Rarely seen.
English: Celery    Scientific name: *Apium graveolens* var. *dulce*  
(Mill.) D.C.  
Plant family: Apiaceae

**DESCRIPTION** A herb up to 1m high. It has leaf stalks with ridges and they are like a half circle when cut across.

**DISTRIBUTION** It is mainly grown in the highlands. It grows up to about 2100m altitude. It is damaged by frost.

**CULTIVATION** Plants are mostly grown from seed and transplanted. To produce white stalks, the plant is wrapped up or soil is mounded up around the plant.

**PRODUCTION** It takes about 9 months until harvest.

**USE** The leaf stalks are eaten raw or used to flavour foods. The leaves can also be used for flavouring.

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>92.8% 21cal</td>
</tr>
<tr>
<td>protein</td>
<td>1.4g</td>
</tr>
<tr>
<td>calcium</td>
<td>62mg</td>
</tr>
<tr>
<td>iron</td>
<td>2.5mg</td>
</tr>
<tr>
<td>provitA</td>
<td>1040g</td>
</tr>
<tr>
<td>provitC</td>
<td>20mg</td>
</tr>
</tbody>
</table>

|          | 81.3%  |
| moisture |        |
| protein  | 6.0g   |
| calcium  | 23mg   |
| iron     | 6.3mg  |
| provitA  | 6000g  |
| provitC  | 62mg   |

**INSECTS** *Diachysis orichalcea* Fab.  
Shot hole weevils *Orikius destructor* Mshl. & *O. inimicus* Mshl.

**DISEASES**

**PESTS**

**IMPORTANCE** Plants are fairly commonly seen in highland markets.
HONES

English: Arenga palm
Tok pisin: Sanis

Scientific name: Arenga microcarpa Becc.
Plant family: Areaceae

DESCRIPTION A small clumpy palm with leaves which are once branched (unipinnate) & with narrow long leaflets along the leaf stalk. The leaflets form a V shape along the midrib.

DISTRIBUTION They are widespread and common in the lowlands.

CULTIVATION They normally grow wild.

PRODUCTION

USE The shoots are eaten
It is probable that the male flower could be cut off and the sap collected and boiled to concentrate the sugar. Sago starch can probably also be processed from the trunk.

CAUTION The juice of the fleshy fruit irritates the skin.

FOOD VALUE

/ 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A common palm used for edible shoots in several areas.
NAMES
English: Asparagus
Scientific name: Asparagus officinale L.
Plant family: Liliaceae

DESCRIPTION A perennial plant with fernlike leaves and underground root stock.

DISTRIBUTION Mainly in the highlands over 1000m altitude. It grows up to 2600m. It can be grown on the coast with special management.

CULTIVATION 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 1m x 1m is suitable. If white shoots are required, they need to be kept covered with soil. Shoots turn green in sunlight.

PRODUCTION The first harvest is 18-24 months after planting.

USE The young shoots are eaten cooked. They should only be washed just before cooking.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>92.7%</td>
</tr>
<tr>
<td>energy</td>
<td>21 cal</td>
</tr>
<tr>
<td>protein</td>
<td>2.5g</td>
</tr>
<tr>
<td>calcium</td>
<td>16mg</td>
</tr>
<tr>
<td>iron</td>
<td>1.4mg</td>
</tr>
<tr>
<td>provita</td>
<td>380 g</td>
</tr>
<tr>
<td>provitC</td>
<td>20mg</td>
</tr>
</tbody>
</table>

INSECTS Shot hole weevils Oxylus destructor Mshl.

DISEASES

PESTS

IMPORTANTANCE Not widely grown, mostly near houses of Europeans.
NAMES

English: Bamboo (small)  Scientific name: *Bambusa forbesii* (Hidl.) Holt.
Plant family: Poaceae

DESCRIPTION A bamboo which grows up to about 5m tall and has canes about 3cm across. It flowers almost continually, and doesn't die after flowering. There are distinct hairs on the leaf sheath where the blade joins the stalk.

DISTRIBUTION It grows from sea level up to about 1250m altitude.

CULTIVATION It is planted from cuttings of the cane. They take a little over a year to establish and produce. They also grow wild.

PRODUCTION

USE The young shoots are harvested and cooked and treated like a pitpit.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE It occurs fairly widely as a self sown plant and is a minor food in several areas. It is cultivated in gardens at Kutubu.
DESCRIPTION A large bamboo with strong stalks used for buildings. The stalks can be 20 m tall and 5-10 cm across at the base. It very rarely flowers. The distinctive culm sheath (top of the leaf that is wrapped around the stalk) helps identify the plant.

DISTRIBUTION It has been introduced to P.N.G. and is common in the lowlands. (A different large bamboo is grown and eaten in the highlands)

CULTIVATION It is easily grown by planting cut portions of the green stalks.

PRODUCTION

USE The young shoots are cooked and eaten.

FOOD VALUE / 100 g edible portion

moisture   energy    protein    calcium    iron    provitA    provitC

INSECTS

DISEASES

PESTS

IMPORTANCE The plant is widespread and is important for building. As a food plant it is only of minor importance.
NAMES

English: Bamboo
Tok pisin: Mambu
Scientific name: *Nastus elatus* Holttum
Plant family: Poaceae

DESCRIPTION A large bamboo with stalks 20m long and 5-6cm across. The leaves are fine and narrow. It produces large clumps.

DISTRIBUTION It grows in the highlands between about 1200m and 1900m altitude. It only occurs in P.N.G.. Clumps are planted near highland houses.

CULTIVATION It is planted by dividing an old clump and planting the shoots. It can also be grown from cuttings.

PRODUCTION New shoots are produced throughout the year.

USE The pith in the centre of young shoots is eaten after cooking.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS Horned weevil *Apirocalus conmutus* Pasc.
Migratory locust *Locusta migratoria* (L.)

DISEASES Leaf blotch due to a fungus *Trematosphaerella bambusae* (Miyake & Hara)Hino & Katumoto.

PESTS

IMPORTANCE Most highland families maintain at least one clump to use as containers, and eat surplus shoots.
NAMES

English: Silver beet
Scientific name: Beta vulgaris var. cicla
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 are produced from the base. Plants can also be blue.

DISTRIBUTION It needs to be over at least 500m altitude. It is mostly grown between 1000 and 2600m altitude.

CULTIVATION It is grown from seeds. Under P.N.G. conditions it is not normally possible to save your own seed.

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

USE The leaves and stalks are cooked and eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
89.6% 28cal 2.4g 96mg 0.9mg 2665 g 12mg

INSECTS Beet webworm Hymenia recurvalis (Fabricius)
Shot hole weevils Orilius destructor Mshl. & O. inimicus Mshl.

DISEASES Leaf spot due to fungus Cercospora beticola Sacc.
Blossum blight fungus Choanephora cucurbitarum(Berk. & Rav.) Thaxt.

PESTS Root knot nematode Meloidogyne incognita var. acrita Chitwood

IMPORTANCE It is moderately common in some highland areas.
NAMES

English: Capsicum Peppers
Scientific name: Capsicum annuum L.
Plant family: Solanaceae

DESCRIPTION An annual plant up to 1.5m high. The flowers are produced singly and are yellow or white. Fruit are about 10cm long and 6 cm wide and red when fully ripe. Kinds with different shaped fruits also occur.

DISTRIBUTION Plants grow from sea level up to about 2400m altitude. 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 your own seed. Seed will keep for 2 or 3 years. Seeds germinate in 6-10 days. Plants can be transplanted. Plants need to be about 50cm 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.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>92%</td>
<td>26cal</td>
<td>1.3g</td>
<td>12mg</td>
<td>0.9mg</td>
<td>1750 g</td>
<td>103mg</td>
</tr>
<tr>
<td>leaves</td>
<td>82%</td>
<td>53cal</td>
<td>5.8g</td>
<td>246mg</td>
<td>1.4mg</td>
<td>6210 g</td>
<td>68mg</td>
</tr>
</tbody>
</table>

INSECTS White scale *Pseudaulacaspis pentagona* (Taeg)
Fruit fly *Dacus trivialis*
Corn earworm *Heliothis armiger* Hub.
Shothole weevil *Orikius inimicus* Mshl.
Stink bug *Plautia sp."

DISEASES Fruit rot (anthracnose) fungus *Glomerella cingulata* (Stonem) Spauld. & Schrenck

PESTS Root knot nematode *Meloidogyne incognita var.acrita* Chitwood

IMPORTANCE Becoming a popular vegetable to eat raw.
DESCRIPTION  A tall grass up to 2m high with long slender leaves. The stems have a soft white centre inside. The female flowers have a hard covering which changes from green to black to white as it ripens. Male flowers are small and on top. The seed is like a bead and used for necklaces.

DISTRIBUTION  It grows wild and semi cultivated in many areas of P.N.G.. It is well suited to grow in swampy places. It grows up to 2000m altitude.

CULTIVATION  Plants are grown by seed. It grows wild in many swampy places.

PRODUCTION  Seeds are ready to harvest about 5 months after sowing.

USE  The seeds are eaten raw. The seeds can be crushed to produce a cereal flour.

FOOD VALUE  / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>seeds</td>
<td>15%</td>
<td>306cal</td>
<td>12g</td>
<td>46mg</td>
<td>0.7mg</td>
<td>trace</td>
<td>0</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES  Leaf spot due to fungus Cercospora sp.
Tar spot due to fungi Phyllachora coicis P. Henn & Phyllachora graminis Puch.
Rust due to fungus Puccinia oposta Mundk. & Thirum.
Leaf galls and mosaic due to viruses.

PESTS

IMPORTANCE  Common in most areas of the country but very rarely eaten. It is eaten often in some places e.g. Mendi Valley.
NAMES

English: Globe artichoke  Scientific name: Cynara scolymus L.
Plant family: Asteraceae

DESCRIPTION A thistle like perennial plant 1-2m high. It has deeply lobed leaves. The flower is purple and surrounded by green bracts. The flower is about 10cm across.

DISTRIBUTION It can be grown in the highlands. It suits drier areas.

CULTIVATION Plants can be grown by seed or suckers. It is best to grow the seeds in a nursery and then transplant them. It can also be grown by dividing up a mature clump.

PRODUCTION The flower buds can be produced over a 2 to 3 year period.

USE The fleshy bracts of the flower and the base of the flower head are boiled and eaten. (To stop the cut artichokes turning brown in air, they can be dipped in lemon juice.)

FOOD VALUE / 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC
77.4%  73cal  4.5g  80mg  2mg  150g  trace

INSECTS

DISEASES

PESTS

IMPORTANCE Not commonly seen although apparently gaining some acceptance in some areas.
English: Okra
Scientific name: *Hibiscus esculentus* L.
(Syn. *Abelmoschus esculentus* (L)Moench
Plant family: Malvaceae

**DESCRIPTION** A tropical annual plant. It grows erect, often with hairy stems. It mostly grows about 1m tall. The flowers are yellow with red hearts. The fruits are green, long and ribbed.

**DISTRIBUTION** It suits the hot humid lowlands but is unsuited to the highlands. It cannot tolerate drought.

**CULTIVATION** They are grown from seeds. Seeds are easy to collect. They need high temperatures for germination (over 20°C) and a sunny position.

**PRODUCTION** Plants maintain production if the fruits are harvested regularly. Plants are ready to harvest 8-10 weeks after sowing.

**USE** Pods are eaten cooked. They are slimy, but less so if fried. Dried powdered seeds can be used in soups. Young leaves can be eaten cooked. Flowers can also be eaten.

**FOOD VALUE** / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>pods</td>
<td>91.1%</td>
<td>29cal</td>
<td>2g</td>
<td>92mg</td>
<td>0.5mg</td>
<td>500 g</td>
<td>500 g</td>
</tr>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td>26g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>leaves</td>
<td>81.5%</td>
<td>4.4g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Seeds contain 14-19% oil.

**INSECTS** Corn earworm *Heliothis armigera* (Hubner)
Cotton aphid *Aphis gossypii* Glover
Cotton looper *Anomis flava* Fab.
Red cotton bug *Dysdercus cingulatus* (F)
Coffee leaf roller *Homona coffearia* Niet.
and others e.g. *Carias fabia* Stoll.; *Ganae pulchella* Pascoe; *Adoxophyes melichron*; *Atractomorpha crenaticeps* Blanch; *Colgan tricolor* Dist.; *Hallicus tikiali* Reut.; *Nisotra kassela* Bryant; *Rhynaria cacaona* Gress.; *Xanthodes transversa* Guenee.

**DISEASES** Distorted leaves probably due to a virus.

**PESTS** Root knot nematode *Meloidogyne incognita* var. *acrita* Chitwood.

**IMPORTANCE** An introduced vegetable grown in a few lowland areas. Not yet common.
ENGLISH: Lettuce

SCIENTIFIC NAME: Lactuca sativa L.

PLANT FAMILY: Asteraceae

DESCRIPTION: A leafy vegetable which forms a heart or clump of tightly wrapped leaves. The leaves are often pale green. Plants are about 20cm high.

DISTRIBUTION: Plants are grown throughout P.N.G. but particularly in the highlands and mainly for sale.

CULTIVATION: Plants are grown from seeds and often transplanted. Seeds need to be sown very shallowly. In hot places lettuce develops a bitter taste if transplanted or checked in their growth. Cutting the tap root can stop plants seeding quickly.

PRODUCTION

USE: Eaten raw or in soups.

FOOD VALUE: / 100g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>96%</td>
<td>16cal</td>
<td>1.2g</td>
<td>36mg</td>
<td>1.2mg</td>
<td>1450g</td>
<td>10mg</td>
</tr>
</tbody>
</table>

INSECTS: Cotton aphis Aphis gossypii Glover
Corn earworm Heliothis armiger Hub.
Cluster caterpillar Spodoptera litura (Fab.)
Also Ananipa sp.; Agrotis interjectionis Guenee; Aporocalus terrestris Thompson; Cassida sp.; Cicadella sp.; Coelophora inaequalis Fab.; Cyphopus sp.; Euscytus hemelytrus (de Haan); Kolla sp.;

DISEASES: Collar rot fungus Sclerotium rolfsii Sacc.
Leaf spot due to fungus Septoria lactucae Pass.
Mosaic possibly due to a virus.

PESTS: Root knot nematode Meloidogyne incognita var. acrita Citwood

IMPORTANCE: It has social significance to affluent people. It is mostly grown for sale in highland areas.
English: Tomato

Scientific name: *Lycopersicon esculentum*
(Syn. *Solanum lycopersicum* L.)
Mill.

Plant family: Solanaceae

DESCRIPTION  A short lived perennial plant. It is upright but with weak stems. It is bad smelling. Flowers are yellow and fruit are round and red when ripe. Yellow fruit also occur.

DISTRIBUTION  It grows from sea level to 2400m altitude. It needs to be grown in fertile soil. For best production it requires much water, plenty of sunshine and low night temperatures. Frost susceptible.

CULTIVATION  Plants are sown from seeds. These are normally sown in a nursery and transplanted. They can also be grown from cuttings. To give fewer larger fruit the side branches of upright types are removed. Upright plant types need to be tied to stakes.

PRODUCTION  Harvesting commences after about 14 weeks. Yields can be 3-4kg per plant of fruit.

USE  The fruit is eaten raw or cooked.

CAUTION  Although in a lot of places in P.N.G. the leaves are eaten, this is probably not a good idea. Leaves and green fruit are poisonous.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>94%</td>
</tr>
<tr>
<td>energy</td>
<td>20 cal</td>
</tr>
<tr>
<td>protein</td>
<td>1.2g</td>
</tr>
<tr>
<td>calcium</td>
<td>7mg</td>
</tr>
<tr>
<td>iron</td>
<td>0.6mg</td>
</tr>
<tr>
<td>provitA</td>
<td>500 g</td>
</tr>
<tr>
<td>provitC</td>
<td>25mg</td>
</tr>
</tbody>
</table>

INSECTS  Black cutworm *Agrotis ipsilon* (Hufn.)
Tomato grub *Heliotris armiger* (Hubner)
Green vegetable bug *Nezara viridula* (Linnaeus)
Cluster caterpillar *Spodoptera litura* (Fabricius)
*Leptoglossus australis* (Fabricius)
*Plusia chalcites* Esper
*Psylliodes sp*

DISEASES  Early blight fungus *Alternaria solani* Sorauer
Brown mould fungus *Cladosporium fulvum* Cooke
Fusarium wilt fungus *Fusarium oxysporum* f. *lycopersici* (Sacc.)
Leaf spots fungal *Cercospora spp*

Sny. & Hans
*Alternaria solani* Sorauer

and *Septoria lycopersici* Speg.

Bacterial wilt *Pseudomonas solanacearum* E.P. Smith

Mosaic virus

PESTS  Root knot nematodes *Meloidogyne arenaria* (Neal) Chitwood
and *Meloidogyne incognita* var. *acrita* Chitwood

IMPORTANCE  Common in small amounts in most areas of the country, but often for sale as it is not a popular food.
ENGLISH: Arrowroot  
Scientific name: *Maranta arundinacea* L.  
Plant family: Marantaceae

**DESCRIPTION** A perennial plant up to 2m high with large fleshy underground rhizomes. It has large leaves on long stalks. Flowers are small and white. The rhizomes can be 20cm long and about 3cm across. They are covered with fleshy scales.

**DISTRIBUTION** Plants grow from the coast up to 900m altitude. It needs a rainfall of 1500-2000 yearly.

**CULTIVATION** Plants are grown from pieces of rhizome or occasionally suckers. A spacing of 1m x 0.5m is suitable. It requires a fertile soil.

**PRODUCTION** Rhizomes are ready for harvest after about 11 months.

**USE** The rhizomes are used in soups or sauces. They can be just scraped & boiled. They can be used for making flour.

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

**FOOD VALUE**

<table>
<thead>
<tr>
<th>% moisture</th>
<th>energy (Kcal)</th>
<th>protein (g)</th>
<th>calcium (mg)</th>
<th>iron (mg)</th>
<th>provitamin A (mg)</th>
<th>provitamin C (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>67.4%</td>
<td>125</td>
<td>0.1-1.7</td>
<td>15</td>
<td>1.9</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES** Probably leaf blight - *Pellicularia filamentososa*

**PESTS**

**IMPORTANCE** It has mostly been grown as an experimental crop in P.N.G., and is probably not widely used by village people.
NAMES

English: Scientific name: Monochoria hastata (L.) Solms and Monochoria vaginalis (Burm.f.) Presl.
Plant family: Pontederiaceae

DESCRIPTION Herbs which grow in mud. The leaves have long erect stalks and some leaf stalks have blue, pink or white flowers.

DISTRIBUTION They mostly occur in swampy fresh water pools and ditches near the coast e.g. Daru, Sepik. M. vaginalis grows to 1550m altitude. M. hastata grows to 700m altitude.

CULTIVATION It grows wild from seeds.

PRODUCTION

USE The plants (except roots) are eaten as a vegetable.

FOOD VALUE

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>93%</td>
<td>18cal</td>
<td>1g</td>
<td>80mg</td>
<td>3.7mg</td>
<td>600 g</td>
<td>50mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE The plant is moderately common in swamps. It is only eaten by some groups of people. It is also eaten in other countries.
VAMES

English: Lotus

Scientific name: Nelumbo nucifera Gaertn.
(Syn. Nelumbium nucifera (L.)Druce
and Nelumbium speciosum Willd.)
Plant family: Nymphaeaceae

DESCRIPTION A perennial aquatic plant
with flowers and bell shaped leaves
 carried well above the water on long
stalks. The stalk joins to the centre
of the leaf. Flowers are pink and 15cm
to 25cm across. The mature fruit is a
spongy cone shaped structure with
several seeds about 1cm across under the
holes in the top part.

DISTRIBUTION It occurs in the Fly and
Sepik River areas. It will probably
grow up to about 1000m altitude.

CULTIVATION It can be grown from
sections of the root or from seed.

PRODUCTION

USE The young rhizomes, young stalks,
young leaves and flower buds and the
young and ripe seeds are eaten. Also
the raw or cooked fruits.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>seeds</td>
<td>77%</td>
<td>88cal</td>
<td>5.2g</td>
<td>76mg</td>
<td>1.4mg</td>
<td>0</td>
<td>10mg</td>
</tr>
<tr>
<td>rhizomes</td>
<td>85.1%</td>
<td>52cal</td>
<td>2.1g</td>
<td>23mg</td>
<td>1.6mg</td>
<td>0</td>
<td>38mg</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flowers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE The plant occurs in several coastal areas and the seeds
are the part most commonly used for food.
English: Waterlilies
Scientific name: *Nymphaea pulexens* Willd.
(Possibly also *Nymphaea gigantea* Hook. and other species.
Plant family: Nymphaeaceae

**DESCRIPTION** Waterlilies with large flat leaves which float on the water. The white flowers are on stalks which reach above the water. The seed head is a cone shaped structure full of large numbers of very small seeds.

**DISTRIBUTION** The plants occur in coastal swamps, lagoons and lakes.

**CULTIVATION** Plants grow naturally from seed. Seeds float temporarily then sink.

**PRODUCTION**

**USE** The small seeds in the seed head are eaten raw or cooked.
Of some kinds the flower stalk is skinned then eaten raw.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** The plant is more commonly used in very swampy lagoon areas such as Suki and Balimo in the Western Province.
NAMES

English: Rice
Tok pisin: Rais

Scientific name: Oryza sativa L.
Plant family: Poaceae.

DESCRIPTION
A grass with hollow stems.
A clump of shoots are produced and the seeds hang from the flower stalk at the top.

DISTRIBUTION
Plants are 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. Occasionally it is grown up to 1600m.

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

PRODUCTION

USE
The grains are boiled and eaten after the husks are removed by pounding and winnowing.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>brown</td>
<td>13.5%</td>
<td>354cal</td>
<td>7.6g</td>
<td>16mg</td>
<td>2.8mg</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>home pounded</td>
<td>12.4%</td>
<td>357cal</td>
<td>7.1g</td>
<td>14mg</td>
<td>1.8mg</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>polished</td>
<td>11.8%</td>
<td>366cal</td>
<td>6.4g</td>
<td>24mg</td>
<td>1.9mg</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS
Birds.

IMPORTANCE
Although rice is a very popular food, rice is only grown on a small scale in several coastal areas.
NAMES
English: Parsnip
Scientific name: *Pastinaca sativa* L.
Plant family: Apiaceae

DESCRIPTION A plant with a long thickened tap root. The stems are angular and have grooves along them. The leaves are divided. The thickened root is yellowish white.

DISTRIBUTION It grows in the highlands from 1700 to 2600m altitude. It is frost resistant.

CULTIVATION Plants are grown from seeds.

PRODUCTION Plants are slow growing.

USE The root is cooked and eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
79.1% 76cal 1-1.7g 50mg 0.7mg 20 g 16mg

INSECTS Grass bug *Halticus tilialis* Reuter

DISEASES

PESTS Root knot nematodes *Meloidogyne incognita var.acrita* Chitwood & *Meloidogyne javanica* Chitwood

IMPORTANCE It is not widely grown and not liked by many people.
ENGLISH: Eggplant

SOLARUM MELONGENA L.

PLANT FAMILY: SOLANACEAE

DESCRIPTION: An annual shrubby herb up to 1m tall with purple fruit. Sometimes the fruit is spiny and the plant is hairy. The leaves are angular and unequal near the stalk. Flowers are bluish red and 5 cm across. The fruit colour and shape vary. Often the fruit are 10-20cm long and 5-6cm wide.

DISTRIBUTION: Plants grow from sea level up to 2200m altitude. It suits wet climates. Frost tender.

CULTIVATION: Plants are grown from seeds. Seeds germinate slowly. Seedlings can be transplanted.

PRODUCTION: Fruit are ready for harvest after 3 months.

USE: Fruit are mostly fried. The leaves although edible are hairy and not good flavour.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>92%</td>
<td>26cal</td>
<td>1.6g</td>
<td>22mg</td>
<td>0.9mg</td>
<td>50g</td>
<td>6mg</td>
</tr>
</tbody>
</table>

INSECTS

Licyllus albicollis F.
Psylliodes loriae Jacoby

DISEASES: Leaf spot

PESTS: Root knot nematode Meloidogyne spp.

IMPORTANCE: Occasionally seen in most areas of the country.
NAMES
English: Spinach  Scientific name: Spinacia oleracea L.
Plant family: Chenopodiaceae

DESCRIPTION  An annual leafy vegetable. The broad leaves are produced in a clump on short stalks. Plants are separately male and female. (So both types are needed if seed is to be produced.)

DISTRIBUTION  It does not suit the lowlands and grows best where the temperature varies between 10 & 20°C or above 2000m altitude. It is frost resistant.

CULTIVATION  It is normally sown directly by seeds.

PRODUCTION  The older leaves are picked off.

USE  Leaves are cooked in a small amount of water.

FOOD VALUE  / 100 g edible portion

moisture  93%  energy  19cal  protein  2.4g  calcium  62mg  iron  3.9mg  provitA  3640g  provitC  56mg

INSECTS  Pumpkin beetles Aulacophora spp., Leaf eating ladybirds Henoepilachna signatipennis Boisd., Beet webworm Hymenia recurvalis (Fab.), A leaf sucking bug Lygaeus hospes Fab., Psylliades sp.

DISEASES

PESTS

IMPORTANCE  Not often seen.
Names
English: Salsify  Scientific name: *Tragopogon porrifolius* L.
Plant family: Asteraceae

Description  A herb which can be up to 1m high and it has a white thickened root. It produces long stalked purplish flower heads. It has a clump of long leaves a little like an onion.

Distribution  It grows in the highlands.

Cultivation  Plants are grown from seed. They are normally sown direct and thinned out if needed.

Production

Use  The white roots are eaten boiled, baked or in soup. The leaves are edible. (Cut pieces quickly discolor before cooking unless stored in water with a little lemon juice added.)

Food Value  / 100 g edible portion
moisture energy protein calcium iron provitA provitC

Insects

Diseases

Pests

Importance  Occasionally seen in gardens of Europeans in the highlands.
NAMES

English: Corn salad  Scientific name: Valerianella locusta (L) Lat.
(Syn. V. olitoria (L) Poll.)  Plant family: Valerianaceae

DESCRIPTION  A small herb with round succulent green leaves. It grows up to 15 cm tall. The leaves grow in compact groups.

DISTRIBUTION  A very cold resistant vegetable suitable for high altitude areas.

CULTIVATION  Mostly grown from seed.

PRODUCTION

USE  The leaves are eaten mostly fresh.
They can be lightly cooked.

FOOD VALUE  / 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC
It is very high in methionine.

INSECTS

DISEASES

PESTS

IMPORTANCE  Seeds are available in stores and it is just being tried out.
 NAMES

English: Carrot
Scientific name: *Daucus carota* L.
Plant family: Apiaceae

DESCRIPTION A root crop grown from seed.
The root is long in shape and orange in colour. The leaves are feathery.

 DISTRIBUTION It is mostly grown in the highlands, but will grow from sea level to 2600m altitude. Sometimes on the coast only leaves are produced. They are frost resistant.

 CULTIVATION They are grown from seeds sown directly. A spacing 5cm apart in rows 15-20cm apart is suitable.

 PRODUCTION

 USE Both the roots and the leaves are edible.
The roots can be eaten raw or cooked.

 FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>root</td>
<td>90%</td>
<td>37cal</td>
<td>1.1g</td>
<td>36mg</td>
<td>1.2mg</td>
<td>7000 g</td>
<td>8ug</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

 INSECTS Black cutworm *Agrotis ipsilon* (Hufn.)
Horned weevil *Apirocalus cornutus* Pasc.
Shot hole weevils *Orchius inimicus* Mshl.

 DISEASES Leaf spot due to fungus *Alternaria dauci* (Kuhn)Groves & Skolko

 PESTS Root knot nematode *Meloidogyne javanica* (Treub.)Chitwood

 IMPORTANCE Not common but occasionally seen in many areas of the country. Often it is grown for sale.
**Names**

English: Beetroot  
Scientific name: *Beta vulgaris* L.  
Plant family: Chenopodiaceae

**Description**  
A dark green leafed plant with a round fattened root. The root is red in colour. The plant is upright and about 20cm tall.

**Distribution**  
It is mainly in the highlands between 1150 and 2600m altitude. Frost resistant.

**Cultivation**  
Plants are grown from seed. Normally the plants are planted in the final site because transplanting is difficult.

**Production**

**Use**  
The red tubers are eaten after cooking. They are often boiled, sliced and served with vinegar. Tops are edible.

**Food Value**

<table>
<thead>
<tr>
<th>100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>root</td>
<td>87.4%</td>
<td>46cal</td>
<td>1.6g</td>
<td>23mg</td>
<td>1.1mg</td>
<td>trace</td>
<td>6mg</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Insects**

Ladybird *Menosepilachna signatipennis* (Boisd.)  
Horned weevil *Ariococcus cornutus* Pasc.  
Weevil *Alcidoses sp.*  
Beet webworm *Hymenia recurvalis* (Fabr.)

**Diseases**  
Leaf spot due to a fungus *Cercospora beticola* Sacc.  
Blossum blight fungus *Choanephora cucurbitarum* (Berk. & Rav.) Thaxter

**Pests**  
Root knot nematode *Meloidogyne incognita var. acrita* Chitwood

**Importance**  
Not often seen.
English: Chicory
Scientific name: Cichorium intybus L.
Plant family: Asteraceae

DESCRIPTION A perennial herb up to 1m high. It has a bright blue flower. Kinds have been selected either for their fattened edible roots or for their edible leaves.

DISTRIBUTION Highlands.

CULTIVATION Plants are grown from seed. Young tender shoots are formed by stripping roots of their leaves then covering with soil.

PRODUCTION

USE The leaves and plant are eaten raw or cooked. They are bitter. The roots of some kinds are dried, roasted and powdered up then added to coffee.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES Leaf spot due to a fungus Alternaria cichorii Nattrass

PESTS

IMPORTANCE Mainly in the gardens of expatriates.
NAMES
English: Endive
Scientific name: Cichorium endivia L.
Plant family: Asteraceae

DESCRIPTION The plant looks a lot like lettuce but the leaves are wrinkled near the edge.

DISTRIBUTION Plants grow from sea level up to 2600m altitude. It needs a fertile soil and the soil needs to be well drained. It is more tolerant to heat than lettuce.

CULTIVATION Plants are grown from seed. They are often transplanted. A spacing of 30cm x 30cm is suitable. Covering the plants for 2-3 weeks before harvesting makes the leaves whiter, more tender and less bitter. It is possible to save seed.

PRODUCTION Plants are ready about three months after transplanting.

USE The leaves are eaten raw or cooked.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
93% 20cal 1.7g 81mg 1.7mg 1980 g 10mg

INSECTS

DISEASES Leaf spot due to a fungus Alternaria cichorii Nattrass

PESTS

IMPORTANCE Not widely grown.
<table>
<thead>
<tr>
<th>Nuts.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Betel nut 157</td>
<td>Sloanea tieghemii 198</td>
</tr>
<tr>
<td>Karuka 158</td>
<td>Sterculia schumanniana 199</td>
</tr>
<tr>
<td>Wild karuka 159</td>
<td>Castor bean 200</td>
</tr>
<tr>
<td>Pandanus antaresensis 161</td>
<td></td>
</tr>
<tr>
<td>Coastal pandanus 160</td>
<td></td>
</tr>
<tr>
<td>Bunam 162</td>
<td></td>
</tr>
<tr>
<td>Canarium kaniense 164</td>
<td></td>
</tr>
<tr>
<td>Canarium almonds 163</td>
<td></td>
</tr>
<tr>
<td>Canarium solomonense 165</td>
<td></td>
</tr>
<tr>
<td>Canarium schlechteri 166</td>
<td></td>
</tr>
<tr>
<td>Pao 167</td>
<td></td>
</tr>
<tr>
<td>Java almond 168</td>
<td></td>
</tr>
<tr>
<td>Terminalia copelandii 169</td>
<td></td>
</tr>
<tr>
<td>Terminalia impediens 170</td>
<td></td>
</tr>
<tr>
<td>Okari 171</td>
<td></td>
</tr>
<tr>
<td>Terminalia megalocarpa 172</td>
<td></td>
</tr>
<tr>
<td>Castanopsis chestnuts 173</td>
<td></td>
</tr>
<tr>
<td>Elaeocarpus pullenis 174</td>
<td></td>
</tr>
<tr>
<td>Elaeocarpus polydactylus sp 4 175</td>
<td></td>
</tr>
<tr>
<td>Elaeocarpus womensleyi 176</td>
<td></td>
</tr>
<tr>
<td>Finschia nuts 177</td>
<td></td>
</tr>
<tr>
<td>Finschia ferruginiflora 178</td>
<td></td>
</tr>
<tr>
<td>Heritiera littoralis 179</td>
<td></td>
</tr>
<tr>
<td>Ailla 180</td>
<td></td>
</tr>
<tr>
<td>Candle nut 181</td>
<td></td>
</tr>
<tr>
<td>Cashew 182</td>
<td></td>
</tr>
<tr>
<td>Pecans 183</td>
<td></td>
</tr>
<tr>
<td>Chestnuts 184</td>
<td></td>
</tr>
<tr>
<td>Moreton Bay chestnut 185</td>
<td></td>
</tr>
<tr>
<td>Breadnut tree 186</td>
<td></td>
</tr>
<tr>
<td>Aceratium oppositifolium 187</td>
<td></td>
</tr>
<tr>
<td>Hazel nuts 188</td>
<td></td>
</tr>
<tr>
<td>Walnut 189</td>
<td></td>
</tr>
<tr>
<td>Macadania nuts 190</td>
<td></td>
</tr>
<tr>
<td>Nipa palm 191</td>
<td></td>
</tr>
<tr>
<td>Omphalea queenslandiae 192</td>
<td></td>
</tr>
<tr>
<td>Pangi 193</td>
<td></td>
</tr>
<tr>
<td>Pistachio nut 194</td>
<td></td>
</tr>
<tr>
<td>Almond 195</td>
<td></td>
</tr>
<tr>
<td>Scleropyrum aurantiacum 196</td>
<td></td>
</tr>
<tr>
<td>Semecarpus sp 197</td>
<td></td>
</tr>
</tbody>
</table>
NAMES

English: Betel nut
Tok pisin: Buai
Scientific name: Areca catechu L.
Kabibi (A. macr.)
Also Areca macr. calyx Zippelius ex Blume

DESCRIPTION
A straight slender palm up to 30 m tall. The trunk has rings around it. The leaves are 1.5 m long with leaf divisions about 25 cm long. A much branched flower cluster develops below the sheath. The fruits are egg shaped and up to 7 cm long. They change from green to red or yellow as they ripen.

DISTRIBUTION
A. catechu from sea level up to 900 m altitude and A. macr. calyx in the highlands mostly between 1000 m and 1900 m.

CULTIVATION
Trees are grown from seed. The seedlings are transplanted at 1-2 years of age.

PRODUCTION
The palm commences bearing fruit after about 7 years. The fruit takes 6-8 months to ripen.

USE
The nut is chewed (with lime and betel pepper) as a masticatory.
The heart of the palm is edible.

CAUTION
Chewing betel nut is associated with cancer of the mouth and throat. It contains alkaloids and tannins.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provit A</th>
<th>provit C</th>
</tr>
</thead>
<tbody>
<tr>
<td>nuts dry</td>
<td>12.3%</td>
<td>349 cal</td>
<td>6 g</td>
<td>542 mg</td>
<td>5.7 mg</td>
<td>0 trace</td>
<td>0 trace</td>
</tr>
<tr>
<td>heart</td>
<td>86.4%</td>
<td>43 cal</td>
<td>3.3 g</td>
<td>6 mg</td>
<td>2 mg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is difficult to say how much food value if any is gained from chewing nuts.

INSECTS
Citrus mealy bug Planococcus citri (Risso)
Cane weevil borer Rhododendron obscurus Boisd.
Rhinoceros beetle Scapanes australis australis Boisd.
Zophiura lobulata Ghauri - no damage noted.

DISEASES
Black leaf mould fungus Brachysporium arecae (Berk. & Br.) Sacc.
Associated with leaf spot fungus Gloeosporium catechu Sydow and Graphium sp.

LEAF SPOT

PESTS

IMPORTANCE
It occurs as an important social nut and masticatory in all lowland areas. It is traded into the highlands.
NAMES

English: Karuka
Tok pisin: Karuka

Scientific name: Pandanus julianetlii Martelli
Plant family: Pandanaceae

DESCRIPTION A screwpine cultivated in high altitude areas for the edible keys. The leaves are long, thorned and opposite but arranged like a spiral. The leaves have bent tips. There are prop roots at the base. The fruit is a round composite fruit about 15-20cm across. It is made up of about 1 000 nuts.

DISTRIBUTION Trees grow between 1800 and 2500m altitude. They do best in forest clearings. They also occur in Irian Jaya.

CULTIVATION Trees can be grown from seeds, suckers or cuttings from the top of branches. Trees from seed have a taller trunk. Cuttings grow more quickly.

PRODUCTION The season is normally Dec. to Feb. but may occur in mid year. Trees bear every second year. They take 5-8 years from planting to first harvest. Trees last 50-60 years.

USE The nuts can be eaten raw or cooked. The flesh in the centre of the fruit can be eaten cooked. Dried nuts store well.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>kernels</td>
<td>9%</td>
<td>540-700cal</td>
<td>11.9-</td>
<td>419mg</td>
<td>14.1g</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The nuts have an oil content of 35-38%.

INSECTS Longhorn grasshoppers Segates connellii F.Willemse Segates gracilis Segistidea montana F.Willemse
Grubs eating the spongy layer inside the fruit.

DISEASES Black leaf mould fungus Lehmisia pandani (Rostr.)Theiss On seeds. fungus. Macrophoma pandani Berl. & Vogl.
Leaf spots.

PESTS Tree kangaroos.

IMPORTANCE A very important nut crop in high altitude areas.
English: Tok pisin: Wild karuka

Scientific name: Pandanus azosimos

Merrill & Perry

Plant family: Pandanaceae

DESCRIPTION A screwpine with erect leaves which are normally not bent at the tip. The leaves are close together. The leaves at the centre turn red then white at fruiting time. The large fruit is made up of about 1000 nuts. The fruit hangs on a stalk against the trunk.

DISTRIBUTION The usual range is from 2500 to 3100m altitude. Some are transplanted to lower altitudes.

CULTIVATION Trees are normally self sown but some are transplanted.

PRODUCTION The fruiting is seasonal and often a good season occurs every second year.

USE The kernel of the nuts is eaten. (Sometimes nuts are stored in the ground to soften the hard shell.)

FOOD VALUE

/ 100 g edible portion

moisture energy protein calcium iron provitamin A provitamin C

INSECTS Longhorn grasshoppers

DISEASES

PESTS Tree kangaroos

IMPORTANCE An important wild harvested nut for people with land at the right altitude.
NAMES
English: Coastal pandanus
Scientific name: Pandanus odoratissima L.f.
Also Pandanus tectorius (Parkinson) Soland.
Plant family: Pandanaceae

DESCRIPTION A screwpine with fruit in groups of 6-7 forming a large cluster. It has several branches and prop roots near the base.

DISTRIBUTION Plants occur in coastal areas especially just behind the shoreline.

CULTIVATION Plants are normally self sown.

PRODUCTION

USE The fleshy base of the fruit is eaten in one kind.
The kernels are eaten in another kind. Kernels are eaten raw or lightly roasted.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS Banana scab moth Nacoleia octasema (Meyrick)

DISEASES

PESTIS

IMPORTANCE Moderately common in coastal areas but not only eaten in some places.
NAMES
English: Scientific name: *Pandanus antaresensis*
Tok Pisin: St. John
Plant family: Pandanaceae

DESCRIPTION A branched scrub pine with
crowns normally at the same height.
Fruits are large clusters made up of
groups of 5 nuts. The kernels are small
and hard to extract. When ripe the
fruits turn red and the nuts drop
individually.

 DISTRIBUTION It grows in the highlands
from about 1600m to 2500m altitude.

CULTIVATION Plants are often self sown
but are also planted from seed.

PRODUCTION Nuts are usually harvested
after they fall. Production is not
distinctly seasonal. The outside fibres
are burnt off then the shell splits.

USE The kernels are eaten.

FOOD VALUE

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Although the trees are fairly common, the nuts are not
highly prized because they are hard to extract.
NAMES
Tok ples: Bunam in Pala language of New Ireland.  
Scientific name: *Pandanus englerianus* Mart. 
Plant family: Pandanaceae.

DESCRIPTION  An erect branching tree up to 12m tall. The trunk is up to 12cm across and has prop roots. The bark has many sharp prickles. Leaves are long (200 cm) and narrow (10 cm) and toothed along the edge. The fruit is long (40cm) x 12cm across and red.

DISTRIBUTION  It occurs in coastal areas on New Ireland and New Britain.

CULTIVATION  Trees are planted.

PRODUCTION

USE  The red outer layer of the fruit is cooked with hot stones to make a sauce.

FOOD VALUE  

| / 100 g edible portion | moisture | energy | protein | calcium | iron | provitA | provitC |

INSECTS

DISEASES

PESTS

IMPORTANCE  An important sauce very similar to "marita" in the mid altitude areas.
NAMES

English: Canarium almonds  Scientific name: Canarium indicum L.
Tok pisin: Galip  (Syn. Canarium commune L.)
Plant family: Burseraceae.

DESCRIPTION. A large tree up to 50m tall and 1m across. Near the base of the leaves are large toothed stipules. The large fruit containing one seed turns black when ripe. The fruit has a thin layer of pulp and a very hard inner shell. The kernel is inside the shell. Male and female flowers occur on separate trees. Fruit can be 6cm x 3cm.

DISTRIBUTION Trees occur in lowland rainforest especially on New Britain and North Solomons. They are mostly below 450m altitude.

CULTIVATION Trees are planted near houses. They are mostly grown from seed. They can be grown by budding or grafting.

PRODUCTION The main season is often April to May but trees can bear nuts 2 or 3 times a year. An average kernel weighs 3g.

USE The kernels are eaten raw or slightly roasted. Seeds can be dried and stored.

CAUTION The seed coat should not be eaten as it carries some substance producing diarrhoea.

FOOD VALUE / 100 g edible portion
moisture 9%  energy 644cal  protein 14.2g  calcium 119mg  iron 2.6mg  provitA 45g  provitC 23-72mg

INSECTS

DISEASES Heart rot due to fungus Phellinus noxius (Corner) G. H. Cunn.

PESTS

IMPORTANCE Moderately common and popular in coastal and island areas.
Scientific name: *Canarium kaniense* Laut.
Plant family: Burseraceae

**DESCRIPTION** A large tree up to 40m high and sometimes with buttresses. The flowers are near the ends of the branches. Fruits are 5-6cm long and 3-4cm across.

**DISTRIBUTION** It occurs mostly on the mainland and only in P.N.G.

**CULTIVATION**

**PRODUCTION** The fruit/nut production is seasonal.

**USE** The oily seeds are eaten.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>/ 100g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** A minor wild edible nut.
Scientific name: *Canarium salomonense* B.L.Burtt
Plant family: Burseraceae

**DESCRIPTION** A large tree up to 30m high with buttresses at the base. The bark is smooth grey and peels off in thin flakes. The fruit is 3-4cm long and 1-2cm across, slightly flattened and purplish black. Normally only one cell of the seed is developed.

**DISTRIBUTION** It occurs in North Solomons Province and in the Solomon Islands from sea level up to 500m or more. It grows in the rainforest.

**CULTIVATION** It grows wild and is cultivated.

**PRODUCTION**

**USE** The seeds are eaten. (The resin is used for making torches.)

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** A minor edible nut.
Scientific name: Canarium schlechteri Laut.
Plant family: Burseraceae

DISTRIBUTION A small understory tree in lowland and foothill rainforests. It is recorded from Morobe Province and New Britain as well as Malaysia.

CULTIVATION The trees grow wild.

USE The seeds have been recorded as edible.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>energy</td>
</tr>
<tr>
<td>protein</td>
<td>calcium</td>
</tr>
<tr>
<td>iron</td>
<td>provitA</td>
</tr>
<tr>
<td>provitC</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE This species has been recorded as having edible seeds. Its potential is not known, but it is only a minor food.
**English:**
Tok pisin: Pao

**Scientific name:** *Barringtonia novae-hibernae* Laut.

*and Barringtonia procera* (Miers)Knuth

**Plant family:** Barringtoniaceae

**DESCRIPTION** Small trees up to 6 or 8 metres tall. They have large shiny leaves that are bunched near the ends of the branches. Long hanging yellow flowers are produced from the branches. The fruits for along this long hanging stalk. Fruits are mostly blue, but green and red types occur.

**DISTRIBUTION** Trees grow in coastal areas and up to about 600m altitude.

**CULTIVATION** Trees are mostly grown from seed. They can also be grown from stem cuttings.

**PRODUCTION** Flowering is not seasonal. Well grown trees can produce after one year.

**USE** The kernels inside the nuts are eaten raw or roasted.

**CAUTION** The related plant *Barringtonia asiatica* (L)Kurz which grows along the foreshore is used as a fish poison.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES** A leaf spot occurs on the leaves

**PESTS**

**IMPORTANCE** A common and popular nut in some coastal areas.
NAMES
English: Java almond  Scientific name: Terminalia catappa L.
Plant family: Combretaceae

DESCRIPTION  A tree up to 25m tall with branches that lie horizontally and come out in layers. The branching is very distinctive. The leaves are oblong and large and crowded at the ends of the branches. They turn red and fall off twice a year. Flowers are greenish white and in a spike at the end of the branches. The lower flowers on a spike are female, then the others are male. The fruit is about 6cm long by 3cm wide, thick and flattened with a flange around the edge.

 DISTRIBUTION The tree is common in lowland areas particularly on sandy or rocky beaches. Seeds are spread by both bats and sea water as well as being planted by man. Trees are common along streets in coastal towns. They will grow from sea level up to about 800m altitude.

 CULTIVATION Seeds can be stored dry for a year or more. Seeds germinate freely and most seeds grow. Insects can badly damage the leaves of young seedlings.

 PRODUCTION Nut production is seasonal.

USE The kernels of the nuts are eaten raw or roasted.

FOOD VALUE / 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC

INSECTS Larvae feed on leaves Aiteta iridias Meyr.
Neotermes sp.
Mealy bug Perissoperneumon
Noctuid moth larvae Nagia episcopalis Hampson

DISEASES Leaf spot due to fungus Cercospora sp.
Sooty mould due to fungus Lembosia terminaliae Hansf.

PESTS

IMPORTANCE In coastal areas trees are common and nuts are popular.
**NAMES**

English: Tok pisin:  

**Scientific name:** *Terminalia copelandii* Elm  
(Syn. *Terminalia catappaoides* White & François)

**DESCRIPTION** A large tree up to 40m tall. The leaves are crowded at the thickened end of the small branches. Flowers are white, 25-50 cm long and near the end of branches. Flowers towards the base of the flower spike are female and the ones towards the end are male.

**DISTRIBUTION** They occur in primary rainforest up to 500m altitude. This species occurs in Malaysia, Indonesia and the Philippines as well as P.N.G. It is mostly know from the Western Province within P.N.G.

**CULTIVATION**

**PRODUCTION**

**USE** The fruits are recorded as edible.

**FOOD VALUE** / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** The tree is not common in P.N.G. and mostly occurs in the Western Province. It is only a minor food.
NAMES

English: Scientific name: *Terminalia impedens* Coode
Plant family: Combretaceae

DESCRIPTION A tree up to 42m tall. It has leaves that are clustered at the ends of thick twigs. Leaves can be 25cm x 12cm or larger and they taper towards the stalk. The leaves often have a purplish colour underneath. The stone inside the fruit splits into 2 unequal parts.

DISTRIBUTION It occurs in the lowland forest.

CULTIVATION Trees grown wild and are preserved in gardens.

PRODUCTION

USE The kernel inside the hard shell of the fruit is edible.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE
NAMES

English: Okari
Tok pisin: Okari

Scientific name: *Terminalia kaernbachii* Warb
(Syn. *Terminalia okari* C.T.White)

DESCRIPTION A large tree up to 40m tall. The branches are in layers and the leaves are mostly near the ends of the thick twigs. The leaves are large, hairy and reddish brown. The flower stalks are shorter than *T. impediens*. The fruit is very large up to 11cm x 8cm and red when ripe. The stone inside the fruit splits into 2 more or less equal parts.

DISTRIBUTION It occurs in lowland areas of P.N.G. and is more common along the South coast. They will grow up to 1300m altitude but do not produce well at this height.

CULTIVATION They are grown from seeds.

PRODUCTION Trees grow quickly but nut production may not start for 20 years.

USE The kernel inside the stone of the fruit is edible.

FOOD VALUE

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12.5g</td>
<td>70-71%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

70-71% of the nuts is a high quality fat.

INSECTS

DISEASES

PESTS

IMPORTANCE A very popular and very important nut.
Scientific name: Terminalia megalocarpa Exell
Plant family: Combretaceae

DESCRIPTION A tree which can be up to 40m tall. The leaves are at the tips of twigs and tend to hang downwards. The leaf stalks are quite long (3-7cm). The fruit is large and up to 8cm long. The fruit has green or yellow flesh. The stone inside is thin shelled and the embryo inside has 3 or 4 twisted cotyledons.

DISTRIBUTION It occurs in lowland forests.

CULTIVATION

PRODUCTION

USE The outer flesh of the fruit is edible.

FOOD VALUE

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ 100 g edible portion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A selected yellow fleshe form is eaten in the Solomon Islands.
English: Castanopsis
chestnut
P.N.G.oak

Scientific name: Castanopsis acuminatissima
(El.) A.DO

Plant family: Fagaceae

DESCRIPTION A tree up to 40m tall and
1m through at the base. Most trees have
several suckers growing from their base.
The roots of the tree are close to the
surface. The flowers are of separate
sexes but both types of flowers occur
on the one tree.

DISTRIBUTION It occurs throughout much
of P.N.G. and can form pure stands in
lower montane rainforest between 500 and
2000m altitude.

CULTIVATION Most trees are self sown or
transplanted to a better location. Self
sown seedlings can be found near large
trees.

PRODUCTION Pollination is most probably
by wind. Nut production is seasonal.
Large numbers of nuts are produced in a
good season. The nut is about 1.5cm long
and pointed at the end.

USE The seeds are eaten preferably after
cooking. They are boiled.
(The timber is a useful timber to build with.)
(Pigs like the seeds.)

CAUTION Mouth ulcers and anaemia have been reported from eating
large numbers of raw nuts.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitamin A provitamin C

INSECTS A leaf eating beetle Rhyparida coniacea Jac.

DISEASES Leaf spot probably due to a fungus.

PESTS

IMPORTANCE A fairly common nut tree in most highland areas but more
important in some areas.
Scientific name: *Elaeocarpus pullenis* Weibel
Plant family: *Elaeocarpaceae*

**DESCRIPTION** A tree up to 30m tall. The leaves are long (18 x 8cm) and shiny. They are clustered near the ends of twigs. The leaf stalks are long (5cm) and twigs are bluish. The fruit is large (5.5 x 4.5cm) with a bluish skin. Inside a 3 cornered hard stone has one seed inside.

**DISTRIBUTION** It occurs in rainforest and near streams. It is known from 700-1100m above sea level.

**CULTIVATION** It grows wild.

**PRODUCTION**

**USE** The seed is recorded as being eaten.

**FOOD VALUE** / 100 g edible portion
moisture energy protein calcium iron provitamin A provitamin C

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** An occasionally eaten wild edible nut.
Scientific name: *Elaeocarpus polydactylus* Schltr. gp.4  
(Syn. *E.nubigenus* Schltr.)

**DESCRIPTION** A tree or shrub up to 13m tall. The leaves are 3-6cm wide and 6-11 cm long and leathery. Flowers are few and are 5-11cm long. Fruits are 1.5cm x 1cm. They are green when unripe and blue when ripe.

**DISTRIBUTION** It grows in regrowth forest at 1850-2550 m above sea level. It mainly occurs in the Western and Eastern Highlands Provinces.

**CULTIVATION** Trees grow wild from seed.

**PRODUCTION**

**USE** The kernels inside the seeds are eaten.

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>energy</td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** An occasionally eaten wild edible nut in some areas.
NAMES

English: Elaeocarpus womersleyi Weibel
Tok pisin: Plant family: Elaeocarpaceae

DESCRIPTION A large tree up to 34m tall mostly with buttresses. The leaves are arranged alternately, are simple and have a toothed margin. The flowers and fruit are in groups on a small branch. The fruit can be up to 10cm across with green flesh and a stone inside which has a corrugated surface. The hard stone has 3 valves and is cracked to release the kernel.

DISTRIBUTION It occurs from sea level up to at least 2400m altitude but is most common in mid altitude regions. It is common in bush regrowth in old gardens.

CULTIVATION It normally grows wild but is occasionally planted from seed.

PRODUCTION Fruit production is seasonal probably late August to September.

USE The kernel of the nut is eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provita provitC

INSECTS A leaf eating beetle Rhynarida coriacea Jac.

DISEASES Rust due to fungi Aecidium elaeocarpi Racib.
Aecidium elaeocarpicola Cummins
Aecidium morokense Cummins

Sooty mould.

PESTS

IMPORTANCE An occasional nut tree in quite a few highland areas. It is mainly just harvested and used when found.
NAMES
English: Finschia
Scientific name: Finschia chloioxantha Diels
(Syn. Grevillea densiflora Diels
and Finschia densiflora White)
Plant family: Proteaceae

DESCRIPTION A medium tree up to 24m tall. The leaves are alternate, simple
and large. The leaves are few and at
the end of the twigs. Flowers are
bright orange and hang in clusters from
the axils of the leaves. Flower stalks
can be 25cm long. The nuts are almost
round but with a point on the side. Nuts
are about 3cm across.

DISTRIBUTION Trees occur in lowland
and mountain areas throughout P.N.G. up
to about 1800m altitude. They are
usually in well drained primary forest.
They also occur in the Solomons and New
Hebrides.

CULTIVATION Trees are planted from seed
but also grow wild.

PRODUCTION The seeds can be 3-4g
weight.

USE The seeds are eaten. The hard shell
is broken by burning after cooking.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES A black mould due to a fungus-Chaetothyrium fusisporium
A rust due to a fungus-Puccinia finschiae Cummins. Fraser
A black leaf mould & spots-Stenella sp

PESTS

IMPORTANCE A quite important nut tree in several areas of P.N.G.
NAMES

Scientific name: *Finschia ferruginiflora* C.T.White

Plant family: Proteaceae

DESCRIPTION A tree up to 30m tall with adventitious roots up to 1.5m above the ground. Leaves long (25cm) and narrow (5cm.) and without hairs. Flowers are rusty brown in long strings up to 20cm long. Fruits are about 5cm across. They have one seed inside.

DISTRIBUTION They occur in rainforest between 1500-1800 m altitude.

CULTIVATION Trees grow from seed.

PRODUCTION

USE The seeds are cooked and eaten.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANTCE The species has mostly been recorded in the Eastern Highlands near Aiyura and Okapa.
NAME: *Henitierea littoralis* Dryand  
Plant family: Sterculiaceae

DESCRIPTION A tree up to 30m high with a silvery crown and wide spreading branch-like buttresses. The leaves are grouped near the ends of branches and are dark green on top and with silvery scales underneath. The flowers are small, unisexual, and hang in tassels. The fruits are in clusters near the ends of branches. Fruits are 5-10cm long. The wood is very hard.

DISTRIBUTION Trees grow between the mangrove swamp and inland forest on tidal rivers and in brackish water. They grow on sandy and rocky coasts. They occur up to 50m altitude. The trees occur from tropical Africa, India through Malaysia to Polynesia.

CULTIVATION Trees grow wild. The fruits can float in sea water for long distances and then still germinate.

PRODUCTION Trees are slow growing.

USE The kernels of the nuts are eaten with fish.

FOOD VALUE /100 g edible portion  
moisture  energy  protein  calcium  iron  provitamin A  provitamin C

INSECTS

DISEASES

PESTS

IMPORTANCE A moderately common tree but the nuts are probably only occasionally eaten.
NAMES

English: Polynesian or Tahitian chestnut
Tok pisin: Aila

Scientific name: Inocarpus lagifera (Park.) Fosberg
(Syn. Inocarpus edulis J.R. & G. Forster)
Also I. lagifera and Bocca edulis

Plant family: Leguminosae

DESCRIPTION A tree from 9-30m tall with buttresses at the base. The leaves are large and reddish when young and shiny green when adult. The fruit is round and is a one seeded pod with ridges on the surface. It can be 6cm across.

DISTRIBUTION It grows in the lowland primary and secondary forest from sea level up to 390m altitude. It often grows near rivers and swamps and mostly as a clump of trees. It also occurs in the Pacific Islands.

CULTIVATION Seeds are mostly planted. They are also naturally distributed by bats. Cuttings or half ripe wood will root.

PRODUCTION An average seed weighs 40g. Fruit production is seasonal. Uncooked seeds can be stored.

USE Seeds are cooked and eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>243cal</td>
<td>3.8-4.5g</td>
<td></td>
<td></td>
<td></td>
<td>2mg</td>
</tr>
</tbody>
</table>

INSECTS Fruit fly maggots

DISEASES fungus Helotium inocari P.Henn.

PESTS

IMPORTANCE They occur in most coastal areas normally very close to the coast.
**NAMES**

English: Candle nut.  
Scientific name: *Aleurites moluccana* (L) Willd  
Plant family: Euphorbiaceae

**DESCRIPTION** A large tree up to 40m tall and 1m through at the base. The leaves are alternate, silvery green and crowded near the tips. Young leaves are hairy and sometimes lobed. There are 2 distinct brown glands where the leaf and stalk join. Male and female flowers are separate but on the same tree. The fruit is a large green 2 lobed berry with 1 or 2 large (2.5cm across) seeds with a hard corrugated shell.

**DISTRIBUTION** It mostly grows in the lowland rainforest but can be at up to 2000 m altitude.

**CULTIVATION** The trees grow wild but are transplanted. Seeds are very hard shelled. To get seeds to start growing more quickly, a single layer of seeds are put on the ground covered with dry grass then burnt. Immediately after burning while the seeds are still hot they are thrown into cold water, and then planted.

**PRODUCTION** 30-45kg of nuts can be produced on a tree in one year. Trees can start producing after one year.

**USE** The nuts are normally roasted.

**CAUTION** The nuts contain a moderately poisonous substance so should be cooked before eating.

**FOOD VALUE** / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>seeds-dry</td>
<td>7%</td>
<td>626cals</td>
<td>19g</td>
<td>80mg</td>
<td>2mg</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES** Leaf spot

**PESTS**

**IMPORTANCE** A reasonably important nut in several areas of the country.
NAMES

English: Cashew
Scientific name: Anacardium occidentale L.
Plant family: Anacardiaceae

DESCRIPTION A spreading evergreen tree up to 12m tall. The nut is borne below the "apple", which is really a fleshy stalk.

DISTRIBUTION It suits the lowlands but will grow up to about 1200m altitude. It only bears well in dry areas because of blight of the flowers. It can grow on poor soils.

CULTIVATION It is usually grown from seeds. Seeds germinate poorly and slowly. Only nuts which sink in water should be planted. It can be propagated by air layering.

PRODUCTION Trees commence bearing after 3 years. Fruit production is seasonal. The fruiting season is normally October to January.

USE The fleshy "apple" is edible but acid until very ripe.
The nut is eaten after roasting.
The young shoots and leaves are edible.

CAUTION The oil of the nut can blister the skin till roasted.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provit A</th>
<th>provit C</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>85.4%</td>
<td>53cal</td>
<td>0.8g</td>
<td>7mg</td>
<td>0.6mg</td>
<td>50 g</td>
<td>198mg</td>
</tr>
<tr>
<td>nut dry</td>
<td>4%</td>
<td>568cal</td>
<td>18.4g</td>
<td>28mg</td>
<td>3.6mg</td>
<td>5 g</td>
<td>1mg</td>
</tr>
<tr>
<td>leaves</td>
<td>69.9%</td>
<td>100cal</td>
<td>5.2g</td>
<td></td>
<td></td>
<td>615 g</td>
<td>89mg</td>
</tr>
</tbody>
</table>

INSECTS Horned weevil Apizocus cornutus Pasc.
Weevil Eupholus cinnamoneus Pasc.
Cacao mirid Helopeltis clavifer (Walker)
Shot hole weevil Orikius cruciatus Pst.
Cacao thrips Selenothrips rubrocinctus (Giard.)
Cup moth Scopelodes nitens Bak.
Symphilotites sp.

DISEASES Algal spot due to algae Cephaletmros virescens Kunze

PESTS

IMPORTANCE At present mainly on research stations.
NAME: Pecan  
Scientific name: Carya illinoensis (Wang.) K. Koch  
Plant family: Juglandaceae

DESCRIPTION: A large tree up to 55m high. Branches extend upwards. The bark is grey and furrowed. The leaves are made up of 7-10 leaflets. The flowers are greenish and small. Nuts are carried in clusters of 4-12. At maturity the fruit splits into 4 valves and reveal the smooth brown kernel.

DISTRIBUTION: It requires a dry subtropical climate.

CULTIVATION: Plants are normally grown from seeds. It can be grown from root-shoots. Seeds need to be fresh or they won't grow. Nuts which will grow sink when put into water. Trees can be pruned to stop them growing too tall. Trees easily suffer from zinc deficiency.

PRODUCTION:
Trees can live for 1,000 years.

USE: The nuts are eaten raw or cooked.

FOOD VALUE:

<table>
<thead>
<tr>
<th></th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td>nuts</td>
<td>3.9%</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE: Nuts have been imported for trial plantings. Trees at Aiyura bear irregularly.
ENGLISH: Chestnuts  
(Spanish or sweet)  
Scientific name: Castanea sativa Mill.  
Plant family: Fagaceae.

DESCRIPTION  
A large deciduous tree up to 40m high. The large leaves have toothed edges. The brown nuts are inside green spiny covering. Male and female flowers are separate.

DISTRIBUTION  
It can withstand frost. Trees do produce in the highlands of S. India so may produce in the highlands of P.N.G.

CULTIVATION  
Trees are mostly grown from seeds but it is better to use grafted trees. Trees can be grown from cuttings. Some trees need to be cross pollinated but some kinds will self between male and female trees on the one tree.

PRODUCTION  
The nuts fall naturally. Seedling trees can bear after 3-10 years.

USE  
The kernel of the nuts is eaten roasted.

FOOD VALUE  
/ 100 g edible portion

moisture energy protein calcium iron provitA provitC

They are low in protein.

INSECTS

DISEASES

PESTS

IMPORTANCE  
Seeds have been introduced for trials only.
English: Moreton Bay Chestnut  Scientific name: Castanospermum australe
Black bean  A Cunn. & Fraser ex Hook.

Plant family: 

DESCRIPTION An evergreen tree up to 30m tall. Leaves have 11-15 leaflets. The leaves or cut bark have a cucumber like smell. Flowers are in clusters on old wood. They are yellow to orange. The beans are up to 20cm long. Inside the seeds are in white pith. The seeds are large and starchy with a shiny brown coat.

DISTRIBUTION Introduced and grown along the coast in some areas. It suits rainforest and creek bank sites.

CULTIVATION It grows from seeds which often commence germinating while still in the pod on the ground.

PRODUCTION

USE The seeds are eaten after processing. (They are soaked for 10 days, pounded and baked.)

CAUTION In Australia several deaths and stomach upsets have been reported in cattle which have eaten the seeds.

FOOD VALUE / 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC

INSECTS

DISEASES

PESTS

IMpORTANCE The tree is introduced to P.N.G. and may not be much used for food.
NAMES
English: Breadnut tree
Scientific name: Brosimum alicastrum Swartz.
Plant family: Moraceae

DESCRIPTION A large tree. It has a dense, wide crown of leaves. The tree has small roundish yellow or brown seeds about 2 cm across.

DISTRIBUTION It is suited to tropical lowland areas. It is drought resistant.

CULTIVATION

PRODUCTION

USE The chestnut like seeds are eaten but only after cooking by roasting or boiling.
The young shoots and leaves are edible.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td>3.2g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A South American tree established in the Lae Botanical Gardens.
Scientific name: *Aceratium oppositifolium* DC
(syn. *Elaeocarpus oppositifolius* D.C. Miq
syn. *E. edulis* Teysm & Binn
syn. *A. brandenhorstii* Schltr )
Plant family: Elaeocarpaceae

**DESCRIPTION** A small tree 3-6m tall with yellow flowers and bright red fruit. The tree is very variable in form. The fruit is 3-5 angled, one seeded and about 3cm long. The seed is 3 sided.

**DISTRIBUTION** It thrives in shady places. It grows from sea level up to 300m. It is common on wet soils.

**CULTIVATION** It is grown from seed.

**PRODUCTION**

**USE** The fruit is eaten. It is acid so it is used for jellies or pickles.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provit A</th>
<th>provit C</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** A minor wild edible fruit.
188

NAMES

English: Hazel or cob nuts    Scientific name: Corylus avellana L.
Plant family: Betulaceae

DESCRIPTION A small deciduous tree up
to 7m high. Male and female flowers are
separate on the one tree. Male flowers
are yellow. The trees sucker a lot
which produces a clumpy bush.

DISTRIBUTION They are very frost
resistant. They need a certain minimum
cold requirement for good production of
nuts so are basically unsuited to the
tropics.

CULTIVATION Once established they can
be grown from suckers or cuttings. They
are often pruned. They mostly require
cross pollination by wind from suitable
pollinator trees. A spacing of 3m x 3m
is suitable.

PRODUCTION Nuts fall when mature. Nuts
store well.

USE The nuts are eaten.

FOOD VALUE / 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC

INSECTS

DISEASES

PESTS

IMPORTANCE Seeds have been introduced for trial plantings only.
English: Walnut
Scientific name: *Juglans regia* L.
Plant family: Juglandaceae

**DESCRIPTION** It is a large deciduous tree up to 30m high. Leaves are often 30cm long and with 5-9 leaflets. Flowers are small and greenish. Male flowers are compact in hanging spikes. Female flowers are on short stalks. Nuts are hard shelled and about 4 cm across.

**DISTRIBUTION** Trees can stand hard frosts when no flowers are on the tree. As it does not bear in the highlands of India it is unlikely to succeed in P.N.G.

**CULTIVATION** Trees can be grown from seeds but quality is often variable. It is best to use grafted trees. They can be pruned. They easily become boron deficient.

**PRODUCTION**

**USE** The kernels of the nuts are eaten raw or cooked. The young green fruits can be pickled in vinegar and eaten.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>100 g Edible Portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>energy</td>
</tr>
<tr>
<td>protein</td>
<td>calcium</td>
</tr>
<tr>
<td>iron</td>
<td>provitA</td>
</tr>
<tr>
<td>provitC</td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** Seeds have been introduced for trial plantings only.
NAMES

English: Macadamia  Scientific name: Macadamia tetraphylla L. John. and Macadamia ternifolia F. Huell.
(Syn. M. integrifolia Maid. & Betc.)

Plant family: Proteaceae

DESCRIPTION A medium size evergreen tree. Leaves are long and toothed at the edge in M. tetraphylla while smooth in M. ternifolia. Nuts are produced in a hanging cluster. M. tetraphylla has 4 leaves at a node and a rough shell type. M. ternifolia has 3 leaves at a node and a smooth shell type.

DISTRIBUTION Introduced into P.N.G.. It does well at 1000 to 1200m altitude and will grow up to 1700m. M. ternifolia is the more tropical species.

CULTIVATION Trees are mostly grown from seed. They can be grown from cuttings. Pruning increases branching. A spacing of 5 to 10m is suitable.

PRODUCTION Nuts on some types are produced seasonally about Dec. to April. Nuts are harvested after they fall. The outside husk needs to be rubbed off then the nuts dried in the sun.

USE The nuts are eaten raw although some kinds are roasted.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>nuts dry</td>
<td>3%</td>
<td>691 cal</td>
<td>7.8g</td>
<td>48mg</td>
<td>2mg</td>
<td>0</td>
</tr>
</tbody>
</table>

The kernel is 76% oil.

INSECTS Grasshopper Gesonula mundata Walker Shot hole weevils Orichius spp.

DISEASES

PESTS

IMPORTANCE Although not yet common it is probably one of the nuts worth promoting.
NAMES

English: Nipa palm
Scientific name: Nypa fruticans Wurmn.
(Sometimes also spelt Nipa)
Plant family: Arecaceae

DESCRIPTION A palm with an underground
creeping stem and without spines on the
leaves. It has a large fruit up to 30 cm
across made up of seeds or "nuts". These
turn brown when ripe. The female flower
is a round head on the end of the stalk
and below it long male flowers are
produced.

DISTRIBUTION They occur in tidal mud
flats. They occur naturally along the
Papuan coast, but are most likely
planted along the North coast.

CULTIVATION Plants can be grown from
seed. To get the sap to flow in the
stalk, the stalk must be banged and
shaken then the end cut off and trimmed
daily.

PRODUCTION Near Kerema it flowers in
May and fruits in July. The season is
later in the Western Province.

USE The kernel inside the nut is edible.
Also the base of the "nut" is
chewed.
Sugar (or vinegar) can be obtained
by collecting the sap from the fruit
stalk.
Young shoots are eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitaminA provitaminC
seed
sap
heart

INSECTS Banana scab moth Nacoleia octasema (Meyrick)
Rhinoceros beetle Onychodes spp.

DISEASES Black plaque on leaves - fungus - Rhipidocarpus javanicum
(Pat.) Theiss & Sydow

PESTS Rats chew stalks being tapped for their sap.

IMPORTANCE The palm occurs near mangrove swamps and along the
shoreline. The nut is mainly used by children.
192
NAMES

English:  Scientific name: *Omphalea queenslandiae* F.M.Bail.
(Syn. *Omphalea gageana* (Pax & Hoffm.) Airy Shaw
(Syn. *O. papuana* Gage; and others)
Plant family: Euphorbiaceae

DESCRIPTION A large woody vine which climbs high up into trees. It has red sticky sap when cut. Leaves are alternate. Young leaves are deeply five lobed. A cluster of fruit is borne on a branch which has a thin leaf like bract up to 5cm long near the base. Fruit is 5-6cm across and fleshy with 3 lobes. The seed coat is hard, brown and ridged. The kernel is white.

DISTRIBUTION It occurs from sea level up to at least 1800m altitude. It grows in the rainforest.

CULTIVATION It is normally self sown.

PRODUCTION Fruit production is seasonal. A kernel of a nut weighs about 3g.

USE The kernels are eaten after cooking.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE The nut occurs occasionally in forest areas both in the highlands and on the islands.
**DESCRIPTION** A tree up to 25m tall. Leaves are arranged in spirals at the ends of branches. Leaves in young trees have 3 lobes. Flowers are separate sexes and often on different trees. The flowers are large and green. The fruit is up to 15cm long and with a rough brown skin. It has several large red-brown seeds in a yellow, strong smelling pulp.

**DISTRIBUTION** It mostly grows below 300m altitude but can be up to 1000m. It is in the lowland and mid altitude rainforests often near creeks.

**CULTIVATION** Plants grow wild and are also cultivated from seeds.

**PRODUCTION** Trees start to fruit when about 15 years old. Fruiting is seasonal and the fruit season tends to be May to August.

**USE** The seeds are eaten after processing by washing, roasting and fermenting. The pulp between the seeds is eaten of some ripe and cultivated fruits. The old leaves are sometimes eaten after cooking.

**CAUTION** All parts of the plant can contain large amounts of poison (Prussic acid). This must be thoroughly removed by processing.

**FOOD VALUE** / 100 g edible portion

<table>
<thead>
<tr>
<th>Component</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flesh</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DISEASES**

**PESTS**

**IMPORTANCE** The tree is moderately common in coastal areas but the nut is not always eaten. It is popular near Madang.
NAMES

English: Pistachio nut  Scientific name: *Pistacia vera* L.
Plant family: Anacardiaceae

DESCRIPTION  A small deciduous tree up to about 10 metres tall. It produces clusters of small green nuts. Male and female flowers are borne on different trees.

DISTRIBUTION  It suits hot dry places.

CULTIVATION  Mostly grown from seed. The nuts are normally knocked off the trees then harvested off the ground.

PRODUCTION

USE  The nuts are eaten after roasting and salting.

FOOD VALUE  

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE
NAMEs

English: Almond

Scientific name: Prunus amygdalus
(Syn. Prunus dulcis)
Plant family: Rosaceae.

DESCRIPTION A small tree. Leaves are narrower than those of peach but long and toothed around the edge. Flowers can be 5 cm across and are slightly pink. Leaves are folded in the bud. The fruit is green and leathery.

DISTRIBUTION It needs reasonable soil drainage. It is suited to areas with a long hot dry summer.

CULTIVATION Seeds grow more quickly if chilled in a fridge for 2 weeks then planted in warm damp sand (26°C). Trees often need to be pollinated by another kind of almond.

PRODUCTION

USE The kernels of the nuts are eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitamin A provitamin C

INSECTS

DISEASES

PESTS

IMPORTANCE Introduced to P.N.G., but no other information.
Scientific name: *Scleroppyrum aurantiacum* (Laut. et K. Schum) Filger

Plant family: Santalaceae

DESCRIPTION A small shrub up to 3m high. The fruit is red when mature. The seed inside the fruit is about 3-4cm across. It has a thin shell.

DISTRIBUTION It was seen at 1750m altitude.

CULTIVATION It grows wild.

PRODUCTION Fruiting is seasonal.

USE The kernel of the nut is cooked and eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor wild edible food.
NAMES

English: Tok ples: Called Hamboia at Arufe Village, Western Province.

Scientific name: *Semecarpus sp.* (? *cassuvium Roxb.)*

Plant family: Anacardiaceae

DESCRIPTION It grows to a reasonably large tree 30-40m tall. The fruit is 5-6cm across, green when young and dark red when ripe. The inside flesh around the seed is purple.

DISTRIBUTION It occurs in coastal areas.

CULTIVATION Trees are grown from nuts which germinate and establish fairly easily.

PRODUCTION Fruiting is seasonal.

USE The kernel inside the nut is eaten after cooking.

CAUTION Fumes from burning (cooking) nuts and probably from other parts of the plant can irritate the skin.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A cultivated nut tree of some importance in the Morehead area of the Western Province.
NAMES

English: Scientific name: *Sloanea tieghemii* (F. Muell) (Syn. *S. arachbordiana* Smith) A. C. Sm.

Plant family: Elaeocarpaceae

DESCRIPTION A large tree with alternate leaves which are almost opposite. The leaves are 3-5 cm x 2-3 cm and not consistently hairy. The edge of the leaves is fairly smooth.

DISTRIBUTION They grow from 2200 to 2800 m altitude.

CULTIVATION They mostly grow wild from seed. They can be grown from ripe wood cuttings.

PRODUCTION

USE The kernels of the nuts are eaten after cooking.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Scattered trees occur in highland areas.
Scientific name: *Sterculia schumanniana* (Laut.) Mildb.

Plant family: Sterculiaceae

DESCRIPTION A medium sized tree up to 20m high. The trunk is often crooked. The leaves are alternate, simple, and at the ends of branches. The fruit are often in clusters. The fruit is bright orange-red at maturity. The seeds inside are black.

DISTRIBUTION It occurs in the lowlands.

CULTIVATION It grows wild.

PRODUCTION

USE The nut-like fruit are eaten.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>energy</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE
**NAMES**

English: Castor bean  
Scientific name: *Ricinus communis* L.  
Plant family: Euphorbiaceae

**DESCRIPTION**  
A small tree up to about 6m high. It has leaves with pointy lobes spreading out like fingers on a hand. The leaves are large. Clusters of flowers produce seed capsules containing 3 spiny seeds.

**DISTRIBUTION**  
It occurs throughout the country up to about 2000m altitude. It does well in humid areas but needs a well drained soil.

**CULTIVATION**  
It is grown from seed. Often plants are self sown.

**PRODUCTION**

**USE**  
People in many P.N.G. villages claim to eat the seeds cooked.  
The leaves have been recorded as eaten.

**CAUTION**  
The plant is normally recorded as deadly poisonous, especially the seeds, so should never be eaten raw.

**FOOD VALUE**  
/ 100 g edible portion  
moisture energy protein calcium iron provitA provitC

**INSECTS**  
Cacao false looper *Achaea janata* L.

**DISEASES**  
Leaf spot due to fungus *Alternaria ricini* (Yoshii)Hasnfr.  
Leaf spot due to fungus *Cercospora ricinella* Sacc. & Berlese  
Leaf spot due to bacteria *Xanthomonas ricini* (Yosh. & Tak.) Dowson

**PESTS**

**IMPORTANCE**  
A moderately common plant reportedly eaten in several places.
FRUITS AND SWEET FOODS.

Sugarcane 202
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Mountain pawpaw 204
Pineapple 205
Mango 206
Wild mango 207
Bukubuk 208
Watermelon 209
Marita 210
Cherimoya 211
Soursop 212
Bullock's heart 213
Sweet sop 214
Ton 215
Avocado 216
Cherry guava 217
Guava 218
Golden apple 219
Spondias philippinensis 220
Carambola 221
Bilimbi 222
Lime 223
Sour orange 224
Pomelo 225
Citrus hystrix 226
Lemon 227
Citron 228
Grapefruit 229
Mandarin 230
Orange 231
Clymenia polyandra 232
Line berry 233
Corynocarpus ephippius 234
Baccaurea papuanus 235
Tree tomato 236
Naranjilla 237
New Guinea walnut 238
Cloves 239
Watery rose apple 240
Rose apple 241
Java apple 242
Malay apple 243
Surinam cherry 244
Governor's plum 245
Lovi-lovi 246
Coffee plum 247
Rukam 248
Red raspberries 249
Black raspberry 250
Strawberry 251
Alpine strawberry 252
Passionfruit 253
Passionflower 254
Yellow granadilla 255
Yellow passionfruit 256
Banana passionfruit 257
Granadilla 258
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Bladder cherry 260
Planchonella sp 261
Canistel 262
Peach 263
Plum 264
Durian 265
Egg tree 266
Mangosteen 267
Loquat 268
Rosella 269
Mulberry 270
Japanese cherry 271
Indian mulberry 272
Horsfieldia sylvestris 273
Fei banana 274
Mangrove nutmeg 275
Elder 276
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Fig 287
Japanese persimmon 288
Velvet apple 289
Chinese laurel 290
Yellow plum 291
Kumquat 292
*Canarium sp.* 293
Elephant apple 294
Star apple 295
Feijoa 296
Akee 297
*Parinari ronda* 298
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Grapes 300
Peach palm 301
Tamarind 302
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Not all these plants are botanically "fruits" that are eaten, but various sweet edible plant parts are included in a popular definition of fruit or sweet food.
202

NAMES

English: Sugarcane
Tok pisin: Suga

Scientific name: Saccharum officinarum L.
Plant family: Poaceae

DESCRIPTION
A tall thick stemmed clumpy grass. A large number of different cultivars occur. The leaves are long. The cane varies in thickness, length of nodes, colour etc. The stalks have distinct nodes and the bottom of the leaf is wrapped in a sheath around the stalk.

DISTRIBUTION
It occurs throughout the country. It needs a temperature over 21°C for sprouting. It is frost sensitive.

CULTIVATION
Plants are mostly grown from tops of canes. They can be grown from sections of the stalk or division of the rootstock. It requires a good fertility and good rainfall. Plants can be ratooned or cut back if the soil fertility is high. Tall cultivars need staking.

PRODUCTION
Plants mostly take 14-18 months until they are ready for harvest.

USE
The stems are chewed.

FOOD VALUE

<table>
<thead>
<tr>
<th>100 g edible portion</th>
<th>moisture</th>
<th>energy kcal</th>
<th>protein</th>
<th>calcium mg</th>
<th>iron mg</th>
<th>provitA mg</th>
<th>provitC mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>81.4%</td>
<td>670</td>
<td>0.2g</td>
<td>8mg</td>
<td>1.3mg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS
Borers Chilo terenellus Pag.; Chilotraea terrenellus; Malianapha sepentellata Rag.; Ostrinia furnacalis; Rhodoselis obscurus (Bois); Sesamia grisescens Wal. & S. sarfaki B.-B.;
Sap suckers Aleurodes comata; Aphis sacchari; Oregma lanigera Zeh.; Longiunquis sacchari (Zeh.); Neomaskiella longii (Sig.); Perkinsiella spp.; Saccharicoccus sacchari (Cock.); Tettigella sp.;
Leaf eating insects Anomala comata; Acarnes sp.; Aracocynus sp.; Arthures dschilus; Brontispa lateralis; Curphus unipuncta; Euryphepsia sp.; Hypolixus ritzsmae Pasch.; Lophops saucarica K.; Melanitis constantia Cr.; Opogona spp.; Phragmatiphila truncata etc.
Grasshoppers Atractomorpha crenaticeps Bl.; Austracris sp.; Locusta migratoria(L); Heteropteranis obscurella (Bl); Stenacatantops angustifrons (Walk); Valanga irregularis (Walk)

DISEASES
Yellow spot due to fungus Cercospora koepkei Kruger
Red leaf streak fungus Cercospora sp.
Pineapple disease Ceratocystis paradoxa (Dade) Moreau
Veneer blotch fungus Deightoniella paphana D. Shaw
Red rot fungus Gomphella lucumaniensis (Speg) Arx. & Mull
Eye spot fungus Helminthosporium sacchari (V Breda den Haan) Butler
Rust fungus Puccinia kuehnii (Kruger) Butler
Downy mildew fungus Sclerospora sacchari Myl
Red rot leaf sheath-fungus Sclerotium rolfsii Sacc.
Fiji disease virus

PESTS
Rats

IMPORTANCE
A very important snack and social food in all areas of PNG.
English: Pawpaw, papaya.  
Tok pisin: Popo  
Scientific name: Carica papaya L.  
Plant family: Caricaceae

DESCRIPTION  A tree with soft stems and no branches. The trunk is soft and has distinct leaf scars. Leaves are large, divided and on long stalks. There is a crown of leaves at the top of the trunk. Trees can be male, female or bisexual. These have no fruit, round fruit and long fruit respectively. There are three forms of long fruit.

DISTRIBUTION  It grows from sea level up to 1700m altitude. It cannot stand water-logging. They respond well to fertile soil.

CULTIVATION  They are grown from seed. A spacing of 2.5-3m is suitable. In the lowlands, seed grow naturally as soon as light is allowed in when bush is cleared for gardens. If no male trees are present and long fruited types occur, all seed collected will produce trees with fruit.

PRODUCTION  Often up to one fruit per week will be produced. The first fruit produced and ripe are 6-11 months from planting. Trees last 2 or 3 years. The fruit is produced year round.

USE  Fruit can be eaten ripe and raw. Green fruit can be cooked as a vegetable. The young leaves can be eaten cooked but are bitter. The flowers and the middle of the stem can be eaten.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>87.1%</td>
<td>45cal</td>
<td>0.5g</td>
<td>24mg</td>
<td>0.7mg</td>
<td>710 g</td>
<td>75mg</td>
</tr>
<tr>
<td>leaves</td>
<td>2.5-8g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS  Amblypelta bugs  
          Amblypelta lutescens papuensis Brown  
          Cerothalamis chiton Green  
          Fruit flies Dacus sp. including Dacus neohumeralis Hardy  
          Ischiopsophia bifasciata Quoy & Gaimard  
          Rhinocera maculata Macleay

DISEASES  Leaf spot due to fungus Corynespora cassicola (Berk. & Curt)  
          Powdery mildew fungus Oidium sp.  
          Anthracnose fungus Glomerella cingulata (Stonem) Spauld. & Schrenk  
          Mosaic virus  
          Root rot due to fungus Phytophthora palmivora Butler

PESTS  Root knot nematode Meloidogyne javanica Chitwood  
        Fruit bats.

IMPORTANCE  It occurs in all lowland areas in gardens and bush. Trees are near houses in the highlands. The fruit is popular for snacks and baby food.
NAMES

English: Mountain pawpaw  Scientific name: *Carica candamarcensis* Hook. f.  
(Syn. *Carica pubescens* Lenne & Koch)  
Plant family: Caricaceae

DESCRIPTION A small tree. The fruits are small and angular. The tree has a silvery grey trunk. The leaves are smaller than ordinary pawpaw and deeply lobed.

DISTRIBUTION They will grow to a higher altitude than common pawpaws. They grow at least between 1750 and 2200m altitude. They can stand light frosts.

CULTIVATION They are grown from seed.

PRODUCTION

USE The fruit are acid and are therefore stewed or used in jam.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Only a few plants occur and fruit is rarely used.
NAME
English: Pineapple
Scientific name: *Ananas comosus* (L.) Merr.
Plant family: Bromeliaceae

DESCRIPTION A perennial herb with a rosette of long often spiky leaves up to 1m high and spreading 1-1.5m. It produces a flower and fruit at the end. Near the base it produces suckers. The fruit is made up of about 150 berrylike fruitlets that are almost fused together. There is a small crown of leaves on top of the fruit.

DISTRIBUTION They grow from sea level up to 1800m altitude.

CULTIVATION Use suckers that grow from the stem near the ground for earliest yield. Other suckers or the top of the fruit can be used. They can grow well under shade. Pineapple flowering hormone can be used for fruit production with thorny varieties and calcium carbide for smooth kinds.

PRODUCTION Fruiting is less seasonal in the highlands than in the lowlands.

USE The fruit is eaten fresh or used for juice. The young heart leaves can be eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>87%</td>
<td>47cal</td>
<td>0.7g</td>
<td>17mg</td>
<td>0.5mg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Pineapple mealy bug *Dysmicoccus brevipes* (Cockerell)

DISEASES Leaf blotch due to fungus *Ceratostigmum paradoxa* (Dade) Moreau Associated with leaf blotch *Cunuparia lunata* (Wakker) Boedijn and *Stachylium bicolor* Link ex Fries and *Tachypholus pannosa* Penz & Sacc.

PESTS

IMPORTANCE Pineapples are a common and popular fruit.
NAMES

English: Mango  Scientific name: *Mangifera indica* L.
  Plant family: Anacardiaceae

DESCRIPTION An erect branched evergreen tree 10-40m high and long lived. Flowers are on the ends of the branches. Fruit are green, yellow or red and 2.5-30cm long.

DISTRIBUTION It grows from sea level up to 1300m altitude. It does best in areas below 700m and with a dry season.

CULTIVATION Trees are grown by planting fresh seed and they can be transplanted. Mangoes vary in their ability to breed true from seed. When more than one seedling emerges from the seed some of these are asexual and breed true. Plants can be propagated by budding or grafting by inarching. Cuttings grow with care.

PRODUCTION Seeds germinate after about 20 days. Seedling trees produce after 8-10 years. Trees often bear better each second year. Rain and flowering reduces fruit setting. Fruiting is at the end of the year.

USE Ripe fruits are eaten raw.
  Seeds can be eaten cooked.
  Young leaves can be eaten cooked.

CAUTION Old mango leaves are claimed to be poisonous to cattle.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>82.6%</td>
</tr>
<tr>
<td>energy</td>
<td>62 cal</td>
</tr>
<tr>
<td>protein</td>
<td>0.6 g</td>
</tr>
<tr>
<td>calcium</td>
<td>10 mg</td>
</tr>
<tr>
<td>iron</td>
<td>0.3 mg</td>
</tr>
<tr>
<td>provitA</td>
<td>1880 g</td>
</tr>
<tr>
<td>provitC</td>
<td>36 mg</td>
</tr>
</tbody>
</table>

leaves 3-4g

INSECTS

Amblypelta bug *Amblypelta lutescens papuensis* Brown
Large mango tip borer *Bomkotelia fijosatix* (Guenee)
Scale insect *Ceroplastes rubens* Maskell
Leafhopper on flowers *Chrysococcus niveosparsus* (Leth.)
Cicada nymphs and adult on flowers *Idioscopus clupealis* (Leth.)
Larvae feeding on ripe fruit *Noonda allizonalis* Hamp.
Probably fruit fly *Dacus fraunfeldii* Schiner

DISEASES

Sooty mould fungi *Asterina sp.* & *Meliola mangiferae* Earle
Leaf spot -fungus *Glomerella cingulata* (Stonem)Spauld & Schrenk causing leaf spot, wither tip, blossom blight and fruit rot.

PESTS

IMPORTANCE Very popular and important fruit is seasonally dry lowland areas.
ENGLISH: Wild mango

Scientific name: Mangifera minor Bl.
Plant family: Anacardiaceae

DESCRIPTION: A large tree up to 23m tall. Leaves are more narrow than the cultivated mango. Fruits are yellow green and flattened at the sides and with one large seed inside.

DISTRIBUTION: It occurs mainly in the lowlands and foothills but grows up to 1900m altitude. It occurs as scattered individuals.

CULTIVATION: Trees grow from seed both as wild and cultivated plants.

PRODUCTION

USE: The fruit is peeled and eaten.

FOOD VALUE

/100 g edible portion

moisture energy protein calcium iron provitamin A provitamin C

INSECTS: Cacao mirid Helopeltis clavipes (Walker)

DISEASES

PESTS

IMPORTANCE: A minor edible fruit in several areas.
NAMES
Tok pisin: Bukubuk
Scientific name: Burckella obovata (Forst.) Pierre
Plant family: Sapotaceae

DESCRIPTION A tree which can be up to 30m tall and with buttresses. Leaves tend to be clustered near the ends of branches. Leaves are simple and shiny. The fruit is large (9cm across) and green. The flesh is white. The fruit has 5 cells but often only 1 or 2 seeds mature. The seed is oval shaped and about 4cm long. The fruits are carried near the ends of the branches.

DISTRIBUTION Trees grow wild in coastal areas. They are also planted. It will probably grow up to about 1100 metres altitude. It occurs in New Guinea, the Solomon Islands and New Hebrides.

CULTIVATION Trees are grown from seed.

PRODUCTION Fruiting is not seasonal. Fruit bruises easily so is hard to transport.

USE The fruit is eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE It is a popular fruit in the Gazelle and occurs in a number of coastal islands.
English: Watermelon
Scientific name: Citrullus lanatus (Thunb.) Mansf.
(Syn. C. vulgaris Schrad.) Plant family: Cucurbitaceae

DESCRIPTION: An annual climber with deeply divided leaves and tendrils along the vine. Several fruit colours and shapes occur. Often they have a dark green mottle. The fruit has reddish juicy flesh and black or red seeds.

DISTRIBUTION: They grow best on the coast but will grow up to about 1000m altitude. They will not stand water-logging and do well on sandy soils. It is frost sensitive.

CULTIVATION: They are suitable mainly for the dry season. A spacing of 1.5 to 2m is suitable. They grow easily from seed. They do best when fully exposed to the sun. Seed can be dried and stored.

PRODUCTION: Harvesting commences after 3 months. The main fruit season is November to January.

USE: The fruit is eaten raw when ripe.
Small unripe fruit can be cooked as a vegetable.
Seeds are also eaten. They are dried soaked in salt water then roasted.
Occasionally very young leaves are eaten.

FOOD VALUE / 100 g edible portion
fruit moisture 94% energy 20cal protein 0.5g calcium 8-12mg iron 0.5mg provitamin A 10-140 provitamin C 25-32g
seeds 7%

INSECTS
Atherigona orientalis Schiner
Pumpkin beetles Aulacophora foveicollis Hornst.
Fruit flies Dacus cucurbitae Coq.

DISEASES: Leaf spot due to fungus Cercospora citrullina Cooke
Powdery mildew fungus Oidium sp.
Mosaic virus

PESTS: Rat damage is common

IMPORTANCE: Common and popular in lowland areas.
210

NAMES

English: Pandanus conoideus
Tok pisin: Marita

DESCRIPTION A short much branched screw pine with many prop roots. There are many short sharp spikes over the trunk. The leaves are long and with spikes along the edges. It produces a large (1m long) dark red to yellow fruit with a hard rough/spiky surface.

DISTRIBUTION It grows throughout P.N.G. from sea level up to 1650m altitude. It becomes common above 500m.

CULTIVATION Trees are grown from the ends of branches or suckers. Suckers produce more quickly.

PRODUCTION Fruiting is seasonal with the main season from October to March, but individual trees can produce throughout the year. Seasonality increases with the altitude.

USE The ripe fruit is cooked then the juice mixed with water to make a sauce.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>sauce</td>
<td>75.8%</td>
<td>175cal</td>
<td>1.4g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Banana scab moth Nacoleia octasema (Meyrick) Longhorn grasshoppers eat leaves. Borers get into the stem

DISEASES Black leaf mould fungus Lemkosia pandani (Rostr.) Thiess Leaf spot - cause unknown Yellow mottle - cause unknown Soft squasy rot of fruit - cause unknown

PESTS

IMPORTANCE A popular and common seasonal food in mid altitudinal zones.
English: Cherimoya  
**Scientific name:** *Annona cherimola* Mill.  
**Plant family:** Annonaceae

**DESCRIPTION**  
A small deciduous tree up to 6m tall. It has a brown velvety tomentum on the undersurface of the leaves. The fruit is 8-15cm across with black or brown seeds in white flesh.

**DISTRIBUTION**  
Not suited to the low hot tropics. It grows at higher altitudes. It is better suited to a dry climate.

**CULTIVATION**  
Trees are usually grown from seeds but cuttings of ripe wood will root in sand. It can be grafted or budded. Fruit setting is often greatly improved by hand pollination. Several trees should be planted near each other to allow them to pollinate.

**PRODUCTION**  
Trees mostly only produce fruit every second year.

**USE**  
Fruit can be eaten raw or used to make drinks.

**FOOD VALUE**  
/ 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
<th>sugars</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>69.7%</td>
<td>110cal</td>
<td>1.5g</td>
<td>9mg</td>
<td>0.2mg</td>
<td>0</td>
<td>12mg</td>
<td>18%</td>
</tr>
</tbody>
</table>

**INSECTS**  
Larvae eating leaves *Graphium agamennon* L.

**DISEASES**  
Rust due to fungus *Sphaerophagium boanense* Cummins

**PESTS**

**IMPORTANCE**
212

NAMES
English: Soursop
Tok pisin: Sapsap
Scientific name: *Annona muricata* L.
Plant family: Annonaceae

DESCRIPTION It is a low bushy tree 8-10m high.

DISTRIBUTION It grows in lowland areas below 1200m altitude. It can tolerate quite poor soils and a humid climate.

CULTIVATION Trees are grown either as seedling trees or grafted plants. It can be grown from cuttings.

PRODUCTION Trees commence bearing by the third year. It bears fruit almost continually throughout the year. Fruit can weigh up to 4kg each. A tree can produce 12-24 fruit in a year.

USE Fruit can be eaten fresh or used in ice cream.
Young fruit can be cooked as a vegetable.
Leaves are edible cooked.

CAUTION The seeds are toxic, so should be removed before processing.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy (cal)</th>
<th>protein (g)</th>
<th>calcium (mg)</th>
<th>iron (mg)</th>
<th>provitamin A (mg)</th>
<th>provitamin C (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>83.2%</td>
<td>59</td>
<td>1</td>
<td>14</td>
<td>0.5</td>
<td>trace</td>
<td>2</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Larvae of Green spotted triangle *Graphium agamemnon* L.
Scale insects *Ceroplastodes chiton* Green
Citrus mealy bug *Planococcus citri* (Risso)

DISEASES Sooty mould fungi *Capnodium sp.* and *Microxypium sp.*
Blossom blight fungus *Colletotrichum gloeosporioides* Fenz.
Pink disease *Coniococcus salmonicolor* Beak & Br.

PESTS

IMPORTANCE A quite popular fruit in many coastal areas.
 NAMES
English: Bullock's heart
Scientific name: Annona reticulata L.
Plant family: Annonaceae

DESCRIPTION A small tree up to 7.5m tall.
The fruit are reddish brown in colour.
Inside there are large brown seeds.

DISTRIBUTION It occurs in the tropical lowlands and grows up to at least 1200m altitude. It can grow on poorer soils with different levels of acidity. It cannot stand waterlogging.
CULTIVATION Plants are normally grown from seeds. Seedlings are easy to transplant. A spacing of 4-7m is suitable.

PRODUCTION Trees begin fruiting at 3-5 years. Fruit setting is often improved by hand pollination. Fruits can vary from 0.25 to 2.25 kg each. Fruit production is seasonal. The season is normally Dec. to March.
USE The fruit is eaten fresh.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
78.3% 76cal 1.5g 27mg 0.5mg 20g 21mg

INSECTS Cacao mirid Melopeltis clavifer (Walker)
Terentius nubifasciatus Walker
Paratella sp.

DISEASES

PESTS

IMPORTANCE Commonly seen on Manus Is. and in some other coastal areas.
NAMES

English: Sweetsop
Scientific name: Annona squamosa L.
Plant family: Annonaceae

DESCRIPTION A bushy deciduous tree up to 6m high. The fruit is covered with round fleshy scales which drop off as the fruit ripens.

DISTRIBUTION It suits lowland drier climates. It grows naturally in the dry hills around Port Moresby.

CULTIVATION They are normally grown from seeds but they can be budded or grafted.

PRODUCTION The tree is slow growing. The fruit is borne on old and new wood. As the fruit is more commonly on new wood, pruning is an advantage.

USE The fruit is eaten raw.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td></td>
<td>77.5%</td>
</tr>
</tbody>
</table>

INSECTS Cacao mirid Helopeltis clavifera (Walker)
Panatella sp.
Tenentius nubifasciatus Walker

DISEASES

PESTS

IMPORTANCE It is fairly common in coastal areas especially near Port Moresby.
NAMES

English: Taun
Tok pisin: Ton

Scientific name: *Pomakia pinnata* J.R. & G. Forster
Plant family: Sapindaceae

DESCRIPTION A large tree up to 45m tall. The hard timber is widely used. The skin of the ripe fruit peels off like a mandarin. The edible part is a clear layer around the seed -like rambutan. The fruit is about 6cm across and the seed about 3cm across. An inedible kind also occurs.

DISTRIBUTION It occurs in lowland and lower montane forest. They occur from sea level to 700m altitude. (The inedible kind occurs on the ridges and is the more useful timber tree.)

CULTIVATION Trees mostly grow wild but they are also planted from nuts after the flesh is eaten. They are often transplanted.

PRODUCTION Fruit production is seasonal. The season is very short and is between November and March.

USE The fleshy layer (aril) around the seed is eaten raw.

CAUTION The edible form of ton must be chosen. The actual seeds have been reported to be poisonous.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES Leaf spot

PESTS

IMPORTANCE A very popular fruit is season. It occurs in several coastal areas.
English: Avocado
Tok pisin: Bata

Scientific name: *Persea americana* Mill.
(Syn. *Persea gratissima* Gaertn.f.)
Plant family: Lauraceae

**DESCRIPTION** A small to medium sized tree 8-10m high. Leaves are entire, oval and 10cm long. Flowers are greenish, small and on the ends of branches. The fruit has greenish yellow flesh and a large round seed.

**DISTRIBUTION** Trees grow from sea level up to 2250m altitude. It cannot stand waterlogging. Branches are easily damaged by wind. It needs to be in a frost free location or where frosts are rare.

**CULTIVATION** Seeds remain viable for 2-3 weeks. It is best to propagate vegetatively.

**PRODUCTION** Seedlings bear after 5-6 years. A good tree produces 400-600 fruits each year.

**USE** The pulp of the fruit is eaten raw or cooked.

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>79%</td>
</tr>
<tr>
<td>energy</td>
<td>102 cal</td>
</tr>
<tr>
<td>protein</td>
<td>1.1g</td>
</tr>
<tr>
<td>calcium</td>
<td>12mg</td>
</tr>
<tr>
<td>iron</td>
<td>0.7mg</td>
</tr>
<tr>
<td>provitA</td>
<td>205 g</td>
</tr>
<tr>
<td>provitC</td>
<td>8mg</td>
</tr>
</tbody>
</table>

**INSECTS**
Red wax scale *Ceroplastes rubens* Mask.
Weevil *Eupholus cinnamoneus* Pasc.
White wax scale *Gascardia destructor* Cacao mirid *Helopeltis claviger* (Walker)
Weevil *Idiopsis grisea* Faust.
Mealy bug *Perissopneumon sp.*
Island pinhole borer *Xyleborus potens* Schedl.
Shot hole weevils *Oniarius destructor* Marsh.

**DISEASES**
Root rot due to fungus *Phytophthora cinnamomi* Rands
Algal spot due to algae *Cephalonos pulvinatus* Schmidle
Root rot due to fungus *Phellinus noxius* (Corner) G.H. Cunn.
Sooty mould
Could get anthracnose - *Colletotrichum gloeosporioides*

**PESTS**

**IMPORTANCE** The tree and fruit is getting quite wide acceptance at least in the highlands.
NAME

English: Cherry guava
Scientific name: *Psidium cattleianum* Sabine
(Syn. *Psidium littorale* Raddi)
Plant family: Myrtaceae

DESCRIPTION
An evergreen shrub 3-6m high.
Leaves are dark green and shiny above and
4-6cm x 2-3cm. Flowers are white and singly
in the axils of leaves. It has small
round purplish fruit. There are several
hard seeds inside.

DISTRIBUTION
It does quite well in
highland areas. It grows from sea level
to 1900m. It is more frost resistant
than common guava. It can be grown on a
range of soils. It is fairly drought
resistant.

CULTIVATION
Plants are grown by seed,
suckers or cuttings. Pruning helps
fruit production. It can be pruned to
form a hedge.

PRODUCTION
Fruit production is seasonal.
There are probably two crops per year.

USE
Fruits are eaten raw or used in jams
or jellies.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>per 100 g edible portion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>84.3%</td>
<td>56cal</td>
<td>0.4g</td>
<td>29mg</td>
<td>0.2mg</td>
<td>145 g</td>
<td>33mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE
At present not widely grown, but fruit are liked and it
will probably get wider acceptance.
218

NAMES

English: Guava
Scientific name: *Psidium guajava* L.
Plant family: Myrtaceae

DESCRIPTION A large shrub or small tree up to 10m in height. It has smooth bark. The leaves are opposite. Both self and cross pollination occurs due to insects. The fruit is yellow when ripe with reddish pulp inside and many seeds.

DISTRIBUTION It grows well from sea level up to 1600m and occurs up to 1900m. It is killed by frost.

CULTIVATION They are mostly grown from seeds but seedling trees vary in quality. Seeds remain viable for a year or longer. Selected trees can be propagated by budding or grafting. They can also be propagated by layering, root cuttings or stem cuttings if hormones are used. Suckers can also be used. In the lowlands trees are self sown.

PRODUCTION Seedling trees may begin to bear 2-3 years after transplanting. Pruning back the tips slightly increases fruit production.

USE Fruit are mostly eaten fresh especially by children. They can also be used for jams or juice.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitamin A</th>
<th>provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>80.6%</td>
<td>69cal</td>
<td>1g</td>
<td>15mg</td>
<td>0.7mg</td>
<td>182mg</td>
</tr>
</tbody>
</table>

INSECTS

Horned weevil *Apirocalus cornutus* Pasc.
Cacao mirid *Helopeltis clavifer* (Walker)
Mealy bug *Perissopneumon sp.*
Fruit fly
Soft wax scale *Ceroplastes destructor* Newstead
Shot hole weevils *Oxilius destructor* Marsh.
Also *Ragwellelus festivus* Miller and *Sythenata janetia* White.

DISEASES

Anthracnose of fruit due to fungus *Glomerella cingulata* (Ston.) Spauld. & Schr.
Algal spot due to algae *Cephaluros virescens* Kunz.

PESTS

IMPORTANCE The trees are widely spread throughout the country and fruit is popular particularly with children. Trees mostly grow naturally in coastal areas.
NAMES

English: Golden apple  Scientific name: *Spondias cytherea* Sonnerat (Syn. *Spondias dulcis* Forst.)
Plant family: Anacardiaceae

DESCRIPTION A tree up to 15m tall. The leaves are alternate. The flowers are small and white and in clusters. The fruit is yellow, oval and up to 7cm long. The stone of the fruit has spines on it. The leaves fall off for part of the year.

DISTRIBUTION It occurs in the lowland rainforest and in valleys up to about 950m altitude.

CULTIVATION It is mostly grown from seed and often grows wild. Large cuttings can be used with difficulty. Trees can be topped to give a lower tree with spreading branches.

PRODUCTION Trees may bear from 3-4 years old. Fruiting occurs seasonally from Jan. to April.

USE Fruits are eaten after peeling. Leaves are edible raw or cooked. The kernel of the seed may be edible. (Some fruit are poor size and very sour.)

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>86.9%</td>
<td>46cal</td>
<td>0.2g</td>
<td>56mg</td>
<td>0.3mg</td>
<td>205g</td>
<td>26mg</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Often defoliated by caterpillars. Leaves are also attacked by a beetle.

DISEASES

PESTS

IMPORTANCE Moderately common in lowland rainforests and also grown in villages. Fruit quality varies.
Scientific name: *Spondias philippinensis*  
(Elmer) Airy Shaw & Forman  
(Syn. several synonyms have been used)  
Plant family: Anacardiaceae.

**DESCRIPTION** A small or creeping tree often gaining support from other trees. Can be up to 30m high and 7cm across the trunk. Leaves have 1-4 pairs of leaflets. The leaflets are somewhat leathery. The white flowers are in panicles. The fruit are yellow when ripe and 1-2cm across.

**DISTRIBUTION** They grow between 30 and 400 m altitude. They are mostly in the rainforest.

**CULTIVATION** Trees grow wild from seed.

**PRODUCTION**

**USE** The fruits are edible but sour.

**FOOD VALUE**  
/ 100 g edible portion  
moisture energy protein calcium iron provitA provitC

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** Recorded in the Sepik district. A very minor wild edible fruit.
English: Carambola, starfruit.
Scientific name: Averrhoa carambola L.

Tok pisin: Faiv kona
Plant family: Oxalidaceae

DESCRIPTION A small tree up to 12m high.
The fruit are star shaped and yellow and up to 12cm long.

DISTRIBUTION It suits the lowlands but will grow up to 1200m altitude.

CULTIVATION Trees are grown from seed. A spacing of 6m x 6m is suitable. Trees need to be grafted if sweeter kinds of fruit are to be selected. Because the seeds are covered by a fatty layer, washing them with soap improves the germination.

PRODUCTION Seedling trees fruit after 4-5 years. They can produce 400 fruits per tree. Fruiting tends to be seasonal about March to May.

USE Fruit can be eaten raw or used for drinks.
(They can be used for souring dishes.
(They are also useful for cleaning brass.)

CAUTION The fruit contain soluble oxalates.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
92.3% 28cal 0.3g 8mg 0.9mg 160g 38mg

INSECTS Fruit fly maggots Dacus sp.

DISEASES Leaf spot - cause unknown
Fruit rot due to fungus Colletotrichium gloeosporioides Penz.

PESTS

IMPORTANCE Trees are moderately common in coastal areas. Types vary in their sweetness.
**Names**

English: Bilimbi  
Tree cucumber  

Scientific name: *Averrhoa bilimbi* L.  
Plant family: Oxalidaceae

**Description** A small tree up to 7m high that bears clusters of cucumber shaped fruit on the trunk and older branches. Fruit are 8-10cm long and almost smooth but with ridges. Flowers are dark red. Leaves have 5 to 17 pairs of leaflets.

**Distribution** The tree is drought resistant. It will grow from sea level up to at least 750m altitude.

**Cultivation** Trees are mostly grown from seeds. It grows wild in secondary forest in many coastal areas.

**Production**

**Use** The fruit are used for souring dishes. They can also be used for jams, drinks, pickles and in curries.

**Food Value**

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>92.5% 27cal 0.6g 5mg 0.6mg 105g 35mg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Insects** Fruit fly maggots *Dacus sp.*

**Diseases** Fruit rot due to fungus *Colletotrichum gloeosporioides* Penz.

**Pests**

**Importance** Only of minor use as a flavouring in cooking.
English: Lime  Scientific name: *Citrus aurantifolia* (Christm.) Swing.
Tok pisin: Muli  Plant family: Rutaceae
Police Motu: Sipora

**DESCRIPTION** A small much branched tree up to 5m tall with short sharp spines. The leaves are small. There are narrow wings on the leaf stalk. The fruit is small, round 3-4cm across and become pale orange to yellow when ripe. They are thin skinned. The flesh of the fruit is green. West Indian limes with larger better fruit also occur.

**DISTRIBUTION** They need a warm climate and are most common in coastal regions. They grow from sea level to 2200m altitude. They suit humid areas and can survive in poor soils.

**CULTIVATION** They are often grown from seed but are better if grafted. A spacing of 4-5 metres is suitable.

**PRODUCTION** Trees can start producing fruit quickly. They normally produce fruit all the year round.

**USE** They are mainly used for juice and drinks.

**FOOD VALUE** / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>91%</td>
<td>36cal</td>
<td>0.5g</td>
<td>13mg</td>
<td>10 g</td>
<td>46mg</td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS** Larvae under the bark. *Agrilus occipitalis* Esch. Wasp forming galls. *Eudecatoma* sp. Larvae of citrus butterfly *Papilio aegaeus* Don Citrus leaf miner *Phyllocnistis citrella* Staint Mealy bug *Planococcus citri* (Risso)

**DISEASES** Probably similar to other citrus.

**PESTS**

**IMPORTANCE** Moderately common in coastal areas.
English: Sour orange

Scientific name: *Citrus aurantium* L.

Plant family: Rutaceae

DESCRIPTION A tree up to 10m high and with slender thorns. The leaf stalks have broad wings. The fruit is often green and fairly juicy but sour. The fruit is often rough skinned.

DISTRIBUTION Mostly in coastal areas.

CULTIVATION It is mostly grown from seeds.

PRODUCTION

USE The fruit is bitter therefore mostly used for marmalade or flavouring.

The tree is used as a rootstock for budding or grafting other citrus onto.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>87.5%</td>
<td>44cal</td>
<td>0.7g</td>
<td>42mg</td>
<td>0.4mg</td>
<td>70 g</td>
<td>43mg</td>
</tr>
</tbody>
</table>

INSECTS Yellow scale *Aonidiella citrina* Coq.

DISEASES

PESTIS

IMPORTANCE Trees are scattered in a number of coastal areas but fruit are not used and just left lying under the tree.
**NAME**

English: Pomelo  
Scientific name: *Citrus grandis* (L.) Osbeck  
Plant family: Rutaceae

**DESCRIPTION**  
A spreading spiny tree up to 15m high. Leaves are large. The leaf stalks have wings. Flowers are large and creamy white. The fruit is very large with a thick skin. The skin is dotted with oil glands. Each segment of the fruit is covered by a strong membrane.

**DISTRIBUTION**  
They thrive in warm lowland areas. They can grow from sea level up to 900m. They are tolerant of brackish and salty conditions. They suit humid climates.

**CULTIVATION**  
They are mostly grown from seed but do not breed true. Trees start producing after about 9 years. Trees need to be about 9m apart. Trees grown away from other trees often produce almost seedless fruit.

**PRODUCTION**  
Fruit is produced almost all the year round. The time from flowering to ripe fruit is about 6 months. Fruit can be stored quite well.

**USE**  
The fruit can be eaten fresh or made into marmalade.  
The peel can be candied.

**FOOD VALUE**  

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>85.9%</td>
<td>39cal</td>
<td>0.7g</td>
<td>27mg</td>
<td>0.5mg</td>
<td>30g</td>
<td>53ng</td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE**  
Trees can be seen occasionally in several coastal areas. They are common on New Ireland.
Scientific name: *Citrus hystrix* (L.) D.C.  
(Probably syn. *Citrus papuana* Bail.)  
Plant family: Rutaceae

DESCRIPTION  A low tree up to 6 or 8 m high. The trunk is thin and crooked. It has slender sharp thorns. The leaf petiole has very large lobes. The fruits are small (8 cm across) with a rough thick skin and very little edible pulp inside. They are very acid. The peel of the fruit is very fragrant.

DISTRIBUTION  It mainly occurs in lowland areas.

CULTIVATION  It often now grows wild in coastal areas. It grows slowly.

PRODUCTION  The tree flowers throughout the year but has most ripe fruit about June and July.

USE  The leaves and fruit are used to make drinks, or flavour food.

FOOD VALUE  / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTs

IMPORTANCE  A citrus of only minor importance grown in some coastal areas.
NAME
English: Lemon
Tok pisin: Muli
Scientific name: *Citrus limon* (L.) Burm.f.
Plant family: Rutaceae

DESCRIPTION A small tree with short spines. Young branches are often reddish. Leaves are about 12 cm long. The leaf stalk is usually not winged. The fruit is oval shaped and with a knob at the end. The skin is fairly thin, rough and light yellow.

DISTRIBUTION Trees do not do well on the coast but they grow well at about 1300 m and will grow up to 2200 m altitude.

CULTIVATION Many trees around P.N.G. are seedlings. Better trees are grafted.

PRODUCTION

USE The fruit is mostly too sour to eat fresh but the juice is used to make drinks.

FOOD VALUE

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>90.4%</td>
<td>28cal</td>
<td>0.7g</td>
<td>32mg</td>
<td>0.3mg</td>
<td>15g</td>
<td>50mg</td>
</tr>
</tbody>
</table>

INSECTS
Red scale *Aonidiella aurantii* Maskell
Amblypelta bug *Amblypelta theobromae* Brown
Shot hole weevil *Ornius cinereus* Malh.
Orchard butterfly *Papilio aegeus* Don
Citrus leaf miner *Phyllonorycter citrella* Staint
Citrus mealy bug *Planococcus citri* (Risso)
Weevil *Rhinocapha thomsoni* Waterh.
White louse scale *Unaspis citri* (Comst.)

DISEASES
Leaf spot due to fungus *Ascochyta citri* Penz.
Scab due to a fungus *Elsinoe fawcettii* Bitanc & Jenk.
Sooty mould fungus *Meliola citricola* Sydow
Pink disease fungus *Corticium salmonicolor* Berk. & Br.
Bacterial canker *Kanthomonas citri* (Hasse) Dowson

PESTS

IMPORTANCE Less common than West Indian limes on the coast but more common in highland areas.
NAMES

English: Citron

Scientific name: Citrus medica L.
Plant family: Rutaceae

DESCRIPTION  A small tree up to 3m high with leaves 20cm x 10cm. The tree has fat spines. The leaf stalk does not have wings. The fruits are large and long with a rough skin. The fruit does not have a lot of juice.

DISTRIBUTION

CULTIVATION  Trees can be grown from cuttings.

PRODUCTION

USE  The skin is used as candied peel.

FOOD VALUE  / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>81.8%</td>
<td>56cal</td>
<td>3.2g</td>
<td>34mg</td>
<td>4.4mg</td>
<td>11935 g</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES  Scab due to a fungus Elsinoe fawcettii Bitanc & Jenx
Algal spot Cephaloporus virescens Kunze

PESTS

IMPORTANCE  Trees and fruit are only occasionally seen.
NAME
English: Grapefruit
Scientific name: Citrus paradisi Macf.
Plant family: Rutaceae

DESCRIPTION
A medium sized tree up to 10 m high. The leaves are pale green. The leaf stalk usually has a broad wing. The fruits are large, yellow and in clusters. Fruits are very juicy.

DISTRIBUTION
Plants grow from sea level up to 2000m altitude. They are frost tender.

CULTIVATION

PRODUCTION
Fruiting tends to be seasonal from April to August.

USE
The fruit is eaten as fresh fruit or the juice is used in drinks.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td></td>
</tr>
<tr>
<td>energy</td>
<td></td>
</tr>
<tr>
<td>protein</td>
<td>0.6g</td>
</tr>
<tr>
<td>calcium</td>
<td>12mg</td>
</tr>
<tr>
<td>iron</td>
<td>1mg</td>
</tr>
<tr>
<td>provitA</td>
<td>60 g</td>
</tr>
<tr>
<td>provitC</td>
<td>38mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES
Anthracose fungus Glomerella cingulata (Stonem.) Spauld & Schr.
Bacterial canker Xanthomonas citri (Hassa) Dowson.
Leaf spot.

PESTS

IMPORTANCE
Not widely grown.
NAMES

English: Mandarin
Scientific name: *Citrus reticulata* Blanco
(Syn. *C. nucifera*)
Plant family: Rutaceae

DESCRIPTION  A small tree up to 8m tall.
The leaves are longish shaped and only
a narrow wing occurs on the leaf stalk.
It has few or no spines. Fruit are
almost round and the skin peels off
easily. The flesh is juicy and sweet.

DISTRIBUTION  The hardiest of the citrus.
It grows from sea level up to 2300m
altitude. They do best between 800m and
1200m altitude. A well drained soil is
needed. They also prefer a drier
climate.

CULTIVATION  Often trees are grown from
seed. Some breed true from seed. Seedling
trees take a long time to start producing
fruit. Budded trees are best. A spacing
of about 8m between trees is suitable.
From one seed, several seedlings can grow.
Using seedlings of seeds with 3 or more
shoots helps produce trees true to type.

PRODUCTION  Fruits tend to be produced
seasonally. The season is often from
April to August.

USE  The fruit are eaten fresh.

FOOD VALUE  / 100 g edible portion
moisture  energy  protein  calcium  iron  provitamin A  provitamin C
88.6%  41cal  0.7g  26mg  0.2mg  465g  42mg

INSECTS  Black leaf-footed bug *Leptoglossus australis* (F).
Also scales, aphids, fruit flies and leaf miners.

DISEASES  Sooty mould fungus *Meliola citricola* Sydow.
Pink encrustation on stems - fungus *Po-nectinia sp.*

PESTS

IMPORTANCE  Not widely grown, but more are being planted.
NAMES
English: Orange
Tok pisin: Swit muli
Scientific name: Citrus sinensis (L.) Osbeck
Plant family: Rutaceae

DESCRIPTION A tree up to 8m high. The leaf stalks have narrow wings and the stalk is jointed to the blade. The fruit often remain green colour and don't turn orange when ripe, below 600 m altitude.

DISTRIBUTION Not suited to very wet areas. Not suited to high altitudes. Seeds won't grow below 15°C. They need a well drained soil.

CULTIVATION Trees are often grown from seeds but these do not breed true. It is better to use budded plants. Seeds grow most easily between 27° and 32°C. Green fruit can be treated with ethylene to give an orange colour.

PRODUCTION

USE The fruit is eaten fresh and the juice used in drinks.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>88.6%</td>
<td>40cal</td>
<td>0.8mg</td>
<td>21mg</td>
<td>0.3mg</td>
<td>150 g</td>
<td>40mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES Pink disease fungus Corticium salmonicolor Berk. & Br.
Sooty mould fungus

PESTS

IMPORTANCE Trees are seen scattered in many lowland areas. Few good quality fruit are produced.
ENGLISH: Clymenia polyandra (Tanaka) Swingle (Syn. Citrus polyandra Tanaka and Citrus flaviflora Peekel)

Plant family: Rutaceae

DESCRIPTION A Citrus relative. The tree is 5-8m tall. The leaves are large (18cm x 6cm) and simple. Young leaves have lobes. The leaf stalks are short and without wings. It does not have thorns. The flowers are dark yellow. The fruit is yellow and the size of a large lime. The skin of the fruit can irritate human skin. The seeds are flattish with lines on them.

DISTRIBUTION It is cultivated on Manus and New Ireland. It only occurs in P.N.G.

CULTIVATION Trees are grown from seed.

PRODUCTION Some kinds have sweet pleasant tasting fruit.

USE The fruit are eaten fresh.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitamin A provitamin C

INSECTS

DISEASES

PESTS

IMPORTANCE A fruit of moderate importance in only a few limited areas. It could become important for breeding or rootstocks.
NAMES

English: Lime berry.

Scientific name: *Triphasia trifolia* (Burm.f.) F.Wils
(Syn. *T. aurantiola* Lour. & *T. trifoliata* D.C.)

Plant family: Rutaceae

DESCRIPTION A small spiny shrub up to 7m high with slender zigzag twigs. There are 2 spines near each leaf. The leaves have 3 leaflets and are small and dark green. Flowers are in the axils of leaves and are white and about 1 cm across. The small berry is green when young and turns red when ripe. They are 1-2 cm across. The skin has glands in it and the 3 sections of the fruit have 1-3 slimy seeds inside.

DISTRIBUTION Mainly in lowland coastal areas.

CULTIVATION Plants are grown from seed.

PRODUCTION

USE The fruit can be eaten raw or cooked or made into jam or juice.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A minor cultivated fruit in some coastal villages.
Plant family: Corynocarpaceae
Scientific name: Corynocarpus ciliianus (F.M.Bail)L.S.Sm. (syn.C. australasica C.T.White)

DESCRIPTION A medium sized tree up to 20m high. It produces clusters of fruit on the ends of the branches. The fruit is 10-12cm x 8-10cm, and have one large seed inside. The fruit is green when young and pink or cream when ripe. Fruit is shaped like a mango.

DISTRIBUTION Trees occur in well drained rainforest up to 1800m altitude.

CULTIVATION Trees are grown from seed.

PRODUCTION The tree flowers and fruits throughout the year. The fruits fall when ripe and are then collected from the ground. (It is important to only use fruit which fall naturally)

USE The fruits are edible. They are sweet but not juicy. Fruit can be eaten raw or cooked.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE This is a quite important fruit on Manus and on islands near Madang.
NAMES

English:  Scientific name: *Bassseaera nanuana* Bailey
          Plant family: Euphorbiaceae

DESCRIPTION  A small tree up to 12m tall. Flowers are long yellow stalks. The fruits hang on a chain (racemes) from the branches and main trunk. The fruits are 19mm x 17mm and turn yellow when ripe. Male and female trees occur. The flower gives off a strong smell.

DISTRIBUTION  They occur in several lowland areas from sea level up to 1600m altitude. They are mainly eaten in Gulf and Milne Bay Provinces.

CULTIVATION  They are both cultivated and grow wild from seed.

PRODUCTION

USE  The fruit is eaten.

FOOD VALUE  / 100 g edible portion

moisture  energy  protein  calcium  iron  provitaminA  provitaminC

INSECTS

DISEASES

PESTS

IMPORTANCE  An indigenous tree valued in some areas and at least worth evaluation.
NAMES
English: Tree tomato  
Tamarillo  
Scientific name: Cyphomandra betacea (Cav.) Sendt.
Plant family: Solanaceae

DESCRIPTION  A shrub with soft wood and it grows up to 4m high. The leaves are large (20cm x 20cm) and soft. The fruit is about 6cm long, the shape of a hen's egg and red or orange in colour. They hang off the ends of the branches.

DISTRIBUTION The normal range is 750m to 2200m altitude. They can't stand waterlogging or drought. Trees can grow under shade. They need garden sites that are clean of disease and fertile. Plants don't fruit at low altitudes.

CULTIVATION They can be grown from seeds or cuttings. Cuttings produce a lower bushier plant. Cuttings of 60-90cm are suitable. It has shallow roots therefore needs careful weeding. A spacing of 3m apart is sufficient.

PRODUCTION It commences bearing in its second year. Fruit production is continuous throughout the year. The tree is short lived lasting 5 or 6 years.

USE The content of the berries is eaten. It can be eaten raw or cooked.

FOOD VALUE / 100g edible portion
moisture  85.9%  
energy  48cal  
protein  1.5g  
calcium  13mg  
iron  0.8mg  
provitA  460g  
provitC  17mg

INSECTS

DISEASES Very susceptible to root rot caused by a fungus Phytophthora palmivora Butl.
Leaves and ripe fruits get anthracnose due to a fungus Colletotrichium gloeosporioides Penz.

PESTS Root knot nematode Meloidogyne sp.

IMPORTANCE It is quite often seen in the highlands and appears to be increasing in importance.
English: Naranjilla  
Scientific name: *Solanum quitoense* Lam.  
Plant family: Solanaceae

**DESCRIPTION**  A small shrub up to 2m high.  
The leaves are large and angular and hairy on both surfaces.  
The fruit is bright orange in colour and covered with short hairs which can be removed by rubbing.  
The fruit is about 6cm across.  
The flesh is yellow-orange.

**DISTRIBUTION**  It suits the highland areas.  
The best altitude is probably 800 to 2000m.  
It is frost sensitive.

**CULTIVATION**  They are sown from seeds.  
Seeds can be bought in stores or collected from the fruit.  
Seeds germinate in 25-40 days in warm soil.  
A spacing of 1-2m is suitable.  
Plants can be grown from cuttings.

**PRODUCTION**  Plants commence bearing fruit after 6-12 months.  
They bear fruit throughout the year.

**USE**  Fruit is eaten fresh or used for jams and drinks.

**FOOD VALUE**  

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES**

**PESTS**  Susceptible to root knot nematode.

**IMPORTANCE**  Plants are not common but they are increasing in importance in the highlands.
238

NAMES
English: New Guinea Walnut
Tok pisin: Mon
Tok ples Kuanua: Laup
Scientific name: Dracontomelon dao (Blanco) Merr. & Rolfe
D. edule (Blanco) Skeels and others.
Plant family: Anacardiaceae.

DESCRIPTION A large tree up to 50 m tall and with an umbrella shaped crown of leaves. It often has buttresses at the base. Leaves are made up of 6-10 pairs of leaflets with a smooth edge. Young leaves are reddish colour. Flowers are small and white in clusters near the ends of branches. The fruit is 2-3 cm across and has 5 flecks around it. There is little edible flesh around a flattened seed.

DISTRIBUTION It grows in lowland rainforest and in valleys up to about 800m. It occurs in high rainfall areas. The tree also occurs in other S.E. Asian countries.

CULTIVATION Trees are grown from seed. Many trees grow wild.

PRODUCTION It flowers and fruits throughout most of the year. Leaf fall and a fruit flush follows a dry spell. Trees can produce after 3-4 years. An average fruit weighs 17g.

USE The juicy flesh of the fruit is edible. It is sour. The flowers and leaves can be cooked and eaten as a vegetable. The kernel inside the seed is edible.

CAUTION The sap of the tree may be irritating and/or poisonous.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
fruit ripe 69.3% 101 cals 2.4g

INSECTS

DISEASES

PESTS

IMPORTANCE The tree is common in coastal areas, but the popularity of the fruit varies. In Madang it is a most popular fruit.
NAMES
English: Cloves
Plant family: Myrtaceae

DESCRIPTION A tall tree up to 20m tall with bright red flowers. The bark is grey and the small branches are very brittle. The leaf stalk has a swollen reddish base and the leaf is about 10cm x 4cm. The young leaves are reddish. Flowers are on the ends of branches. Up to 20 small flowers occur together. The fruits are oblong red and fleshy. They are about 3cm long with 1 or 2 seeds.

DISTRIBUTION They grow best on small islands near the sea in tropical places. They prefer a place which is not wet and humid all the year round.

CULTIVATION They grow easily from fresh seed. Seedling trees can be transplanted when about 15 months old. Vegetative propagation is not easy.

PRODUCTION Trees start to produce at 6-8 years of age. The flower buds are harvested when light red and dried in the sun. Trees last for 80 years or so.

USE The dried flower buds are used to flavour foods.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE An occasional tree occurs in P.N.G.
NAMES
English: Watery rose apple
Tok pisin: Laulau
(Also for Malay Apple)

Scientific name: *Eugenia aquea* Burm.f.
(Syn. *Syzygium aqueum* (Burm.f.) Alston.)
Plant family: Myrtaceae

DESCRIPTION A tree up to 10m high with a short crooked trunk. The twigs are angular and have simple opposite leaves. The leaves are somewhat narrow and pointed and they clasp the stem. The flowers are yellowish green. The fruit is a fleshy yellow or red berry which is bell shaped. The fruit is waxy and crisp and is often seedless.

DISTRIBUTION In lower montaine forest. It grows from sea level to 1600 metres. It grows well in wet places but needs a well drained soil.

CULTIVATION Trees can be grown fairly easily from cuttings but can also be grown by marcottage or budding. A spacing of 6-8 metres between trees is suitable.

PRODUCTION Fruiting is seasonal, but there can be 2 or 3 crops a year.

USE The fruits are eaten.

<table>
<thead>
<tr>
<th>FOOD VALUE</th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>%</td>
</tr>
<tr>
<td>energy</td>
<td>kcal</td>
</tr>
<tr>
<td>protein</td>
<td>g</td>
</tr>
<tr>
<td>calcium</td>
<td>mg</td>
</tr>
<tr>
<td>iron</td>
<td>mg</td>
</tr>
<tr>
<td>provitamin A</td>
<td>mg</td>
</tr>
<tr>
<td>provitamin C</td>
<td>mg</td>
</tr>
<tr>
<td>fruit</td>
<td>87%</td>
</tr>
<tr>
<td>46cals</td>
<td>0.6g</td>
</tr>
<tr>
<td>8mg</td>
<td>1.1mg</td>
</tr>
<tr>
<td>0</td>
<td>5mg</td>
</tr>
</tbody>
</table>

INSECTS Green scale - *Coccus viridus*

DISEASES

PESTS

IMPORTANCE It is moderately common in lowland areas and suits drier areas than Malay Apple.
NAMES
English: Rose apple Scientific name: *Eugenia jambos* L. (Syn. *Syzygium jambos* (L) Alston & *Jambos vulgaris* D.C.)

DESCRIPTION An evergreen tree 7.5-10m tall and with thick glossy leaves. The leaves are narrow and pointed (10-15cm long x 3-4 cm wide) and brownish red coloured when young. The fruit is rose scented and apple like. It is dull yellow and tinged pink. They contain 1 or 2 large seeds.

DISTRIBUTION It needs adequate moisture and suits the warm moist tropics. It can't stand waterlogging. It probably grows up to about 1200 metres above sea level.

CULTIVATION Plants can be grown from seed. Seeds often give rise to more than one seedling. Plants can be grafted or budded if needed. Cuttings root fairly easily in sand. Trees need to be 6-8 metres apart.

PRODUCTION Trees grow slowly. They start bearing when 4-5 years old. Fruiting is normally seasonal but over a long season.

USE They are poor as a dessert fruit, but because of the sweet rose smell are often crystallised and used in sweets.

CAUTION The leaves are poisonous.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
84% 0.8g

INSECTS Green scale - *Coccus viridus*

DISEASES Sooty mould due to fungi - *Chaetothyrium womensleyi* Hansf. and *Brooksia tropicalis* Hansf.

PESTS

IMPORTANCE Not widely grown or used.
NAMES
English: Java apple. Scientific name: Eugenia javanica Lam.
(Syn. Jambo sa javanica K.Sch. & Laut. & Syzygium samarangense Merr. & Perry)
Plant family: Myrtaceae.

DESCRIPTION A tree up to 15m high which branches near the base giving a spreading open tree. The leaves are smaller (25cm x 10cm) and more pointed than Malay apple and on short stalks. Flowers are about 3cm wide and white. They are on leafy twigs. It produces clusters of attractive glossy pink waxy looking fruit. Fruit are 3cm long and 3-5cm wide.

DISTRIBUTION Trees grow in coastal areas. They need a deep fertile soil.

CULTIVATION Plants are mainly raised from seeds. Fresh seeds must be used. They can be propagated by air layering. A spacing of 8-10m apart is suitable.

PRODUCTION Trees start fruiting when quite small. Fruit production is seasonal. Normally large numbers of fruit are produced.

USE The fruit are eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE This is not a common fruit tree in P.N.G.. Where it occurs, fruit quality is poor.
NAMES
English: Malay apple
Tok pisin: Lauilau
(also for similar fruits)
Scientific name: Eugenia malaccensis L.
(Syn. Syzygium malaccense (L)Merr. & Perry & Jamösa malaccensis D.C.)
Plant family: Myrtaceae

DESCRIPTION A tree 5 to 20m tall. Trees tend to branch near the base. Leaves are thick and shiny on both surfaces. Leaves can be up to 25cm long and 12cm wide. The leaves have a marginal vein. Flowers are produced on old wood and on the trunk. Flowers are purple. The fruit is rounded and 5 x 6cm. The fruit has white flesh around a large brown seed. The skin of the fruit is red or pink with darker stripes.

DISTRIBUTION They grow in coastal areas and up to 1000m altitude. They need fertile soil, plenty of moisture, absence of drought and good drainage. They are sensitive to frost.

CULTIVATION Trees are normally grown from seed. Seeds need to be fresh. They can be grown by budding, grafting, layering or cuttings. A spacing of 10m between trees is suitable.

PRODUCTION Fruiting is seasonal. The season tends to be from Dec. to Feb. Fruit ripe in 2-3 months.

USE The fruit can be eaten fresh or cooked.
The young leaves are eaten.
The flowers have also been recorded as being eaten.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>91.4%</td>
</tr>
<tr>
<td>energy</td>
<td>30cals</td>
</tr>
<tr>
<td>protein</td>
<td>0.5g</td>
</tr>
<tr>
<td>calcium</td>
<td>18mg</td>
</tr>
<tr>
<td>iron</td>
<td>0.4mg</td>
</tr>
<tr>
<td>provitA</td>
<td>17mg</td>
</tr>
<tr>
<td>provitC</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS
Fruit fly larvae
Green scale - Coccus vinidus
Lasiodactylus notabilis Oliff.
Cryptophaga sp. nr arithomologa Meyr.

DISEASES Sooty moulds due to fungi Chaetothryium womersleyi Hansf.
and Brooksia tropicalis Hansf.

PESTS Flying fox - Dorsonia sp. and others.

IMPORTANCE A common village fruit tree in coastal areas.
NAMES

English: Surinam cherry  Scientific name: *Eugenia uniflora* L.
(Syn. *Eugenia michelii* Lamk.)
(and *Syzygium michelii*)
Plant family: Myrtaceae

DESCRIPTION  A small tree up to 7.5m high. The flowers are small and white
and the fruit is lobed and red. There
is a single large seed inside. The fruit
is about 3cm across. The tree is used
as a hedge plant.

DISTRIBUTION  It grows in the lowlands
from sea level up to about 800m or
higher. It is suited to a warm moist
climate. It can stand some frost.

CULTIVATION  Trees are mostly grown from
seeds but can be grown from cuttings.
Seeds should be fresh. Trees can be
trimmed and pruned to form hedges.

PRODUCTION  Several crops of fruit are
produced each year. Trees start to
produce fruit after about 4 years. Fruits
are mature 5-6 weeks after flowering.

USE  The ripe fruit is eaten fresh.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td></td>
</tr>
<tr>
<td>energy</td>
<td></td>
</tr>
<tr>
<td>protein</td>
<td></td>
</tr>
<tr>
<td>calcium</td>
<td></td>
</tr>
<tr>
<td>iron</td>
<td></td>
</tr>
<tr>
<td>provitA</td>
<td></td>
</tr>
<tr>
<td>provitC</td>
<td></td>
</tr>
<tr>
<td>fruit</td>
<td>89%</td>
</tr>
<tr>
<td></td>
<td>38cal</td>
</tr>
<tr>
<td></td>
<td>0.5g</td>
</tr>
<tr>
<td></td>
<td>7mg</td>
</tr>
<tr>
<td></td>
<td>0.1mg</td>
</tr>
<tr>
<td></td>
<td>1120 g</td>
</tr>
<tr>
<td></td>
<td>19mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES  Scab of fruit due to fungi *Pestalotia eugeniae* Thuem.
and *Pyrenochaeta sp.*

PESTS

IMPORTANCE  Trees have been grown and distributed in some coastal
areas.
NAMES
English: Governor's plum
Scientific name: Flacourtia indica (Burm.f.) Merr.
(Syn. Flacourtia namontchi L'Herit)
Plant family: Flacouriaceae

DESCRIPTION
A small tree 5-15m high with a crooked low branched trunk. Young branches are spiny. Leaves are wavy or toothed along the edge, dark green on top and pale green underneath. They are 6-17cm long and 3-7cm wide. Male and female trees occur. The flowers are small. Fruits are red and about 2.5cm across. The flesh is yellowish, juicy and acid. There are 6 to 10 small flattened seeds inside.

DISTRIBUTION
Trees grow in coastal areas and up to 700m or higher. They suit drier areas.

CULTIVATION
Trees are normally grown from seed. Groups of trees containing both male and female trees need to be planted together. Trees can be grown from root suckers or by budding. A spacing of 12-16m apart is needed.

PRODUCTION

USE
The fruit is eaten raw or cooked.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>74.2%</td>
<td>94cals</td>
<td>0.5g</td>
<td>33mg</td>
<td>0.7mg</td>
<td>30 g</td>
<td>5 mg</td>
</tr>
</tbody>
</table>

INSECTS
A caterpillar of an unidentified moth eats the leaves.

DISEASES

PESTS

IMPORTANCE
A fruit tree occasionally seen in lowland areas.
NAMES

Tok pisin: Lovi-lovi.  

Scientific name: Flacourtia inermis Roxb.  
Plant family: Flacouriaceae

DESCRIPTION  It is a small tree up to 15m high and without spines on the trunk. The trunk is often crooked. Leaves are 10-20cm long and 5-9cm wide. Flowers have both sexes. The fruit is round, green when young and dark red when ripe. It is about 2-3cm across. It has 5 seeds inside.

DISTRIBUTION  Trees occur in New Britain and some other coastal areas. They grow from sea level up to about 1300m. They can grow on a variety of soils.

CULTIVATION  Trees are mostly grown from seed. It is better to grow them by marcottage or budding. Seedlings take up to 18 months to be ready to plant out. A spacing of 12-16m apart is needed. Seeds are small.

PRODUCTION  Fruit is mostly ready about May to July.

USE  Many kinds have sour fruit so they are often cooked or used for jam.

FOOD VALUE  / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS  Caterpillars of moth chewing leaves - Clostera nubida Druce.

DISEASES  Leaf spot probably due to a fungus.

PESTs

IMPORTANCE  Trees occur occasionally in coastal areas.
English: Coffee plum
Scientific name: *Flacourtia jangomas* (Lour.) Raeusch
(Syn. *Flacourtia cataphracta* Roxb. ex Willd.)
Plant family: Flacouriaceae

**DESCRIPTION** A small deciduous tree up to 10m tall. The leaves are 5-10cm long and 2-4cm wide. Old trees often do not have thorns of the trunk or branches. Flowers are small and in clusters in the axils of leaves. The fruit is a dull brownish red with a greenish yellow pulp. Fruit are about 2 cm across.

**DISTRIBUTION** They are grown as a fruit tree up to about 600m. They would probably grow up to about 1500m. It also occurs wild.

**CULTIVATION** Trees are mostly grown from seed, but better kinds should be propagated by grafting. It produces root suckers, and these can be used for planting. A spacing of 14-16m apart is needed.

**PRODUCTION** Fruiting is seasonal. Fruits probably occur from May to October. Rubbing the fruit to bruise them improves the eating quality.

**USE** The fruit are eaten. Because they are sour, they are often used for jams or preserves. The young red leaves are edible. They contain tannin.

**FOOD VALUE**

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>77.7%</td>
</tr>
<tr>
<td>energy</td>
<td>78cals</td>
</tr>
<tr>
<td>protein</td>
<td>0.5g</td>
</tr>
<tr>
<td>calcium</td>
<td>43mg</td>
</tr>
<tr>
<td>provitamin A</td>
<td></td>
</tr>
<tr>
<td>provitamin C</td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** Trees have been planted in a few coastal areas.
NAMEs
English: Rukam
Scientific name: *Flacourtia rukam* Zoll. & Mor.
Plant family: Flacourtiaee

DESCRIPTION A tree up to 40m tall with a trunk 1m across. Young leaves are reddish brown and leaves are shiny on top. They are 10-15cm long and 4-7cm wide. The flowers are in greenish yellow clusters on the branches in the axils of the leaves. They occur with separate sexes in separate flowers. The fruit is a flattened berry with soft juicy flesh and a red colour. The trunk in in young trees has many simple spines. The leaf size and shape varies a lot.

DISTRIBUTION Trees occur in tall lowland rainforest. They probably grow from sea level up to about 1600m.

CULTIVATION Trees are mostly self sown. Trees can be grown from seed or root suckers. Root suckers are commonly produced. Fruit are made sweeter by rubbing them after harvest.

PRODUCTION Fruiting is seasonal. Fruit are often produced about Sept. to Nov.

USE The fruit is edible. The young leaves and shoots are edible.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Trees occur, but are not very common in coastal areas.
Names
English: Red raspberries  Scientific names: Rubus fraxinifolius Poir.
and Rubus moluccanum L.
and Rubus rosifolius Smith

Description  Of the many raspberries in P.N.G., three red ones are commonly eaten. R. moluccanum has a simple leaf, and R. rosifolius has 5-7 leaflets. The first is a long straggling vine. The other 2 are smaller bushes. R. fraxinifolius is shown at the right.

DISTRIBUTION They are common in the highlands. R. moluccanum from sea level to 2700m R. rosifolius from 750-2850m altitude.

CULTIVATION They both grow wild. They could be grown by division of the root.

Production

Use  The fruit are eaten raw or used for fruit juices.

Food Value  / 100 g edible portion
moisture energy protein calcium iron provitA provitC

Insects  Weevils Gymnopholus marquandti Hllr. and Gymnopholus intermedi Hllr.

Diseases  Rust due to fungus Hamaspora acutissima Sydow

Pests

Importance  The plants are common. The fruit is mainly eaten by children.
250

NAMES

English: Black raspberry   Scientific name: *Rubus lasiocarpus* Sm
Plant family: Rosaceae

DESCRIPTION A long white cane with large thorns along it. It produces black fruit.

DISTRIBUTION It has been introduced from India. It grows between 800m and 2600m altitude.

CULTIVATION It grows wild and is cultivated. New plants do not grow easily from canes.

PRODUCTION

USE The fruit is eaten or used for drinks.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE It is gaining importance as a fruit around compounds and houses in the highlands.
NAME

English: Strawberry
Scientific name: *Fragaria* spp - a hybrid.
Plant family: Rosaceae

DESCRIPTION
A small clumpy plant with runners which grow small plants at the side. The flowers are white. The fruits are small (3cm across) red and dotted with many hard seeds.

DISTRIBUTION
They mostly grow between 800 and 2400 m altitude.

CULTIVATION
They are grown from healthy runners which have roots attached. Runners need to be replanted from new disease free plants each couple of years because of virus build up.

PRODUCTION
The time from transplanting to first harvest takes 6 months at 1600m.

USE
The fruit is eaten raw or used in jam.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>90.6%</td>
</tr>
<tr>
<td>energy</td>
<td>34cal</td>
</tr>
<tr>
<td>protein</td>
<td>0.8g</td>
</tr>
<tr>
<td>calcium</td>
<td>25mg</td>
</tr>
<tr>
<td>iron</td>
<td>0.9mg</td>
</tr>
<tr>
<td>provitA</td>
<td>10 g</td>
</tr>
<tr>
<td>provitC</td>
<td>53mg</td>
</tr>
</tbody>
</table>

INSECTS
Weevil *Aphilocalus terrestris* Thompson
Dieuches *lineatus* Van Duzee
Shot hole weevils *Oriobus inimicus* Mshl.
*Riptortus imperialis* Kirk.
Mole crickets
Stink bugs

DISEASES
Leaf spot due to fungus *Cercospora vexans* C.Massal
Leaf blotch due to fungus *Diplocarpon earlianum*(El.& Ev.)Wolf
Leaf spot due to fungus *Mycosphaerella fragariae* (Tul.)Lindau
Strawberry mosaic virus

PESTS
Slugs
Mites - sucking sap of the leaves.

IMPORTANCE
Being planted up and becoming more common in the highlands.
Names

English: Alpine strawberry  Scientific name: *Fragaria vesca var. semperflorens*
Plant family: Rosaceae

Description
A strawberry with small leaves and fruit and the seeds are on the outside of the fruit.

Distribution
It grows from 1600m up to 3550m, it becomes naturalised in high mountain regions.

Cultivation
They can be grown from seed. Mostly they are grown from runners. It grows wild in some areas.

Production

Use
The fruit is eaten.

Food Value

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td></td>
</tr>
<tr>
<td>energy</td>
<td></td>
</tr>
<tr>
<td>protein</td>
<td></td>
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<tr>
<td>calcium</td>
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</tr>
<tr>
<td>iron</td>
<td></td>
</tr>
<tr>
<td>provitA</td>
<td></td>
</tr>
<tr>
<td>provitC</td>
<td></td>
</tr>
</tbody>
</table>

Insects

Diseases

Pests

Importance
Common in the mountains near Mt. Wilhelm.
DESCRIPTION  A perennial climbing plant up to 15m long with tendrils to hang on to a trellis. Leaves have 3 lobes. Flowers are purplish white. The fruit is purple and 4-5cm across. A yellow variety has slightly larger fruit. The outer skin of the fruit is brittle and inside are lots of seeds in a yellow pulp.

DISTRIBUTION  The purple variety grows in the highlands up to 3000m. It can stand light frosts. The yellow one grows in the lowlands. Its normal range is 700 to 2300m. Often fruit set is poor in wet conditions.

CULTIVATION  Plants are grown by seeds or cuttings. It needs a trellis for support. The fruit turns purple, wrinkles then drops off when ripe. Hand pollination can improve fruit set. A spacing of 3-4m apart is suitable.

PRODUCTION  Plants produce after about 12-18 months and keep producing well for 4 or 5 years.

USE  The fruit is eaten fresh or used for juice.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>75.5%</td>
</tr>
<tr>
<td>Energy</td>
<td>94cal</td>
</tr>
<tr>
<td>Protein</td>
<td>2.4g</td>
</tr>
<tr>
<td>Calcium</td>
<td>11mg</td>
</tr>
<tr>
<td>Iron</td>
<td>1.2mg</td>
</tr>
<tr>
<td>ProvitA</td>
<td>17mg</td>
</tr>
<tr>
<td>ProvitC</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS  Cacao mirid Helopeltis clavifer (Walker)
Weevil Idiopsis grisea Faust.
Black leaf footed bug Leptoglossus australis (Fab.)
Cacao armyworm Tinarcola plagiata (Walker)
Shothole weevils Orikius destructor Mshl. & O. inimicus Mshl.

DISEASES  Brown spot due to a fungus Alternaria passiflorae J.H.Simm.

PESTS

IMPORTANCE  Plants are common in the highlands. The fruit are eaten but are not popular.
NAMES
English: Passionflower  Scientific name: Passiflora foetida L.
Plant family: Passifloraceae

DESCRIPTION A vine with tendrils. It creeps over the ground. It has a strong smell. The leaves are 3 lobed and with fine hairs. The fruit is small (2cm) yellow and with a soft skin. Seeds are flat.

DISTRIBUTION It is common in the lowlands and occurs up to 1000m altitude. It is drought resistant and can grow on poor soils.

CULTIVATION It grows wild in the lowlands. Seeds germinate rapidly.

PRODUCTION Fruits occur throughout most of the year.

USE The ripe fruits are eaten.

CAUTION The unripe fruit and leaves are claimed to be poisonous.

FOOD VALUE / 100 g edible portion
fruit 82% 64cal 1.8g 20mg 0.7mg 0 15mg

INSECTS Brachyplatis translineatus Walk.

DISEASES Sooty mould due to fungus Schiffnerula mirabilis Hohnel Chlorotic spot due to virus Leaf spot.

PESTS

IMPORTANCE A common plant in lowland areas. The fruit is widely eaten by children.
NAME
English: Yellow granadilla  Scientific name: *Passiflora laurifolia* L.
Plant family: Passifloraceae.

DESCRIPTION A perennial climbing vine. Leaves do not have lobes and stems are round. Leaves are rounded (10cm x 5cm), hairless and rough. Flowers are large (6cm across) and have a pleasant smell. Fruit are oblong and taper at both ends. They are about 8cm x 5cm, smooth and yellow when ripe.

DISTRIBUTION It grows in lowland areas.

CULTIVATION

PRODUCTION

USE Fruit are eaten raw.

CAUTION The leaves are poisonous.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Not commonly seen.
NAMES
English: Yellow passionfruit  Scientific name: *Passiflora ligularis* L.
Plant family: Passifloraceae

DESCRIPTION  A vigorous climbing vine. The fruit is larger, yellow skinned and sweeter with larger seeds than the more common purple passionfruit. Leaves are entire, heart shaped and up to 20cm long. Flowers are pale green.

DISTRIBUTION  They grow between 1300 and 2400m altitude.

CULTIVATION  They can be grown from cuttings. Plants need a fence or trellis to grow on. They can also be grown from seed.

PRODUCTION  Fruit production is seasonal.

USE  The fruit are eaten.

FOOD VALUE  

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE  It is not very often seen in the highlands but it is being more widely planted.
NAMES


Plant family: Passifloraceae

DESCRIPTION A vine which has a leaf with 3 lobes. The fruit is long and yellow. The vine has tendrils by which it attaches to other plants.

DISTRIBUTION It is suited to colder highland conditions. It grows wild over 2500m altitude. Plants will fruit between 1600 and 2800m altitude.

CULTIVATION Seeds can be sown in a nursery and then transplanted. Plants need a framework to climb over.

PRODUCTION

USE The fruit is eaten when ripe.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES Fruit spots due to a fungus *Gloeosporium* sp.

PESTS

IMPORTANCE A common and fairly popular fruit in very high altitude areas.
NAMES
English: Granadilla  Scientific name: Passiflora quadrangularis L.
Plant family: Passifloraceae

DESCRIPTION A long creeping vine with square stems. The fruit is greenish yellow 12-30cm long and with black seeds amongst purple flesh. The leaves are large. The flowers are also large and purple.

 DISTRIBUTION It mainly occurs in the lowlands but grows up to about 1000m. It suits hot humid lowland areas.

CULTIVATION Plants are normally grown from cuttings but they can be grown from seed. It needs a trellis to grow over. It often pays to hand pollinate.

PRODUCTION A vine lasts for 5-6 years.

USE Sometimes unripe fruit is boiled as a vegetable.
Otherwise the fruit is eaten ripe.
Sometimes the swollen root is cooked and eaten like a yam.

CAUTION The leaves are poisonous.

FOOD VALUE / 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC
94.4%  20cal  0.7g  14mg  0.8mg  15mg

INSECTS  Piennistria sp.

DISEASES Chlorotic spot due to virus

PESTS Rats.
Bats
Birds

IMPORTANCE Reasonably common in lowland areas.
English: Scientific name: *Parantocarpus venenosus* (Zoll. & Mor.) Boerl.
(Syn. *Gymnoantocarpus venenosa* (Zoll.) Boerl. and *Parantocarpus involucrata* Warb.)
Plant family: Moraceae

DESCRIPTION A tree up to 35m tall with milky sap. The leaves are entire and arranged in a spiral. The flowers are borne in the axils of the leaves. Flowers are separately male and female but both on the one tree. The fruit is a cluster of "seeds" forming a rough checkered head about 18cm across. The "seeds" are about 3cm long. The fruit is brown on the outside and yellow inside and irregular in shape.

DISTRIBUTION The subspecies that occurs in P.N.G. occurs from 5-1000m altitude. It occurs in humid forest.

CULTIVATION It grows wild. It can be grown from seed. Seeds are distributed naturally by flying foxes.

PRODUCTION The fruit turns very brown on the outside and has a sweet smell when ripe. Fruit production is seasonal.

USE The ripe fruit is edible. They are very dry so a drink is needed with them.
The seeds are edible after being soaked in sea water for a few days.

CAUTION The sap of the tree is often used as an arrow poison. The unripe seeds are poisonous.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS Flying fox

IMPORTANCE A minor edible fruit moderately common particularly on islands and peninsulas along the north coast.
NAMES
English: Bladder cherry  Scientific name: Physalis angulata L.
Plant family: Solanaceae

DESCRIPTION A perennial herb up to about 1m high. It has a yellow berry with many seeds inside. The berry is enclosed in a veiny inflated case about 3cm across.

DISTRIBUTION It mostly occurs above 1000 m and up to 2800m altitude.

CULTIVATION It is easily grown by sprinkling a few seeds into moist ground. It grows easily under most conditions. If the plants are in a very sheltered place, fertilization is improved by spraying the plants with water.

PRODUCTION

USE The fruit can be eaten raw or cooked.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>1.4g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS
Heliothis assulta (Guenée)
Cacao armyworm  Tinacola plagiata (Walker)
Leaf miner

DISEASES Leaf spot due to fungus Cercospora physalis Ellis

PESTS

IMPORTANCE A common plant. The fruit is being used more commonly.
Names
Tok ples: Etetawo in Goaribari.
Scientific name: *Planchonella sp*
(Several species occur in P.N.G.)
Plant family: Sapotaceae.

Description
A large tree up to 30m high with white milky sap. The fruit is round about 4cm across and borne in clusters on the branches. The fruit is green when young and black when ripe. Leaves are large. The fruit has a large seed inside.

Distribution
Coastal

Cultivation
Trees are planted using seeds.

Production
Fruiting is seasonal. (Fruiting in Aug.'82). Fruit falls and is collected from the ground.

Use
The outside flesh around the large seed is eaten raw.

Food Value

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

Insects

Diseases

Pests

Importance
A planted fruit tree at least at Kawito near Balimo in Western Province.
English: Canistel  
Egg fruit tree  

Scientific name: *Pouteria campechiana* (HBK) Brehni  
(Syn. *Lucuma nervosa* A.DC.)  
and *Lucuma rivicola* Gaertn.f.)  
Plant family: Sapotaceae

**DESCRIPTION**  A tree up to 8m high. The leaves are up to 20cm long, shiny and bright green. The small flowers grow in clusters of 2 to 5 on young wood. The fruit is round, slightly pointed at the end, orange yellow and up to 10cm long. The seeds are about 2-3cm long, dark brown and shiny.

**DISTRIBUTION**  It suits the coast and is damaged by frost. It will grow on fairly poor soils. It occurs at Kerevat.

**CULTIVATION**  Trees are normally grown from seed.

**PRODUCTION**  It begins bearing at about 3-5 years old.

**USE**  The fruit is eaten fresh or cooked.

**FOOD VALUE**  
/m 100 g edible portion  
moisture  energy  protein  calcium  iron  provitA  provitC  
57.2%  154cal  2.5g  30mg  1235 g  43mg

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE**  It is only being tried out in P.N.G.
ENGLISH: Peach

SCIENTIFIC NAME: *Prunus persica* (L.) Batsch
(Syn. *Prunus persicae* Stokes)

PLANT FAMILY: Rosaceae

DESCRIPTION: A small deciduous tree. The leaves are long (8–15 cm) and slender and finely toothed around the edge. Flowers are small and pink or white. The fruit is round with a groove down one side. Usually the skin is yellow. It has one hard stone inside with holes in it.

DISTRIBUTION: They need a specific cold requirement below 7°C to start flowers and leaves forming but a warm period for fruit ripening. So they are only suited to the highlands. With some kinds, removing the leaves for a time is sufficient.

CULTIVATION: Trees can be grown from seed but do not breed true. It is better to graft. Branches which have borne fruit should be removed to allow new fruit bearing wood to grow.

PRODUCTION: Budded trees should fruit in 5 years. Trees tend to be fairly short lived. (20 years)

USE: The fruit is eaten raw or cooked.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>87.9%</td>
<td>39cal</td>
<td>0.6g</td>
<td>4mg</td>
<td>1.1mg</td>
<td>200 g</td>
<td>6mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES: Peach leaf curl due to fungus *Taphrina deformans* (Berk.) Tul
Rust due to fungus *Tranzschelia pruni-spinosae* (Pers.) Diet
Shot hole

PESTS

IMPORTANCE: Only very few trees exist in the country.
NAMES
English: Plum
Scientific name: Prunus sp.
Plant family: Rosaceae.

DESCRIPTION Slender trees which lose their leaves. The leaves are toothed around the edge and hairy underneath. Leaves in the bud are rolled. Flowers are white. The fruit is a one seeded round fleshy fruit.

DISTRIBUTION Suitable only for high altitude areas in the tropics. (Japanese plums need less cold weather than European plums to start off flower formation). The soil needs to be well drained. Trees need plenty of sunlight. Trees can stand frost except at flowering.

CULTIVATION Plums are often grown from seed. They can be budded or grafted. Many kinds of plums have to be pollinated from other trees.

PRODUCTION

USE The fruit are eaten raw, or cooked.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A few trees are established and fruit in Highland areas.
NAMES
English: Durian
Scientific name: Durio zibethinus Merr.
Plant family: Bombacaceae.

DESCRIPTION A large evergreen tree up to 40 m high. Bunches of flowers 5-7 cm long are produced on main branches and the trunk. The fruits which develop are large and have spiny protuberances over the surface. As the fruit ripens it splits open naturally into 5 sections which have large seeds embedded in a yellow coloured pulp. The leaves are large and dark green on top while silvery brown underneath.

DISTRIBUTION A tree of the humid tropics but they may grow up to about 800 m above sea level. They need plenty of soil moisture and a rich soil.

CULTIVATION Trees grow readily from seed. Seeds need to be fresh. Seeds germinate in about 3 days and can be transplanted in about 4 weeks. Trees fruit about 7 years after planting. Trees can be grown by budding. A spacing of at least 14 m between plants is needed.

PRODUCTION Flowers are cross-pollinated by bats. Up to 50 fruit can be produced per tree per year. Fruits can be up to 3 kg weight. Fruiting is seasonal.

USE The flesh around the seeds is eaten. The unripe fruit can be cooked as a vegetable. The seeds are edible, usually cooked. The young leaves and shoots can be eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>66.8%</td>
<td>124cals</td>
<td>2.5g</td>
<td>20mg</td>
<td>0.9mg</td>
<td>10</td>
<td>17mg</td>
</tr>
<tr>
<td>seeds</td>
<td>56.5%</td>
<td>190cals</td>
<td>2.6g</td>
<td>17mg</td>
<td>1.0mg</td>
<td>250</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES Can be damaged by Pink disease due to a fungus called Corticium salmonicolor

PESTS

IMPORTANCE Introduced into several coastal areas and plantings are increasing. At present fruit are mainly used by Asians.
Egg tree

Scientific name: *Garcinia dulcis* (Roxb.) Kurz.
(Syn. *Garcinia longifolia* Bl.
and *Xanthochymus javanensis* Bl.)

Plant family: Clusiaceae

DESCRIPTION  A bushy tree up to 10-20m high. It has 4 angled yellow drooping branches. It has large leathery leaves up to 25cm long and 7cm wide. Young leaves are reddish. The flowers are white or greenish yellow. The fruit is smooth, yellow and the size of a small orange but with a point at the end. It has a thin skin and 1 to 5 seeds inside.

DISTRIBUTION  It grows in coastal areas up to 500m altitude. It is not particular as regards soil.

CULTIVATION  Trees are grown from seed.

PRODUCTION  Fruit production is seasonal about Dec. to May.

USE  Fruits are edible raw. They are a bit acid. They can be cooked.

FOOD VALUE  / 100 g edible portion

<table>
<thead>
<tr>
<th>Moisture</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>86.7%</td>
<td>49cal</td>
<td>0.4g</td>
<td>5mg</td>
<td>0.4mg</td>
<td>25g</td>
<td>5mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE  At present not commonly planted.
Names

English: Mangosteen
Scientific name: *Garcinia mangostana* L.
Plant family: Gluciaceae

Description
A medium sized tree 10-20m high with bright glossy leaves. They are 15-25cm long and leathery. The fruit is dark blue with 4-8 white juicy segments inside the thick skin. It is 8cm across and has flower sepal attached to the stalk end. It leaks yellow sap from wounds. Fruit is produced on side branches near to the tips of the main branches. Fruit often have no seeds or up to 2. These are not true seeds but will grow.

Distribution
It needs a hot humid climate (25°C to 35°C). It grows from sea level up to 1000m altitude. It can stand light shade. It often does not do well with sea breezes. It cannot tolerate drought. It needs fertile soil. It suits high rainfall areas - over 2500mm/year.

Cultivation
Trees breed true from seed because they are produced asexually. They germinate between 10 & 54 days. Seeds need to be fresh and undamaged, and cleaned of pulp. Transplanting is done with care after 2 years. A spacing of 7-10m suits.

Production
Trees are slow growing and begin to bear after 8-20 years. Fruiting is seasonal once or twice a year. Often more fruit are produced every second year. The main fruiting season is Nov. to March.

Use
Fruit is best eaten fresh.
The seeds are edible raw.

Food Value

<table>
<thead>
<tr>
<th>Moisture</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>84.3%</td>
<td>57cal</td>
<td>0.5g</td>
<td>10mg</td>
<td>0.5mg</td>
<td>0</td>
<td>4mg</td>
</tr>
</tbody>
</table>

Insects

Diseases

Pests

Importance
A few trees have been planted in lowland areas.
English: Loquat  
Scientific name: Eriobotrya japonica (Thunb.) Lindl.

Plant family: Rosaceae

DESCRIPTION  A small evergreen tree up to 6m high. Leaves are large and strongly ribbed. They are woolly white underneath. Flowers have a strong scent. Fruits are in loose clusters of about 10. They are 2-3cm long and yellow when ripe.

DISTRIBUTION  Trees grow best between 750 and 1750m altitude, and are best about 1000m. It is not suited to the coast and can't stand heavy frosts on the flowers or fruit. It does better in drier areas and needs good drainage.

CULTIVATION  It can be grown from cuttings or layering. It can also be grown from seeds or by grafting. Seeds grow easily. Trees should be planted in groups to cross pollinate. A spacing of 6m is suitable. Trees grow quickly.

PRODUCTION  Biennial bearing occurs. Thinning in heavy bearing years can give larger fruit. The fruiting is seasonal. The season is August to October.

USE  The fruit is eaten fresh.
If the fruit is cooked, the seeds should be removed as they give a bitter taste.

CAUTION  The leaves are poisonous.

FOOD VALUE  / 100g edible portion
<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>88.6%</td>
<td>40cal</td>
<td>0.5g</td>
<td>18mg</td>
<td>0.2mg</td>
<td>775g</td>
<td>4mg</td>
</tr>
</tbody>
</table>

INSECTS  Fruit are prone to fruit fly damage.

DISEASES  Pink diseases due to a fungus Corticium salmonicolor Berk. and Br.

PESTS

IMPORTANCE  At present only occasional trees are seen.
English: Rosella
Scientific name: Hibiscus saldaniffla L.
Plant family: Malvaceae

DESCRIPTION  A branched shrub up to 2m high. It has reddish stems, leaves and fruit. The leaves are 7-10cm across and lobed. The flowers are large and yellow and in the axils of the leaves. The bracts at the base of the flower are enlarged and form a fleshy red fruit.

DISTRIBUTION  It grows from sea level up to about 1000m altitude. It will tolerate a range of soils. It requires short days for flowering.

CULTIVATION  Seeds are sown and the seedlings can be transplanted. A spacing of 50cm x 50cm is suitable. It can be propagated by cuttings.

PRODUCTION  Fruit are ready 12-15 weeks after sowing. The bracts are picked 15-20 days after flowering. They can produce about 1kg per plant.

USE  The swollen bases of the flowers are used for jams or drinks.
      The young leaves can be cooked and eaten.
      The flowers can be used to flavour drinks.
      The seed can be eaten.

FOOD VALUE  / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>bracts</td>
<td>84.5%</td>
<td>1.7g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>leaves</td>
<td>86.4%</td>
<td>44cal</td>
<td>1.9-3.2g</td>
<td>115mg</td>
<td>1.5mg</td>
<td></td>
<td>35mg</td>
</tr>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE  Not common except in areas where people have been encouraged to grow it. e.g. Sepik.
NAMES

English: Mulberry  Scientific name: Morus alba L. & M. nigra L.
Plant family: Moraceae

DESCRIPTION  A small tree up to 9m high. Often it is low and spreading. It has
dark green toothed leaves. Male and female
flowers occur separately either on the
same or separate plants. The fruit is a
dark red or black berry.

DISTRIBUTION  The white mulberry (M. alba)
is normally used for silk worms and the
black mulberry suits more highland regions.
The normal range is 700 to 2200m altitude.

CULTIVATION  Trees from seeds take a long
time to bear. It is better to grow trees
from cuttings. Because trees "bleed" it
is best not to do too much pruning.

PRODUCTION  Fruit is produced seasonally.
The fruit season is normally September
to December.

USE  The fruit is eaten raw or used in
juice.
The leaves are edible.
(Leaves are also used for silk worms.)

NOTE  The stain from the fruit can be removed by rubbing with an
unripe fruit.

FOOD VALUE  / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy (cal)</th>
<th>protein (g)</th>
<th>calcium (mg)</th>
<th>iron (mg)</th>
<th>provitA (mg)</th>
<th>provitC (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>87.9%</td>
<td>42</td>
<td>1.4</td>
<td>24</td>
<td>3</td>
<td>15</td>
<td>39</td>
</tr>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS  Bothrichara palliata Macleay
Cassena intermedia Jacoby
Lagnaia sp.
Shot hole weevils Onzius destructor Mehl. & O. inimicus Mehl.
Leaf eating beetle Rhypa rida coniacea Jacoby

DISEASES

PESTS

IMPORTANCE  Trees moderately common in most highland areas for fruit
and leaves. (Also cultivated for silkworms)
NAMES
English: Japanese cherry
Panama berry
Tok pisin: Sirsen

Scientific name: Muntingia calabura L.
Plant family: Tiliaceae

DESCRIPTION A small tree up to 10m high. Branches are horizontal and young shoots are covered with hairs. The flowers are small and white. The fruits are small red berries 1-2cm across. The leaf is dark green on top and dull below.

DISTRIBUTION They suit sandy coral soils of low islands. They grow from sea level up to about 1000m altitude.

CULTIVATION Trees can be grown from seed. They can also be grown from cuttings of half ripe wood.

PRODUCTION Trees grow fairly quickly. Fruit is produced in the second year. Trees flower and produce fruit all year round.

USE The berries are eaten raw. The leaves can be used for tea.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>75.1%</td>
<td>87cal</td>
<td>2g</td>
<td>64mg</td>
<td>1.2mg</td>
<td>trace</td>
<td>86mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES Root rot due to fungus Phellinus noxius (Corner) G.H. Cunn. Shoots affected by Pink disease fungus Corillicium salmonicolor Berk. & Br.

PESTS

IMPORTANCE Trees have been planted as small ornamentals in some coastal towns.
NAMES

English: Indian mulberry

Scientific name: Morinda citrifolia L.

Plant family: Rubiaceae

DESCRIPTION A small evergreen tree with large oval leaves which grow opposite each other along a four sided shiny branch. The fruits are yellowish white when mature, with warty looking lumps. They are about 6cm across. The fruit is a little like soursop and has an unpleasant smell when ripe.

DISTRIBUTION The trees grown wild in coastal areas and are also planted. They suit dry areas because of high drought tolerance. It is part of the coastal vegetation behind the beach. Seeds can float easily in salt water. They can grow up to about 1500m altitude.

CULTIVATION Trees are grown from seeds.

PRODUCTION

USE The young leaves are cooked as a vegetable.

The fruit can be eaten raw or cooked.

(RED, yellow and brown non edible dyes are obtained from the root.)

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES A light brown target leaf spot.

PESTS

IMPORTANCE Trees are moderately common in some lowland areas. Fruits are used more than the leaves.
Scientific name: *Horsfieldia sylvestris* (Hout.) (Syn. *Myristica sylvestris* Hout. and *Myristica edulis* F.v Muller)
Plant family: Myristicaceae.

DESCRIPTION A medium sized tree 15-20m tall with fairly straight trunk and long narrow leaves. The leaves droop. The yellow pointed fruit hang singly on short stalks along the branches. The fruit is orange on the outside with yellow flesh around a red coated seed. Male and female flowers are separate.

DISTRIBUTION The tree occurs in the Moluccas and P.N.G., but not in the New Guinea Islands or the Solomons. They occur in primary forest on sandy or clayey soils. They are mainly in the coastal plain. They probably need some shade in the seedling stage.

CULTIVATION Trees are planted from seeds.

PRODUCTION

USE The flesh around the seed is eaten raw.

FOOD VALUE

<table>
<thead>
<tr>
<th>100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A fruit tree cultivated at least at Kawito near Balim in the Western Province.
NAMES

English: Fei banana

Scientific name: *Musa maclayi* F.Muell ex Mikl.

Plant family: Musaceae

DESCRIPTION A dark green stemmed banana with an upright bunch of fruit. The plant has red sap. The fruit is largely seedless.

DISTRIBUTION They occur in small numbers in many areas of P.N.G.

CULTIVATION Suckers are planted.

PRODUCTION

USE The fruit is eaten

CAUTION After eating the fruit, the faeces and urine become red.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor edible fruit is some coastal areas.
 NAMES
 English: Mangrove nutmeg Scientific name: Myristica holぬngii Warb
 Plant family: Myristicaceae

DESCRIPTION A large tree up to 40m tall
with a straight trunk and buttress roots.
Twigs have 2 raised lines along them
between the leaves. The leaf stalk is
3cm long and the leaf up to 30cm x 12cm.
Fruits are yellow with a red covered
seed inside.

DISTRIBUTION Trees are often just
behind the mangrove swamps. They can
grow up to 920m altitude. They grow in
the lowland rainforests by rivers and
streams.

CULTIVATION Trees grow wild from seed-

PRODUCTION Fruiting is seasonal.

USE The fruit is eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitamin A provitamin C

INSECTS

DISEASES

PESTS

IMPORTANCE A common tree in lowland areas of the mainland and islands
but only a minor edible fruit.
English: Elder

Scientific name: *Sambucus nigra*

Plant family: Caprifoliaceae

DESCRIPTION A small tree up to 10m high. The leaves have 5-7 leaflets and the edges are toothed. It has small black fruit.

DISTRIBUTION It only fruits consistently between 400m and 1800m altitude. The plant grows up to 2600m altitude.

CULTIVATION Trees can be grown by dividing the rootstock, or by cuttings.

PRODUCTION It bears fruit all year round.

USE The fruits are used for jams and drinks. The flowers can be eaten cooked.

CAUTION The roots, leaves and stems are reported to be poisonous.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE Plants are fairly common in the highlands but the fruits are rarely used.
NAMES

English: Rambutan  Scientific name: Nephelium lappaceum L.

Plant family: Sapindaceae

DESCRIPTION A tree up to 12-15m high. The fruits are yellowish red and soft with spiny outgrowths. Sometimes trees are separately male and female and sometimes seedless fruit is set. Often male and female flowers are separate but on the same tree. The fruits hang in loose clusters of 10-12 and are up to 5cm long.

DISTRIBUTION It requires a moist hot climate from sea level up to altitudes of about 300m.

CULTIVATION Trees can be grown from fresh seeds. Seedlings are not easy to transplant. Selected trees can be propagated by budding or air layering. Seedling trees vary considerably in quality due to cross pollination.

PRODUCTION Trees can start to bear after 6 years. Fruiting is seasonal. The main season is November to March. Fruiting can occur twice a year.

USE The white juicy layer (aril) around the kernel is eaten. The kernel can be eaten after cooking.

CAUTION The seeds have been reported to be poisonous.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>aril</td>
<td>82%</td>
<td>64cal</td>
<td>1g</td>
<td>20mg</td>
<td>1.9mg</td>
<td>0</td>
<td>53mg</td>
</tr>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Trees have been planted in several coastal areas and produce well.
NAMES

English: Pomegranate
Scientific name: Punica granatum L.
Plant family: Punicaceae

DESCRIPTION A shrub up to 2m tall with short thorns. The leaves are opposite, entire and 8cm x 1.5cm. It has large scarlet flowers. The fruit is round, leathery skinned and up to 10cm across. It is yellow brown in colour. Inside there are angular hard seeds in a juicy yellow pulp.

DISTRIBUTION They have borne fruit in P.N.G. at 1620m altitude. They are mostly coastal up to 500m. It suits areas with a long hot dry summer and cool winter.

CULTIVATION They are easily raised by seed. They are best propagated by layering or grafting but cuttings or root suckers can be used. Pruning of sucker growth and surplus branches is needed. A spacing of 4-5m is suitable.

PRODUCTION Trees bear after about 6 years. Fruiting is seasonal. The season tends to be Dec. to May.

USE The juicy pulp around the seeds is eaten.

The juice can be used for a drink.

FOOD VALUE

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>80%</td>
<td>72cal</td>
<td>1g</td>
<td>13mg</td>
<td>0.7mg</td>
<td>7mg</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

Hipaecoccus vastator (Mask.)

DISEASES Sooty mould due to fungi Chaetothyrium sp and Microsyphium sp

PESTS

IMPORTANCE Occurs in some areas of P.N.G.
Names

English: Langsat  
(Syn. *L. aqueum* (Jack) Jacks; and *L. javanicum* K. & V.)  
Plant family: Meliaceae

Description  An upright slender tree to 12m high. It has sticky sap. Leaves are up to 40cm long and made up of 5-7 large leaflets. The flowers are yellow in spikes from old wood mostly of the branches. The fruit is 3-5cm across and divided into 5 segments with 1-2 large seeds. The fruit is borne in long drooping clusters. The fruit is pale yellow when ripe.

Distribution  It occurs in coastal areas and probably up to 700m altitude. A rich deep well drained soil is needed. It suits humid places and is not suited to places with a distinct dry season.

Cultivation  Trees are mostly grown by seed. They can be grown by budding. A spacing of 8-10m is suitable.

Production  Fruit production is seasonal. The season tends to be from Dec. to March. Often trees have large crops every second year. Trees start to produce after 5-8 years.

Use  Fruit is eaten fresh after they fall.

Note  The stickiness of the juice of the fruit can be removed by dipping it in boiling water.

Food Value  / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provit A</th>
<th>provit C</th>
</tr>
</thead>
<tbody>
<tr>
<td>84.2%</td>
<td>55cal</td>
<td>0.9g</td>
<td>12mg</td>
<td>0.9mg</td>
<td>0</td>
<td>2mg</td>
</tr>
</tbody>
</table>

Insects

Diseases

Pests

Importance  Introduced to research farms and now being grown in a few places.
NAMES

English: Litchi
Scientific name: Litchi chinensis Sonn.
(Syn. Nephelium litchi Cambess)
Plant family: Sapindaceae

DESCRIPTION A medium sized evergreen tree up to 15m tall. Leaves are shiny and light green. It bears bunches of rough skinned pinkish fruit 3-4cm across. The flowers are pale green and in loosely branched groups at the ends of branches.

DISTRIBUTION It grows satisfactorily in the humid lowland areas but does not fruit. For fruiting it needs to be at a higher altitude because it has a cold temperature chilling requirement. It needs a deep moist soil and freedom from frost.

CULTIVATION Trees are mostly grown from seed but they do not breed true and are slow to produce. Trees can be propagated by aerial layering. Seeds do not store well (4-5 days). A spacing of 10-12m is suitable. Because it is shallow rooting, cultivation should be avoided and mulching practised.

PRODUCTION Vegetatively propagated trees bear in 4-6 years. Fruiting is normally seasonal. The normal harvesting method is to remove the fruit with a few cm of the stem still attached.

USE The fleshy pulp around the seeds is eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitamin A</th>
<th>provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit</td>
<td>79%</td>
<td>1.2g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTs

IMPORTANCE It has been introduced to P.N.G. and trees grow well but fruiting is rare probably because trees should be at mid altitude zones.
NAME

Scientific name: Madhuca spp
The actual species are unknown, but possibly
Madhuca leucodermis (Krause) H.J. Lam
and M. kurckiana (Koordiers) H.J. Lam
Plant family: Sapotaceae

DESCRIPTION  They are tall trees up to
30m tall. The trees have white sticky
sap. The leaves are simple and alternate.
The flowers are grouped together in
clusters in the axils of leaves. The
fruit is a berry containing one seed
which is shiny and dark brown.

DISTRIBUTION  They are coastal trees
probably growing up to 1000m altitude.

CULTIVATION  The trees grow wild from
seed. Trees can probably be grown from
cuttings.

PRODUCTION

USE  The fruits have been reported as
being eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE  They are reported as wild edible fruit trees in the
Madang District.
NAMES

English: Scientific name: Maesa edulis White
Also Maesa sp
Plant family: Myrsinaceae

DESCRIPTION A small spreading tree up to
8m high with dark green leaves. The
flowers are bell shaped with an orange
centre. The fruit is cream coloured and
transparent with black seeds visible
from the outside.

DISTRIBUTION It grows in coastal areas
in lowland rainforest on both the
mainland and islands.

CULTIVATION

PRODUCTION Trees are fruiting at least
February to August.

USE The fruit is edible.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor wild edible fruit with a pleasant taste.
NAMES
English: Rhubarb
Scientific name: *Rheum rhabonticum* L.
Plant family: Polygonaceae

DESCRIPTION A clumpy plant with broad leaves. It has long leaf stalks which are mostly red in colour. The roots are thick and clustered.

DISTRIBUTION It grows between 750 and 2600m altitude. It needs a fertile soil.

CULTIVATION Plants are grown by division of the rootstock. Plants can be grown from seed. Seedlings are not easy to transplant.

PRODUCTION The leaf stalks are removed regularly.

USE The sour leaf stalks are eaten after cooking with sugar.

CAUTION The leaves are poisonous due to oxalates.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td>stalks</td>
<td>93.8%</td>
</tr>
<tr>
<td></td>
<td>energy</td>
</tr>
<tr>
<td>20cal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>protein</td>
</tr>
<tr>
<td>0.4g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>calcium</td>
</tr>
<tr>
<td>60mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>iron</td>
</tr>
<tr>
<td>0.5mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>provitA</td>
</tr>
<tr>
<td>20 g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>provitC</td>
</tr>
<tr>
<td>16mg</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Shot hole weevils *Orihis inimicus* Mshl.

DISEASES Leaf spot due to fungus *Aschochtya rhei*(Ell. & Ev.)Ell. & Ev.

PESTS

IMPORTANCE Stalks are sold in a few highland markets.
English: Sapodilla  

Scientific name: *Manilkara achaesa* (L) var. Royen  
(Syn. *Achaesa sapoela* L.; *Sapoela achaesa* Mill. etc.)  
Plant family: Sapotaceae

**DESCRIPTION** A medium sized evergreen tree up to 18m high. The flowers are single and white in the axils of leaves on long stalks. The fruit has several smooth black shiny seeds. The fruits are normally in pairs and 5-8cm across. It is rusty brown in colour. The tree has a milky juice.

**DISTRIBUTION** It can stand strong winds. It needs a warm climate above 18°-24°C. Good year round rainfall is needed especially for young trees. It will probably grow up to 1000m but is better at lower altitudes. It can tolerate some salt in the soil. They need good fertile soil.

**CULTIVATION** Trees can be grown from seeds but they are not true to type. It is best to use grafted plants. Air layering is also used. A spacing of 8-9 metres is suitable.

**PRODUCTION** Trees bear when about 5 years old. Often there are two crops each year.

**USE** The fully ripe fruit is eaten.

The very young shoots and leaves may be eaten, but older leaves contain an alkaloid poison.

The sap from the bark is used in chewing gum.

**CAUTION** The seeds are hooked and can catch in the throat so should be removed.

**FOOD VALUE** / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>79.3%</td>
<td>76cal</td>
<td>0.4g</td>
<td>27mg</td>
<td>0.6mg</td>
<td>25g</td>
<td>13mg</td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** It has been introduced to P.N.G. and is not yet common.
DESCRIPTION  A small herb up to 30cm tall. The leaves are opposite and with 3 obvious veins. There are also marginal veins. The fruits are on the end of the plant. They form a group of small capsules which are round with flat tops. When ripe, the cap lifts off and a dark blue 5 lobed fleshy type fruit is exposed.

DISTRIBUTION  The plants occur in coastal areas in open forest.

CULTIVATION  The plants grow wild from seed.

PRODUCTION

USE  The fruit is eaten.

FOOD VALUE

<table>
<thead>
<tr>
<th>Moisture</th>
<th>Energy (kJ)</th>
<th>Protein (g)</th>
<th>Calcium (mg)</th>
<th>Iron (mg)</th>
<th>provitamin A (IU)</th>
<th>provitamin C (mg)</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE  A very minor wild edible fruit seen in the Western Province. Also recorded from Manus.
NAMES
English: Japanese persimmon or kaki
Scientific name: Diospyros kaki L.f.
Plant family: Ebenaceae.

DESCRIPTION A tree up to 12m high which loses its leaves each year. The branches tend to hang over and they have a dense covering of leaves. Leaves are long and pointed (10 x 6cm). The leaves are dark green and shiny on top and lighter under. Male and female flowers are normally on separate trees. Therefore pollinator trees often help. Fruits are 7cm across, with flattened ends, and orange with a thin skin. It can have a few large seeds inside, or be seedless.

DISTRIBUTION It suits cooler Mediterranean type climates. It needs to grow in highland areas with a distinctly seasonal climate. They will not tolerate acid soils. They can stand some waterlogging.

CULTIVATION They are grown from seeds. Seeds often germinate poorly. Trees grow slowly. Budded or grafted trees can be used. Trees can be pruned and shaped.

PRODUCTION Fruiting is seasonal.

USE The fruit is eaten raw, or can be cooked. It needs to be fully ripe and soft.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS Ichnaspis longirostris (Sign.)
Pinnaspis strachani (Cooley)

DISEASES

PESTS

IMPORTANCE This tree has been introduced and tried in a few highland areas but so far has not grown or fruited well.
NAMES
English: Velvet apple
Scientific name: *Diospyros philippensis* (Desr.) Gurke
(Syn. *D. discolor* Willd.)
Plant family: Ebenaceae

DESCRIPTION A 12 metre high tree which keeps its leaves all year round. It has pink fruit 10cm across. The surface of the fruit has a velvety brown appearance due to hairs. The fruit has white pulp around large seeds. Sometimes seedless fruit occur. Flowers are small and creamy white.

DISTRIBUTION It has become established wild in the bush in the Gazelle.

CULTIVATION Trees are mostly grown from seed.

PRODUCTION Trees grow slowly. Fruiting is not normally seasonal.

USE The fruit is eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>86%</td>
<td>49cals</td>
<td>0.6g</td>
<td>38mg</td>
<td>0.8mg</td>
<td>15g</td>
<td>28mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE At present only of minor importance in some coastal areas. It is better suited to P.N.G. than the Japanese persimmon (*D. kaki*).
Names
English: Chinese laurel.  Scientific name: Antidesma bunius Spreng
Bignay, Black currant tree. Plant family: Euphorbiaceae
(Antidesma ghaesembilla Gaertn. also occurs and is edible.)

Description  A small bushy tree which can be up to 15 metres high. The leaves tend to be long and narrow and shiny. The male and female flowers are separate on separate trees. Female flowers producing fruit are on the ends of branches. A spike of dark reddish black berries is produced. The berries are about 1 cm across and have one seed inside.
Distribution  It can probably grow up to 1000 m altitude. It can stand light frost.

Cultivation  It grows from seeds. These can be planted but trees also grow naturally. Trees can be produced by budding, grafting or from cuttings. Spacing should be about 12 to 14 metres between trees. Some male trees need to be present for cross pollination.

Production

Use  The fruits are eaten raw or cooked. They are acid so are often better as jam.

Caution  The bark is poisonous

Food value  / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

Insects

Diseases  Rust due to a fungus Cossopsora antidesma-dioicae(Racib)
Arth.& Cumm. on Antidesma ghaesembilla.

Pests

Importance  This is only a minor edible fruit of lowland areas.
NAMES

English: Yellow plum

Scientific name: Ximenia americana L.

Plant family: Olacaceae.

DESCRIPTION A shrub or small tree up to 3m high. It is often spiny. The leaves are about 5 cm long. The flowers are in small clusters and the petals are yellow. The fruit is up to 2.5cm long, yellow and contains 1 seed.

DISTRIBUTION It occurs in the vegetation near the coastline. The plant occurs in all tropical countries.

CULTIVATION Plants normally grow wild. The plant often has roots which feed off other plants.

PRODUCTION

USE Fruits are eaten raw or pickled. (They are sour.) The kernels of the nuts are recorded as both edible and purgative.

CAUTION The leaves have been reported as poisonous. They contain a cyanogenic glycoside.

FOOD VALUE

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A minor wild edible fruit(nut) in several coastal areas.
292

NAMES

English: Kumquat

Scientific name: *Fortunella margarita* Swing.
Plant family: Rutaceae

DESCRIPTION A evergreen shrub up to 4m high. It has spiny branches and shiny oval leaves with pointed tips. Flowers are white. Fruits are very small and about 2.5cm across. They are divided into only 3-6 sections.

DISTRIBUTION It grows from sea level to at least 1150m altitude. It is cold tolerant.

CULTIVATION Plants are grown from seeds or by grafting.

PRODUCTION Fruiting is seasonal. The season tends to be December to May.

USE The ripe fruit can be eaten fresh, skin and all.
The fruit are often pickled or used in jam.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>86.9%</td>
<td>48cal</td>
<td>0.4g</td>
<td>16mg</td>
<td>0.8mg</td>
<td>25 g</td>
<td>40mg</td>
</tr>
<tr>
<td>skin(candied)</td>
<td>75.1%</td>
<td>93cal</td>
<td>0.5g</td>
<td>0.4mg</td>
<td>300 g</td>
<td>200mg</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE
NAMES
Tok ples: Nakeo
Scientific name: Canarium sp. ?

DESCRIPTION A fairly large tree 20-30m high. The leaves are oval 15-18cm x 7-8cm. The leaves are dark green and shiny on the upper surface and dull and lighter green underneath. Fruits are grouped tightly together. They are small blue/black fruits oval and 2-3cm x 3-4cm. The young fruits are green and turn blue when mature. There is a large seed inside.

DISTRIBUTION Coastal.

CULTIVATION The trees are planted from seed.

PRODUCTION The fruiting is seasonal. (Fruiting Aug. '82).

USE The outside layer of the fruit is eaten after cooking.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A minor cultivated fruit near Kawito in the Western Province.
Names
English: Elephant apple
Scientific name: Dillenia indica L.
Plant family: Dilleniaceae

Description
An evergreen tree with a short trunk. It has large wrinkled leaves and large white flowers (20 cm across). The flower sepals thicken and cover the fruit to make a round green fruit up to 12 cm across. The seeds are kidney shaped with hairy edges.

Distribution
It is an introduced species and grows in coastal areas below about 600 m altitude.

Cultivation
Plants are normally grown from seed. They can be grown from cuttings.

Production

Use
The fruit can be used for jellies, curries and drinks. It is the fleshy sepals around the fruit that are eaten.

Food Value
/ 100 g edible portion
moisture energy protein calcium iron provitA provitC

Insects

Diseases
Leaf spot

Pests

Importance
Trees are only occasionally seen in coastal areas and they are rarely used for food.
NAMES
English: Star apple  Scientific name: Chrysophyllum cainito L.
Plant family: Sapotaceae

DESCRIPTION  A tree up to about 12m high. Branches hang down. Leaves are small, hairy, shiny and dark green on top and red/yellow underneath. Fruit is oval shaped, yellow at first and light purple when ripe. Fruit when cut in half have 8-9 white parts with seeds. Because these are star like, the fruit is called a star apple. The tree has milky sap.

DISTRIBUTION They are suitable for damp districts probably below 400m altitude. They are grown at Kerevat.

CULTIVATION Trees are grown from seeds. Seed can be stored for several months. Fruit need to ripen on the tree.

PRODUCTION It is a slow growing tree.

USE The fruit is eaten fresh.

FOOD VALUE  / 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC
81.5%  68cal  1g  17mg  0.4mg  trace  8mg

INSECTS

DISEASE

PESTS

IMPORTANCE  At present not widely grown or used.
NAMES
Tok ples: "Engam" at Arufe near Morehead.

(Syn. P. papuanum C.T.White and P. salomonense C.T.White.)

Plant family: Rosaceae

DESCRIPTION A small tree up to 10-15m tall. The leaves are narrow (8cm x 2cm) and leathery. The small branches are angular, drooping and hairy. Flowers are brownish yellow. A smallish (2 x 3cm) brownish fruit hangs on the ends of the branches. The fruit has a slightly rough skin.

DISTRIBUTION The tree grows in lowland areas from 6 - 1300m altitude. It occurs in moist rainforest and open woodland.

CULTIVATION The tree grows wild.

PRODUCTION

USE The fruit is eaten raw.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>energy</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A minor edible wild fruit.
DESCRIPTION A small spindly shrub 2-3m high. The leaves are small and not shiny. It produces small berry like fruit along the twigs. The fruits are green when young and turn black when ripe.

DISTRIBUTION It grows in open savanna grassland and in secondary regrowth. It grows in lowland areas below about 450m altitude. The plant occurs in countries from India to Australia.

CULTIVATION Plants grow wild.

FOOD VALUE / 100 g edible portion moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A very minor edible fruit from wild plants in the Western Province.
300

NAMES

English: Grapes  Scientific name: *Vitis vinifera* L.
Plant family: Vitaceae

DESCRIPTION  A woody vine with large leaves and bearing clusters of fleshy fruit.

DISTRIBUTION

CULTIVATION  They are mostly grown from cuttings. It needs a trellis for support. It is normally pruned to control the growth.

PRODUCTION

USE  The fruits are eaten ripe and also used for juice and wines. Sometimes young slightly acid leaves are eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>86%</td>
<td>50cal</td>
<td>0.5g</td>
<td>9mg</td>
<td>0.6mg</td>
<td>50 g</td>
<td>4mg</td>
</tr>
</tbody>
</table>

INSECTS  Grapevine hawkmoth *Hippotion celerio* (L.)
Shot hole weevils *Oribius spp.*

DISEASES  Powdery mildew due to a fungus *Plasmopara viticola* (Berk. & Curt. ex de Bary)Berl.& de Toni.
Leaf spot.

PESTS

IMPORTANCE  Only very occasional plants occur and produce very poorly.
NAMES
English: Peach palm
Pejibaye
Scientific name: Guielma gasipaes (HBK) Baile.
(Syn. Bactris gasipaes HBK and others.)
Plant family: Arecaceae.

DESCRIPTION A tall slender palm with
thorny trunk and suckers at the base.
Flowers are separately male and female
on the same stalk of the same palm.
Fruits are orange when ripe and about
5 cm across.

DISTRIBUTION It has been introduced to
P.N.G. It will probably grow up to
about 1000 m altitude. It comes from
South America. It suits the wet tropics.

CULTIVATION Plants can be grown from
seeds or suckers. Normally only 4
suckers per plant are kept and others
removed. A spacing of 5-6 m apart is
suitable.

PRODUCTION Palms commence bearing
after 5-8 years. Fruit is produced in
large clusters of 50-100 fruit. Four or
five clusters are produced per year.
Fruiting is seasonal. Fruit takes 6
months to mature and keeps well on the
tree.

USE The flesh of the fruit is eaten.
The fruit is boiled in salt water for
3 hours, the seeds removed then eaten.
The kernel of the seeds is also edible.
The palm cabbage is edible.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitamin A</th>
<th>provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td>fruit</td>
<td>48.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>kernels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cabbage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE An important food in South America. In P.N.G. occurs
mostly only on research farms and knowledge of how to use the food
is lacking.
NAMES

English: Tamarind  Scientific name: *Tamarindus indica* L.
Plant family: Fabaceae

DESCRIPTION  A tree up to 24m tall. The brown seeds are inside a long rough surfaced sausage like fruit. Leaves are made up of 10-18 pairs of leaflets. It is a legume.

DISTRIBUTION  The tree is cultivated in a number of coastal towns as a street tree. It is probably best grown below 800m altitude. It is drought resistant. It cannot stand waterlogging.

CULTIVATION  It can be grown by seeds or cuttings.

PRODUCTION  It grows very slowly.
Fruiting is seasonal. The season tends to be April to June.

USE  The pulp of the fruit is edible.
The seeds are also eaten.
The young leaves and young pods are also eaten.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>pulp</td>
<td>38.7%</td>
<td>214cal</td>
<td>3g</td>
<td>81mg</td>
<td>1.3mg</td>
<td>10g</td>
<td>3mg</td>
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<tr>
<td>leaves</td>
<td>77.2%</td>
<td>78cal</td>
<td>3-5g</td>
<td>24mg</td>
<td>2mg</td>
<td>2510g</td>
<td>6mg</td>
</tr>
<tr>
<td>pods</td>
<td></td>
<td></td>
<td>3.9g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flowers</td>
<td>80%</td>
<td>75cal</td>
<td>2.5g</td>
<td>53mg</td>
<td>1.4mg</td>
<td>205g</td>
<td>12mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE  Only occasionally seen and at present little used.
Names
English: Chinese gooseberry. Scientific name: *Actinidia chinensis* Planch
Kiwifruit Plant family: Actinidiaceae

Description A hardy climbing shrub that loses all its leaves at one time. The fruit is up to 8cm long and mostly covered with fine hairs. The inside flesh is green. It climbs up to 10m by twining around its support. The leaves are heart shaped and up to 20cm long. Male and female flowers are on separate plants.

Distribution Young shoots and fruit are damaged by frost. Plants have fruited at 1000m.

Cultivation It can be grown from seeds or cuttings but often plants of known quality and sex are grafted on. It needs a support to climb over. It needs regular pruning because fruit develop on the current year's growth. Plants or grafted branches of both sexes are needed.

Production

Use The fruit is eaten fresh

Food Value

<table>
<thead>
<tr>
<th>Moisture</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Iron</th>
<th>Provitamin A</th>
<th>Provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ 100 g edible portion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Insects Shot hole weevils, *Onitis spp*

Diseases

Pests

Importance It has been introduced on a trial basis.
MINOR FOODS & FLAVOURINGS
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abroma augusta</td>
<td>305</td>
</tr>
<tr>
<td>Alkizia sp</td>
<td>306</td>
</tr>
<tr>
<td>Alocasia lancifolia</td>
<td>307</td>
</tr>
<tr>
<td>Golgol</td>
<td>308</td>
</tr>
<tr>
<td>Anomum aculeatum</td>
<td>309</td>
</tr>
<tr>
<td>Dill</td>
<td>310</td>
</tr>
<tr>
<td>Anghosten is sp</td>
<td>311</td>
</tr>
<tr>
<td>Ascarina philippinensis</td>
<td>312</td>
</tr>
<tr>
<td>Oats</td>
<td>313</td>
</tr>
<tr>
<td>Avicennia officinalis</td>
<td>314</td>
</tr>
<tr>
<td>Bottle brush</td>
<td>315</td>
</tr>
<tr>
<td>Begonia</td>
<td>316</td>
</tr>
<tr>
<td>Cobbler's pegs</td>
<td>317</td>
</tr>
<tr>
<td>Blumea riparia</td>
<td>318</td>
</tr>
<tr>
<td>Benthavia erecta</td>
<td>319</td>
</tr>
<tr>
<td>Brassavus heineana</td>
<td>320</td>
</tr>
<tr>
<td>Polynesian mulberry</td>
<td>321</td>
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<tr>
<td>Bruguiera gymnorhiza</td>
<td>322</td>
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<tr>
<td>Calamus sp</td>
<td>323</td>
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<tr>
<td>Bitter cress</td>
<td>324</td>
</tr>
<tr>
<td>Cassia</td>
<td>325</td>
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<tr>
<td>Cassytha filiformis</td>
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</tr>
<tr>
<td>Kaok tree</td>
<td>327</td>
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<tr>
<td>Cenestium papuanum</td>
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<tr>
<td>Swamp fern</td>
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<tr>
<td>Chloanthus officinalis</td>
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<tr>
<td>Cinnamon</td>
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<td>Coix gigantea</td>
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<tr>
<td>Coleus scutellaroides</td>
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<tr>
<td>Jute</td>
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<tr>
<td>Tanget</td>
<td>335</td>
</tr>
<tr>
<td>Coriander</td>
<td>336</td>
</tr>
<tr>
<td>Thickhead</td>
<td>337</td>
</tr>
<tr>
<td>Turmeric</td>
<td>338</td>
</tr>
<tr>
<td>Cycas</td>
<td>339</td>
</tr>
<tr>
<td>Lemon grass</td>
<td>340</td>
</tr>
<tr>
<td>Deeringia amaranthoides</td>
<td>341</td>
</tr>
<tr>
<td>011 palm</td>
<td>342</td>
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<tr>
<td>Elatoslema macrophylla</td>
<td>343</td>
</tr>
<tr>
<td>Cardamom</td>
<td>344</td>
</tr>
<tr>
<td>Enhalus acoroides</td>
<td>345</td>
</tr>
<tr>
<td>Euodia sp</td>
<td>346</td>
</tr>
<tr>
<td>Buckwheat</td>
<td>347</td>
</tr>
<tr>
<td>Flesca p scandens</td>
<td>348</td>
</tr>
<tr>
<td>Fennel</td>
<td>349</td>
</tr>
<tr>
<td>Granophyllum pictum</td>
<td>350</td>
</tr>
<tr>
<td>Gymnanthera mitida</td>
<td>351</td>
</tr>
<tr>
<td>Habenaria spp</td>
<td>352</td>
</tr>
<tr>
<td>Sunflower</td>
<td>353</td>
</tr>
<tr>
<td>Hormsteddia scottiana</td>
<td>354</td>
</tr>
<tr>
<td>Inesine herbstii</td>
<td>355</td>
</tr>
<tr>
<td>Kaempferia galanga</td>
<td>356</td>
</tr>
<tr>
<td>Kleinholfia hospita</td>
<td>357</td>
</tr>
<tr>
<td>Lathyrus limitanus</td>
<td>358</td>
</tr>
<tr>
<td>Leucena</td>
<td>359</td>
</tr>
<tr>
<td>Limnophila rugosa</td>
<td>360</td>
</tr>
<tr>
<td>Lysimacha japonica</td>
<td>361</td>
</tr>
<tr>
<td>Marattia sp</td>
<td>362</td>
</tr>
<tr>
<td>Medusanthéra laxiflora</td>
<td>363</td>
</tr>
<tr>
<td>Lemon balm</td>
<td>364</td>
</tr>
<tr>
<td>Mint</td>
<td>365</td>
</tr>
<tr>
<td>Horseradish tree</td>
<td>366</td>
</tr>
<tr>
<td>Musa ingens</td>
<td>367</td>
</tr>
<tr>
<td>Nutmeg</td>
<td>368</td>
</tr>
<tr>
<td>Sweet basil</td>
<td>369</td>
</tr>
<tr>
<td>Marjoram</td>
<td>370</td>
</tr>
<tr>
<td>Oregano</td>
<td>371</td>
</tr>
<tr>
<td>Parsley</td>
<td>372</td>
</tr>
<tr>
<td>Betel pepper</td>
<td>373</td>
</tr>
<tr>
<td>Piper stenocarpum</td>
<td>374</td>
</tr>
<tr>
<td>Pepper</td>
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</tr>
<tr>
<td>Madras thorn</td>
<td>376</td>
</tr>
<tr>
<td>Pittosporum pullifolium</td>
<td>377</td>
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<tr>
<td>Polygonum chinense</td>
<td>378</td>
</tr>
<tr>
<td>Mesquite</td>
<td>379</td>
</tr>
<tr>
<td>Rhodomyrtus novoguineensis</td>
<td>380</td>
</tr>
<tr>
<td>Pitpit</td>
<td>381</td>
</tr>
<tr>
<td>Sage</td>
<td>382</td>
</tr>
<tr>
<td>Raintree</td>
<td>383</td>
</tr>
<tr>
<td>Scleria pergracilis</td>
<td>384</td>
</tr>
<tr>
<td>Sesbania</td>
<td>385</td>
</tr>
<tr>
<td>Sowthistle</td>
<td>386</td>
</tr>
<tr>
<td>Chickweed</td>
<td>387</td>
</tr>
<tr>
<td>Thyme</td>
<td>388</td>
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<tr>
<td>Nasturtium</td>
<td>389</td>
</tr>
<tr>
<td>Vanilla</td>
<td>390</td>
</tr>
<tr>
<td>Viola betanciiformis</td>
<td>391</td>
</tr>
<tr>
<td>Bluebell</td>
<td>392</td>
</tr>
<tr>
<td>Wild ginger</td>
<td>393</td>
</tr>
</tbody>
</table>
Scientific name: *Achnoia augusta* (L.) Willd.
Plant family: Sterculiaceae

DESCRIPTION A tall shrub. It is about 3m high and keeps its leaves all year. It has fibrous bark and hairs which irritate the skin.

DISTRIBUTION It mostly grows in the highlands.

CULTIVATION It grows wild. It can be grown from seeds or cuttings of half ripe wood.

PRODUCTION

USE The leaves have been reported as being eaten in Chimbu (The roots are used as a medicine)

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS Papuan tip wilt bug, *Amblypelta lutescens papuensis* Brown

DISEASES

PESTS

IMPORTANCE A minor wild edible green.
Names

Scientific name: *Albizia* sp
Plant family: Leguminosae

Description  A tree legume of which several species occur in P.N.G.
*Albizia procera* is a species in P.N.G. of which the leaves are eaten in Indonesia

Distribution

Cultivation

Production

Use  The leaves have been reported to be cooked and eaten.

Caution  Some Albizia leaves are poisonous.

Food value

/100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC

Insects

Diseases

Pests

Importance  A minor edible green.
DESCRIPTION A troa family plant. It
has leaves that are long, large and
upright. At the base of the plant is
a corm made up of a fattened part
covered with overlapping leaf bases. It
has a lily type flower.

DISTRIBUTION It grows wild in some
areas. It prefers damp soil.

CULTIVATION

PRODUCTION

USE The leaves are recorded as eaten
in some areas.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor leafy vegetable.
NAMES
English: Colgol
Tok pisin: Golgol
Scientific name: Alpinia sp.
Plant family: Zingiberaceae

DESCRIPTION A perennial plant in the ginger family. It has erect canes up to 2-3m high. The leaves are dark and shiny and wavy along the edge. Near the base there are cone like seed heads which contain small seeds surrounded by a sweet juice.

DISTRIBUTION It is common in the lowland rainforest.

CULTIVATION It grows wild.

PRODUCTION

USE The fruits are sucked for the sweet sap and the cardamom flavoured seeds.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>Moisture</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A commonly used but minor food.
English: Scientific name: *Amomum aculeatum* Roxb.
Plant family: Zingiberaceae

**DESCRIPTION** A plant in the ginger family. The leaves are long and on a long leafy stalk up to 2m tall. The fruit is a round cluster of tightly packed seed heads with spiky lumps over the surface. It is green.

**DISTRIBUTION** It grows wild in the lowland rainforest up to about 800m or 1000m altitude.

**CULTIVATION** It grows wild from seed.

**PRODUCTION**

**USE** The fruit is cooked and the seeds eaten. Sometimes the seeds of ripe fruit are eaten raw.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** A moderately common and occasionally used wild food in lowland areas.
NAMES
English: Dill
Scientific name: Anethum graveolens L.
(Syn. Peucedanum graveolens (L)Hiern.)
Plant family: Apiaceae

DESCRIPTION A fine leafy herb up to about 1m tall. Flowers are yellow and flat. It is an annual plant regrowing each year from seeds. The stems of the plant are smooth, dark green and with pale stripes.

DISTRIBUTION It is suited to shady places. It is easily damaged by wind.

CULTIVATION Plants are grown from seed. They are not easily transplanted. Seed should be 1cm deep and with 25cm between plants.
(Dill and fennel can cross pollinate.)

PRODUCTION The leaves can be cut for use at any time, but they are at their best just before flowering. Plants can be cut 6 weeks after planting.

USE The seeds are used to flavour foods.
The young leaves can be eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC leaves 3g

INSECTS Larvae of a moth Phyllotreta orichalcea (F.)

DISEASES

PESTS

IMPORTANCE It is not widely grown or used.
SCIENTIFIC NAME: *Angiopteris* sp.

Scientific name: *Angiopteris* sp.
Plant family: Marattiaceae

DESCRIPTION A fern which develops a thick woody trunk in older plants. The trunk can be up to 1m across. It is filled with starch. The fronds can be over 5m long.

DISTRIBUTION

CULTIVATION

PRODUCTION

USE The starch in the trunk has been reported to be extracted and eaten.

FOOD VALUE / 100 g edible portion

| moisture | energy | protein | calcium | iron | provitA | provitC |

INSECTS

DISEASES

PESTS Probably dug up and destroyed by wild pigs.

IMPORTANCE A minor edible wild food.
Scientific name: *Ascarina philippinensis* C.B.Rob.
(Syn. *A. reticulata* Merr.)
Plant family: Chloranthaceae

**DESCRIPTION** A forest tree with sweet smelling leaves.

**DISTRIBUTION** It occurs in the forest between 400 and 2800m altitude. The plant occurs in the Philippines, Borneo and New Guinea.

**CULTIVATION** It grows wild.

**PRODUCTION**

**USE** The leaves have been recorded as being eaten cooked.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** A minor wild edible leaf recorded used at least in Sinasina in Chimbu.
NAMES
English: Oats
Scientific name: *Avena sativa* L.
Plant family: Poaceae.

DESCRIPTION A grass plant and cereal with an open spreading flower head. It can grow up to 1 or 1.5m tall.

DISTRIBUTION It would suit some highland areas.

CULTIVATION Plants are grown from seed.

PRODUCTION

USE The seeds are used as food after the outer layer is removed.

<table>
<thead>
<tr>
<th>FOOD VALUE</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>whole grain</td>
<td>11%</td>
<td>374cal</td>
<td>13.1g</td>
<td>59mg</td>
<td>4.6mg</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES Loose smut due to a fungus- *Ustilago avenae* (Pers.) Rostr.

PESTS

IMPORTANCE This plant is very rarely grown or used.
314

NAMES

English: Scientific name: *Avicennia officinalis* L.
Plant family: Avicenniaceae

DESCRIPTION A tree up to 22.5m high. The outer bark is yellowish green and the inner bark is white. The leaves are elongated with a rounded end. They can be up to 12cm x 6cm and are dark green on top and bluish grey underneath. The fruit is egg shaped with a long tapering apex.

DISTRIBUTION It grows near river mouths on the edges of mangrove swamps.

CULTIVATION

PRODUCTION

USE The young leaves are eaten. The seeds are eaten after processing.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td>5.8g</td>
<td>4g</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A minor wild edible food.
NAMES
English: Bottle brush
Scientific name: Banksia dentata L.f.
Plant family: Proteaceae

DESCRIPTION A small tree. In the bush it is often a straggling mis-shapen tree. The leaves are toothed along the edge, blue green on top and whitish underneath. The flowers are yellow when young then turn brown, dry and hard. Flowers can be 20 cm long. Seeds are black and winged.

DISTRIBUTION It occurs in dry coastal areas. It is suited to warm areas in sandy acid soil. It often grows near the edges of swamps.

CULTIVATION Seeds grow easily. Under good conditions young plants grow rapidly.

PRODUCTION Flowers are produced irregularly throughout the year but with a main season in mid June.

USE The flowers at the yellow stage are broken off and the sweet sap which drips out is collected and eaten.

CAUTION Cribb in Wild Foods of Australia suggests headaches and nausea can result from sucking too much bottle brush sap.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE The sap is drunken occasionally at Arufe near Morehead in the Western Province.
NAMES
English: Begonia
Scientific name: Begonia spp
Plant family: Begoniaceae

DESCRIPTION Small herbs which grow wild in the rainforest. The leaves are assymetrical in shape and coloured red and green.

DISTRIBUTION It occurs in the highlands and prefers part shade for growing.

CULTIVATION

PRODUCTION

USE The stalks of some kinds are eaten. The leaves are also used for flavouring. (Some kinds are used for medicine.)

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A very minor edible plant.
NAMES
English: Cobbler's pegs  Scientific name: Bidens pilosa L.
Plant family: Asteraceae

DESCRIPTION A small annual upright plant with small black seeds in heads. (The seeds often stick to clothes.)

DISTRIBUTION It grows from near sea level to over 2000m altitude.

CULTIVATION It grows wild from seeds.

PRODUCTION

USE The seeds are eaten, particularly by children. (e.g. in Enga) The leaves are edible.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES Leaf spot due to fungus Cercospora bidensis Tharp.
Leaf smut fungus Entyloma bidensis P.Henn
Rust due to fungus Uromyces bidensicolor (P.Henn.) Arth

PESTS

IMPORTANCE The plant is very widespread. It is only used occasionally in some areas.
Scientific name: *Blumea riparia*(Bl.) D.C.
Plant family: Compositae

DESCRIPTION A small climbing herb or small shrub up to 5m tall. It climbs on trees and shrubs. The leaves are soft and fleshy.

DISTRIBUTION It grows from sea level up to 2000 m altitude. It is often along tracks or near the edge of forests.

CULTIVATION It grows wild.

PRODUCTION

USES The leaves have been recorded as eaten.

FOOD VALUE / 100 g edible portion
- moisture
- energy
- protein
- calcium
- iron
- provitA
- provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor wild edible leafy green.
Scientific name: *Boehavia erecta* L.  
Plant family: Nyctaginaceae

**DESCRIPTION**  A herbaceous weed. It can be 1m tall and either upright or lying over. The leaves are stalked, opposite, and variable in shape and size. The flowers are produced in the axils of leaves. The fruit is cone shaped.

**DISTRIBUTION**  It mostly occurs in the coastal areas below 700m altitude. It grows in dry open places.

**CULTIVATION**

**PRODUCTION**

**USE**  The young tops are eaten.  
The tuberous root has been recorded as being used in earlier times. (Its use may have been for medicine.)

**FOOD VALUE**  / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td>6.1g?</td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS**  Grapevine hawkmoth *Hippotion celerio* (Linnaeus)

**DISEASES**

**PESTS**

**IMPORTANCE**  A very minor wild edible green.
NAMES

English: Palmyra like palm  Scientific name: *Borassus heineana* Becc.
Plant family: Arecaceae

DESCRIPTION A large palm which has separate male and female trees. The fruit is in 3 sections.

DISTRIBUTION It occurs in groves on headlands projecting into the Sepik River and also occurs along the Sepik plain.

CULTIVATION It grows from seed.

PRODUCTION Fruit get too dry when old so are eaten when young.

USE The young fruit are eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE The fruit are a minor edible food in the Sepik area.
NAMES
English: Polynesian mulberry    Scientific name: Broussonetia papyrifera (L) Vent.
Tapa plant
Plant family: Moraceae

DESCRIPTION A small tree up to about 8 metres tall. It has very hairy branches and a milky sap. The leaves are large, heart shaped and sometimes with 3 lobes. The leaves are rough on the upper side and woolly underneath. It has a club shaped pulpy fruit, orange in colour. The stem is often surrounded by a ring of suckers. Male and female flowers are produced on separate plants.

DISTRIBUTION The trees are mostly planted. They are grown in many areas of P.N.G. They prefer a cool climate and do best on moist soils.

CULTIVATION Trees can be grown from seeds or root suckers. Young buds can be removed to give a straight unbranched tree.

PRODUCTION

USE The young leaves are eaten.
The fleshy part of the compound fruit is sweet and edible.
The seeds are also edible.
The bark is also used for making cloth.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES A leaf spot due to a fungus - Myrothecium roridum Tode ex Fr.
A large leaf spot.

PESTS

IMPORTANCE The tree still has some importance for Tapa cloth and rope. It is not a major food plant.
NAMES

English: Scientific name: Bruguiera gymnorrhiza (L.) Lam.
(Syn. Bruguiera conjugata (L.) Merr.)
Plant family: Rhizophoraceae

DESCRIPTION A large tree up to 36m high with stilt and knee-like roots.
The bark is rough and grey on the outside and red inside. The leaves are
oval and leathery and up to 22cm x 9cm. The fruit is long in shape and 3cm long.
The hypocotyl is up to 25cm long and green. It has ridges along it.

DISTRIBUTION It occurs in mangrove swamps but in the driest best aerated soil.

CULTIVATION It grows wild. Seeds normally germinate and sprout while
still attached to the tree.

PRODUCTION

USE Young leaves may be eaten.
Young sprouted seeds are eaten after soaking and boiling.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A not very attractive and rarely used minor wild food.
Scientific name: *Calamus sp*
(About 50 species of Calamus occur in P.N.G.)
Plant family: Palmae

DESCRIPTION A thorny rattan with parallel veined leaves. The fruit hangs in clusters from fruiting branches. Fruits are 1cm across and pale greenish white with a scaly surface.

DISTRIBUTION It occurs in lowland areas.

CULTIVATION Plants are grown from seed.

PRODUCTION Fruiting is seasonal.

USE The green juicy flesh layer under the skin but around the seed, is eaten raw.

FOOD VALUE /100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A plant cultivated for its fruit at least at Kawito near Balimo in Western Province.
NAMES
English: Bitter cress  Scientific name: Candumine sp
Probably Candumine africana L. or maybe
Candumine hirsuta L.
Plant family: Cruciferae

DESCRIPTION A small annual plant which
grows up to about 20cm tall. The
flowers have white petals and the pods
are 2-3cm long. (C. africana has thicker
pods (3mm) and 3 leaflets on the leaves.
C. hirsuta has pods about 1mm thick and
about 7 leaflets per leaf)

DISTRIBUTION C. africana tends to be
above 1500m. C. hirsuta is often at
lower altitudes. They grow naturally
especially in moist shaded places
around gardens.

CULTIVATION Plants are self sown from
seed.

PRODUCTION

USE The leaves and flowers can be eaten
raw.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC
8.4g

INSECTS

DISEASES

PESTS

IMPORTANCE The leaves have been recorded as being eaten in Enga.
NAMES
English: Cassia
Scientific name: Cassia spp probably occidentalis L. or C. siamea or C. obtusifolia
Plant family:

DESCRIPTION A group of leguminous shrubs.

DISTRIBUTION They mainly occur in the lowlands.

CULTIVATION Mostly they are self sown from seed.

PRODUCTION

USE The leaves of some species have been reported as eaten.

CAUTION Many Cassia species contain poisonous alkaloids. They should only be eaten with extreme caution.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>energy</td>
</tr>
<tr>
<td>C. siamea</td>
<td>65.6%</td>
</tr>
<tr>
<td>C. obtusifolia</td>
<td>76.9%</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE Minor edible wild greens.
Scientific name: Cassytha filiformis
Plant family: Lauraceae

DESCRIPTION A fine straggling leafless creeper which climbs over plants and gets at least some of its food from the other plants. It has very small berry like fruits (4-5mm across) which are green when young and turn white when ripe. The flesh is clear and the black seed can be seen from the outside.

DISTRIBUTION It grows in lowland mangrove swamp areas and in scattered forest.

CULTIVATION It grows wild. Seeds germinate in the soil, but the plants attach to another plant getting support and food from the host plant.

PRODUCTION

USE The fruit is eaten. There is only a small amount of edible flesh around the central seed.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>energy</td>
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<tr>
<td>protein</td>
<td>calcium</td>
</tr>
<tr>
<td>iron</td>
<td>provitA</td>
</tr>
<tr>
<td>provitC</td>
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</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE It is a very minor edible plant occasionally eaten in the Arufo area near Morehead in the Western Province.
NAMES
English: Kapok tree
Scientific name: Ceiba pentandra (L) Gaertn.
Plant Family: Bombacaceae

DESCRIPTION A very large tree with a straight trunk and height of 30-40m. It has large prickly buttresses near the base. The branches come out horizontally and there is a ring of them around the trunk. The leaves spread out like fingers on a hand, with 5-8 leaflets. The leaves all fall off the tree (deciduous). Flowers are yellowish white in clusters near the ends of branches. A long seed capsule hangs from branches.

DISTRIBUTION Mostly in the lowlands and up to about 1,000 m. It suits rainforest areas with a heavy rainfall. The soil needs to be well drained. The tree is easily damaged by strong winds.

CULTIVATION Seeds germinate quickly and seedlings can be transplanted. It can be easily grown from large cuttings.

PRODUCTION Pods are produced seasonally.

USE The young pods can be eaten cooked. The young leaves can be eaten cooked. The seeds can be eaten either roasted fresh, or after sprouting. (The fibres of the pod are used for pillows)

CAUTION Older pods and leaves have medicinal uses. Large quantities of seeds can upset the digestion.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

The seeds are high in oil.

INSECTS

DISEASES Leaf spot due to a fungus Cercospora italica Curzi

PESTS

IMPORTANCE A reasonably common introduced tree but probably rarely used as a food.
NAMES

Scientific name: *Cerastium papuanum* Schlecht.
Plant family: Caryophyllaceae

DESCRIPTION A small creeping plant up to 30cm high.

DISTRIBUTION It mostly occurs in the highlands and up to 3950m altitude.

CULTIVATION It grows wild.

PRODUCTION

USE The plant has been reported as eaten.

FOOD VALUE

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES Rust due to a fungus *Uredo morokensis* Cummins

PESTS

IMPORTANCE A minor wild edible leafy vegetable.
NAMES
English: Swamp fern

Scientific name: Ceratopteris thalictroides (L)
(Syn. Acrostichum thalictroides L) Bronin
Plant family: Parkeriaceae

DESCRIPTION A fern which grows in water. It has soft upright stalks with light green soft fronds. The fronds can be 30cm high. It grows as tufted clumps. Leaves are like carrot tops.

DISTRIBUTION In swamps up to 1200m altitude. It can float. It is found in all tropical countries.

CULTIVATION It is grown as an aquarium plant. Small pieces of plant will root in mud. Spores can also grow.

PRODUCTION

USE The plant is edible. It can be used raw or cooked.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE Although relatively common in lowland areas and edible, it does not appear to be much used as food.
Scientific name: Chloranthus officinalis Bl.
Plant family: Chloranthaceae

DESCRIPTION

The flowers are small sometimes of only one sex and green.

DISTRIBUTION

It grows wild at least in some highland areas. It also occurs in South East Asia.

CULTIVATION

PRODUCTION

USE

The leaves are recorded as eaten. In S.E. Asia the leaves are used to make a tea-like drink.

FOOD VALUE

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE

A minor wild edible leaf.
NAMES
English: Cinnamon
Scientific name: Cinnamomum spp.
Plant family: Lauraceae

DESCRIPTION Large trees up to 30m high.
The bark has a nice smell.

DISTRIBUTION They are mainly in lowland
and lower montane rainforest.

CULTIVATION Trees grow wild from seed.

PRODUCTION

USE The bark is used as a spice.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron rvitA prvitC

INSECTS

DISEASES

PESTS

IMPORTANCE The bark is rarely used.
NAMES

Scientific name: Coix gigantea Koenig ex Roxb.
Plant family: Poaceae

DESCRIPTION A tall broad leaved grass. It can be up to 4m tall and the firm stem has prop roots near the ground. It is a perennial grass. The seeds are in a dense spike.

DISTRIBUTION It is common in swampy places in the highlands.

CULTIVATION It can be grown from seeds and stems that fall over form roots at the nodes.

PRODUCTION

USE The stems are used for the making of salt. They are also reported to be eaten.

FOOD VALUE  / 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor edible wild food.
Names
English: Scientific name: Coleus scutellarioides (L) Bth.
Plant family: Lamiaceae

Description A herb up to 50 cm high and covered with hairs. The stems and branches are square. The edges of the leaves are toothed.

Distribution

Cultivation It grows readily from cuttings. It also grows wild from seed.

Production

Use The young leaves are eaten mainly as a seasoning.

Food Value / 100 g edible portion

moisture energy protein calcium iron provitaminA provitaminC

Insects

Diseases Wilt due to a fungus Thanatephorus cucumeris (Frank.) Donk Leaf spot.

Pests

Importance A very minor edible leafy green.
NAME
English: Jute
Scientific name: Conchoris olitorius L.
Plant family: Tiliaceae

DESCRIPTION An annual plant. It is upright, branching and slightly woody. The leaves have teeth along the edge. Small clusters of yellow flowers grow in the axils of the leaves.

DISTRIBUTION It is mostly coastal below 250m altitude. It can stand both drought and waterlogging.

CULTIVATION Plants grow from seed and they can be transplanted. Often seeds are slow to start growing. This can be overcome by soaking them in hot water. Seeds are saved from pods for resowing.

PRODUCTION Production of edible green tips is not large.

USE The young leaves and stem tops are eaten cooked. (They are slimy)

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>84.1%</td>
<td>43cal</td>
<td>5.6g</td>
<td>266mg</td>
<td>7.7mg</td>
<td>7850 g</td>
<td>63mg</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES Leaf spot due to fungus Myrothecium roridum Tode ex Fries

PESTS Easily damaged by root knot nematodes.

IMPORTANCE In P.N.G. not widely used as a vegetable, but important in some other countries, especially Africa.
**NAMES**
Tok Pisin: Tanget  
Scientific name: *Cordyline terminalis* (L) Knuth  
(Several other names have been used also)  
Plant family: Liliaceae.

**DESCRIPTION**
A small shrub up to 3m tall. The leaves are long (60cm) and often 15cm wide and clustered in spirals near the end of the stem. The leaf petiole clasps the stem. The leaves occur in a wide range of different colours. The plant produces shiny red berries about 1 cm across.

**DISTRIBUTION**
It grows from sea level up to 2600 m altitude.

**CULTIVATION**
It is grown from cuttings of the stalk.

**PRODUCTION**

**USE**
As food—the roots, although edible are rarely used.
- the young unrolled leaf shoots are also eaten, cooked.
The plant has many other uses for ornament, ritual, clothes etc.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provit A</th>
<th>provit C</th>
</tr>
</thead>
</table>

The roots are rich in sugar.

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE**
A very common and important plant in all areas but only a very minor food plant. (Shoots are cooked and eaten at Telefomin.)
NAMES

English: Coriander  Scientific name: Coriandrum sativum L.
Plant family: Apiaceae

DESCRIPTION  An annual herb up to 70cm high. Flowers are pink to white. The plant has an unpleasant smell until the fruit ripens. The fruits have lines along them. Some lines are wavy and some are straight.

DISTRIBUTION  Sometimes it does not set seed in the lowland tropics. It grows up to about 2200m altitude.

CULTIVATION  Plants are grown from seed.

PRODUCTION  Plants mature after about 3 months. It is important to dry the fruits before use to get rid of an unpleasant smell.

USE  The dried fruits are used in curry and flavourings.
The young plants are used in soups, sauces and as flavouring.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
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<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>87.6%</td>
<td>37cal</td>
<td>2.6g</td>
<td>133mg</td>
<td>4.5mg</td>
<td>2860 g</td>
<td>78mg</td>
</tr>
<tr>
<td>fruits</td>
<td>11.2%</td>
<td>14.1g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS  Larvae of a moth *Phytometra orichalcea* (F.)

DISEASES

PESTS

IMPORTANCE  It is mainly grown in gardens of expatriates.
Names

English: Thickhead  Scientific name: *Crassocephalum crepidioides* (Benth.) S. Moore

Plant family: Compositae

Description
An upright annual plant about 1m tall. The stem is thick and soft. The leaves have lobes and are toothed around the edge. A yellow and reddish flower develops at the top, bending over at first then becoming upright.

Distribution
A common weed from sea level to over 2500m. It is more common in wet areas and in garden sites. It also grows in many other tropical countries.

Cultivation
It grows from seed. It is self sown.

Production

Use
The leaves are edible.

Food Value

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td></td>
</tr>
<tr>
<td>energy</td>
<td></td>
</tr>
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<tr>
<td>provitA</td>
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<tr>
<td>provitC</td>
<td></td>
</tr>
</tbody>
</table>

Insects

Diseases
A virus like stunting of plants and wrinkling of leaves is common.

Pests

Importance
It is a very common weed throughout P.N.G. It is regularly eaten in other tropical countries. I have no evidence at present that it is ever eaten in P.N.G.
HAMES

English: Turmeric
Scientific name: Curcuma longa L. (Syn. Curcuma domestica Val.)
Plant family: Zingiberaceae

DESCRIPTION A herb in the ginger family which grows up to 1m high. Under the ground it has bright orange fattened roots. These have a sweet smell. The leaves are in a cluster and have leaf stalks that clasp the stem.

DISTRIBUTION It is widespread in coastal areas up to 1000m altitude. It needs a hot moist climate and a well drained soil. The soil needs to be loose for good rhizomes. Plants can grow in the shade but yield lower.

CULTIVATION Plants are normally grown from pieces of the rhizome. They are planted 6-8cm deep. The distance between plants needs to be 30-40cm.

PRODUCTION

USE The orange coloured rhizome is used as seasoning especially in curry. The young shoots are also eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>roots</td>
<td>88%</td>
<td>46cal</td>
<td>1.2g</td>
<td>27mg</td>
<td>2.3mg</td>
<td>0</td>
<td>trace</td>
</tr>
</tbody>
</table>

INSECTS

Dichrosis sp. nr. punctiferalis Guenee.

DISEASES

PESTS

IMPORTANCE It is moderately common in lowland areas but rarely used as a flavouring. (It is mostly used as a dye.)
H-names

English: Cycas

Scientific name: Cycas circinalis (L) Laut. & Sch.
and Cycas rumphii Miq.

Plant family: Cycadaceae

Description: A palm-like plant. The trunk is covered with the bases of the old leaves. The leaves have feathery leaflets with a distinct midrib. The leaves are somewhat like ferns. A cone of thick leaves with large seeds is produced at the top. They are separate male and female plants. The seeds are 3-4 cm across with a thin fleshy covering and a starchy centre.

Distribution: They occur in lowland areas in grassland and forest. They grow from sea level to 700 m altitude. They are more common in places with a dry seasonal climate.

Cultivation: They can be grown from seeds. Plants, especially damaged ones, produce root suckers.

Production: It is a slow-growing plant. Plants for sago need to be 7 years old and not to have flowered.

Use: The pith is processed to extract the starch during times of food shortage. The seeds are eaten after treatment by slicing, fermenting for 2 weeks, then cooking. The very young leaves are cooked and eaten in Malaysia.

Caution: The young leaves are poisonous to cattle. The seeds are poisonous unless treated. They contain a toxic glucoside.

Food Value: / 100 g edible portion

moisture energy protein calcium iron provitA provitC

Insects

Diseases

Pests

Importance: Plants are quite common in dry grassland areas and are regarded as a weed for grazing animals. They are a minor food used occasionally in several areas.
ENGLISH: Lemon grass  
Scientific name: Cymbopogon citratus (DC) Stapf.  
Plant family: Poaceae

DESCRIPTION  A coarse clumpy grass about 1m high. The leaves have a rough edge and are about 1cm long by 1cm wide. It very rarely produces flowers. It has a lemon smell when crushed.

DISTRIBUTION  It occurs in coastal areas and up to at least 1400m altitude. It is a good plant for borders and erosion control.

CULTIVATION  It is grown from portions of the clump. A spacing of about 1m between clumps is needed.

PRODUCTION  It can be cut 4-8 months after planting and then every 3-4 months.

USE  It is mostly used as a flavouring in lemon grass tea and stews.

FOOD VALUE  / 100 g edible portion  
moisture  energy  protein  calcium  iron  provitA  provitC
74%  92cal  1g  32mg  18mg  425 g  1mg

INSECTS

DISEASES  Rust due to a fungus Puccinia nakanishikii Dist

PESTS

IMPORTANCE  Quite widely spread throughout the country but more used in some areas.
SCIENTIFIC NAME: *Deeringia amaranthoides* (Lamk.) Merr (Syn. *Achyranthes amaranthoides* Lam.
and *Deeringia celosioides* R. Brown; and others)
Plant family: Amaranthaceae

DESCRIPTION A small shrub or climber up to 5m tall. Seeds are about 1.2mm across, smooth and black. They are inside a bright red berry which is carried in clusters on long slender spikes.

DISTRIBUTION It occurs in the Sepik, Madang, Morobe and Central Provinces. It is often near forest edges near creeks in the rainforest. It occurs up to 1200m altitude. This plant also is used for food in Indonesia and Taiwan.

CULTIVATION It grows wild.

PRODUCTION

USE The leaves are eaten.

CAUTION This plant has been suspected of poisoning cattle.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provita provitC

INSECTS

DISEASES

PESTS

IMPORTANCE It is a minor edible leafy vegetable used mainly in the Sepik.
NAMES

English: Oil palm
Scientific name: *Elaeis guineensis* Jacq.
Plant family: Arecaceae

DESCRIPTION An unbranched palm with a rough stem due to the leaf bases which remain attached. The trunk is about 75cm across. The crown consists of about 40 open leaves. The leaves are about 7.5m long. The leaves have spines. The fruit is a large round bunch of small fruits.

DISTRIBUTION Plantations are established in West New Britain and palms occur in some other areas.

CULTIVATION They are normally grown from seed in a nursery then transplanted.

PRODUCTION Palms commence bearing after about 5 years. They live for many years.

USE The outer layer of the fruits yields an orange red cooking oil. The palm cabbage is edible.

FOOD VALUE

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS Rhinoceros beetles *Oryctes* spp.
Coconut tree hopper *Segetes gracilis*
And several others.

DISEASES Black leaf mould due to a fungus *Brooksia tropicalis* Hansf.

PESTS

IMPORTANCE It is an important cash crop but apparently unused for food in P.N.G.
English: Scientific name: *Elatostema macrophylla* Brongn.
Plant family: Urticaceae

DESCRIPTION

There are about 40 species of Elatostema in P.N.G.

DISTRIBUTION  It grows wild in the high lands.

CULTIVATION

PRODUCTION

USE  The leaves and tips are eaten.

FOOD VALUE  / 100 g edible portion

| moisture | energy | protein | calcium | iron | provitA | provitC |

INSECTS

DISEASES

PESTS

IMPORTANCE  It is used at least in the Okapa area.
NAMES

English: Cardamom Scientific name: Elettaria cardamomum Maton
Plant family: Zingiberaceae

DESCRIPTION A ginger like plant. It has a clump of leafy aerial stems and then thick fleshy underground stems. The leaves are long and can be 1m x 30cm. The flowers are green and white and produced on a branched flower stalk near the ground. Seed capsules with several wrinkled seeds develop.

DISTRIBUTION It is being grown commercially in some lowland areas. It grows from sea level up to about 1200m altitude.

CULTIVATION It is normally grown under the shade of the primary rainforest. Seeds are slow to germinate. It can be grown from slips of plants.

PRODUCTION The capsules are harvested when they are almost ripe but before they turn yellow.

USE The seeds are used as a flavouring.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitaminA provitaminC

INSECTS Cardamom mirid Ragwelellus horvathi Poppius
Also Akroma sp.; Actinus imperialis Fauvel; Aphodius lividus Olivier; Calliphora dimidiata Dallas; Chauliognathus papuanus Bourgeois; Cladophorus ornatus Waterhouse; Cyphagothus splendens Kleine; Ganea pulchella Pascoe; Glenea papaensis Oahan; Glyptoponopterus sharpi Faust; Leiochirinus fulvicollis Westw.; Mnesesella weylandi occulta Rehn.; Onthophagus iris Sharp; Rhypanida sobria Gress.; Stenoxiphus aurantilacus Karsch.

DISEASES

PESTS

IMPORTANCE It is of some importance as a cash crop in mid altitude isolated places.
DESCRIPTION A coarse sea grass. The leaves are ribbon like and can be 150cm x 1cm. Underground there is a root-like stem covered with leafy fibres. The fruit is 5-7cm across and green. Inside there are seeds about 1 cm across.

DISTRIBUTION This grass grows on sandy and muddy sea shores in sea water up to 4m deep. It does not grow near rivers where fresh water flows into the sea.

CULTIVATION It grows wild. Seeds sink into the mud and germinate.

PRODUCTION Flowering only occurs in places where plants are uncovered during very low seasonal tides.

USE The seeds are recorded as eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A very minor wild food.
Scientific name: Euodia sp probably hostensis (Sometimes also spelt Eudodia) Forst.
Plant family: Rutaceae

DESCRIPTION A shrub up to 5m tall. The leaf shape varies and the leaves have a smell. It has small white flowers which occur in large clusters. The fruit is small about 5mm long.

DISTRIBUTION It grows wild over a widespread area.

CULTIVATION Plants grow from seeds.

PRODUCTION

USE The leaves have a lemon flavour and have been recorded used as a flavouring.

CAUTION The leaves are also recorded as causing abortion

FOOD VALUE / 100g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES Sooty mould fungus Meliola evodiae Pat.

PESTS

IMPORTANCE A minor food which should be used with caution.
NAMES

English: Buckwheat
Scientific name: *Fagopyrum esculentum* Moench
(Syn. *F. sagittatum* Gilib.)

Plant family: Polygonaceae

DESCRIPTION An upright annual plant up to 1m high. It has angular hollow stems.
Leaves are heart shaped. It has groups of white or pink flowers. Fruits are small and 3 angled.

DISTRIBUTION It can be grown at high altitudes. It will grow on poor soils.

CULTIVATION Plants are grown from seed.

PRODUCTION (In India yields of 600-800 kg / ha are achieved.)

USE The seeds are used mainly for flour and stock feed. Seeds are bitter.
The leaf is eaten in some countries.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.3%</td>
<td>336cal</td>
<td>10.3g</td>
<td>44mg</td>
<td>3mg</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE It has been encouraged by some groups but has apparently gained little acceptance.
DESCRIPTION A creeping leafy weed, like wandering Jew. The stems lie on the ground and root at the nodes. The tips of the branches bend upwards to 20-50cm height. The flowers are small, green and covered with hairs. The seeds are about 2mm long.

DISTRIBUTION It grows in moist places and near swamps at low altitudes. It is sometimes common in sago swamps.

CULTIVATION It grows wild from seeds or pieces of the stem.

PRODUCTION

USE The leaves have been reported as eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A very minor wild edible leaf.
DESCRIPTION A green leafy perennial herb. It can be 2m high. The leaves are very fine. The stems are ribbed and at the bottom of the stalks there is a broad green section. When the leaves are crushed, they smell like aniseed. The flower at the top is a group of small yellow flowers. The seeds are oval and ribbed and about 5mm long. Ripe fruits are wingless which distinguishes it from dill.

DISTRIBUTION It grows up to at least 2200m altitude. It grows better during the drier season at altitudes over 500m. It is cultivated but also easily grows wild.

CULTIVATION Plants can be grown from seed. These can be transplanted. The rootstock of established plants can be used to start new plants. A spacing of 50cm apart between plants is suitable. (Dill and fennel can cross pollinate and the flavours mix)

PRODUCTION

USE The top leaves can be boiled and eaten as a flavouring.

The young tender central portion and the leaf bases can be chopped and eaten.

The roots can be cooked and eaten.

The seeds can be used as a flavouring.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitamin A</th>
<th>provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaf</td>
<td>2.4-4.2g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>base</td>
<td>1.1g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE At present only occasionally seen.
 NAMES

Scientific name: *Graptophyllum pictum* (L.) Griff.
Plant family: Acanthaceae

DESCRIPTION A shrub 2-3m high. The leaves are up to 15cm long and 6cm wide and coloured. The leaves have markings like writing on them. The flowers are reddish purple in clusters on the tops of plants.

DISTRIBUTION It mostly occurs in coastal areas below 800m altitude.

CULTIVATION It can be grown from cuttings of young wood with a heel attached.

PRODUCTION

USE The young leaves have been reported as being eaten.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE It is mainly an ornamental shrub.
NAMES
English: Tok ples: Called Miz at Arufe near Morehead.
Scientific name: Gymnanthena mitida
Plant family: Asclepiadaceae.

DESCRIPTION A small vine with green ridges fruit. Inside the fruit is composed of small green leafy type coverings. Leaves are in pairs opposite each other.

DISTRIBUTION Grows in the Nipa palm zone along the coast.

CULTIVATION Grows wild.

PRODUCTION

USE The young fruits are cooked and eaten but ripe fruits are eaten raw.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A very minor wild edible fruit.
Scientific name: *Habenaria* spp
(About 35 species occur in P.N.G.)
Plant family: Orchidaceae.

DESCRIPTION These are a group of short erect ground orchids which regrow each year from underground tubers.

DISTRIBUTION They occur in rainforests.

CULTIVATION They can be grown from tubers. Mostly they grow naturally.

PRODUCTION

USE The tubers have been recorded as eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE Recorded as collected from the wild and eaten in the Mumeng area. Also recorded as eaten in Indonesia.
NAMES

English: Sunflower  
Scientific name: *Helianthus annuus* L.  
Plant family: Asteraceae

DESCRIPTION  An upright plant varying in height from 1-4m and with mostly yellow flowers. Flowers are 9-20cm across.

DISTRIBUTION  It suits the highlands and can stand a light frost. It needs a well drained soil.

CULTIVATION  Only well filled seed should be planted. It is easy to save your own seed. Dry seed stores well. It will grow on most soils.

PRODUCTION

USE  An edible oil is extracted from the seeds and used for cooking. Sometimes seeds are eaten raw or roasted. The seeds can be ground into a meal for using in bread and cakes.

FOOD VALUE  

<table>
<thead>
<tr>
<th></th>
<th>100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td>seeds-dry</td>
<td>8.5%</td>
</tr>
</tbody>
</table>

INSECTS  

- *Colgan tricolor* Dist.  
- Corn earworm *Heliothis armiger* Hub. & *H. punctigera* Will.  
- Coffee leaf roller *Homona coffearia* Nietn.  
- Shot hole weevils *Oniulus cinereus* Mshl. & *O. inimicus* Mshl.  
- Longhorn grasshopper *Phaneroptera brevis* Serv.  
- *Phytometra orichalcea* (F)  
- *Plautia brunneipennis*  
- African armyworm *Spodoptera exempla* (Walker)

DISEASES


IMPORTANCE  Not widely grown as food for people.
Scientific name: *Hornstedtia scottiana* (F.Muell)K.Schum.
Syn. *Elettaria scottiana* F.Muell
and *Hornstedtia lycostoma* (Laut. & K.Schum) Schum.
Plant family: Zingiberaceae.

**DESCRIPTION**  A perennial ginger family plant. The stalks reach up to 4m high and have a swollen base. The leaves are long (60cm) and thin (10cm). The flower is a cone like structure a few cm high at the base of the plant. The outside of the lower bracts is red.

**DISTRIBUTION**  A rainforest species.

**CULTIVATION**

**PRODUCTION**

**USE**  The seeds are edible.

**FOOD VALUE**  

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE**
NAME

Scientific name: *Iresine herbstii* Hook.f.
Plant family: Amaranthaceae

DESCRIPTION
A perennial herb up to 1m high. It is usually dark red and has bowl shaped leaves.

DISTRIBUTION
It grows between 500 and 2500m altitude. It is killed by frost.

CULTIVATION
It can be grown from cuttings.

PRODUCTION

USE
It has been reported to be used as a vegetable cooked and eaten with pig meat.

FOOD VALUE

/ 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC

INSECTS

DISEASES

PESTS

IMPORTANCE
A common ornamental only occasionally reported eaten.
NAMES

English: Scientific name: Kaempferia galanga L. Plant family: Zingiberaceae

DESCRIPTION A slow growing perennial herb, the leaves of which have a mild smell like licorice. It usually has two leaves pressed flat against the soil. The rhizome is much branched, crowded, tuberous and aromatic.

DISTRIBUTION

CULTIVATION It is grown from tuber cuttings.

PRODUCTION

USE The rhizomes and leaves are eaten as a condiment.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>rhizome</td>
<td>89.5%</td>
<td>38cal</td>
<td>1.1g</td>
<td>28mg</td>
<td>2mg</td>
<td>3000 g</td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A very minor edible food flavouring. It is also used in magic and medicine.
DESCRIPTION  A medium sized tree with a round dense crown and the trunk often has buttresses and suckers at the base. The leaves are roundish and up to 20cm long by 15cm wide. The leaf stalks can be 10cm long. It produces sprays of pink flowers at the ends of the branches. The fruit is a pinkish brown five shouldered capsule. There are 1 or 2 seeds in each cell.

DISTRIBUTION  Trees grow in coastal areas up to about 500m altitude. They occur near banks of streams and in open country. Seedlings need to be in a sunny position.

CULTIVATION  Trees are self sown from seed.

PRODUCTION

USE  The young leaves are cooked as a vegetable. They are also used for wrapping food for cooking.

CAUTION  The older leaves are also recorded as having medicinal uses. They contain hydrocyanic acid.

FOOD VALUE  / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES  Leaf spots.

PESTS

IMPORTANCE  A moderately common coastal tree. Young leaves are occasionally eaten in a few places e.g. West New Britain.
NAMES

Scientific name: *Lathyrus tingitanus* L.
Plant family:

DESCRIPTION A straggling annual climbing plant. The stems have wings and are 1.5m long. It has 2 leaflets which are narrow and long. The flowers are 1-3 on long stalks. They are purple. The fruit is up to 10cm long and 8mm wide with 6-8 seeds.

DISTRIBUTION It grows from 2070m to 2580m altitude.

CULTIVATION It grows wild from seeds.

PRODUCTION

USE It is reported that the pods are eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor wild edible food.
 NAMES

English: Leucaena  Scientific name: Leucaena leucocephala De Wit
(Syn. L. glauca auct.)
Plant family: Fabaceae

DESCRIPTION A tree with fine divided leaves. The flowers are white and in round heads. The pods are flat and 10-15cm long with 15-25 seeds inside. It has shiny brown seeds.

DISTRIBUTION It is widespread from sea level up to about 1700m altitude. It is often used as a shade for coffee. It is drought resistant.

CULTIVATION It grows easily from seeds. It also regrows from cut stumps and it can be grown from cuttings. Plants are hard to eliminate and can become a weed problem in dry areas.

PRODUCTION It grows very quickly.

USE The young pods, tender leafy shoots and flowers have been eaten.

CAUTION Leucaena contains a poison called mimosine which causes the hair to fall out. If it is eaten at all, it should only be eaten in small quantities.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>young pods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>leaves</td>
<td>6-10g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flowers</td>
<td>4-7g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Cacao looper Ectropis sakulosa Warr.
Citrus mealy bug Planococcus citri (Risso)
Cacao mirid Helopeltis claviifer (Walker)
Nigra scale Saissetia nigra (Nietn.)
Cacao armyworm Tiaracola plagiata (Walker)
Also Anacacia basigera (Walker); Orgyia postica (Walker) and Pteroma sp.

DISEASES Pink disease due to a fungus Corticium salmonicolor Berk.& Br.
Thread blight fungus Corticium solani
Root rot fungus Fomes noxius Corner

PESTS Root knot nematode Meloidogyne incognita var.acrita Chitwood
and Meloidogyne javanica Chitwood

IMPORTANCE A common shade tree for cash crops and also grows wild. The leaves are rarely eaten in P.N.G..
360
NAMES

Scientific name: *Limnophila rugosa* (Roth) Merr.
Plant family: Scrophulariaceae.

DESCRIPTION An upright plant although sometimes lying over. It is up to 50cm high. The stems are hairy. The leaves or the short leaf stalks clasp the stem. The leaves are slightly rough and toothed around the edge. Flowers are single without stalks and in the axils of leaves. They are yellowish green. Seeds are very small, black and shiny.

DISTRIBUTION It is a marsh plant growing in pools and in water but rooted in the mud. It is mostly coastal but can grow up to 1200m or higher.

CULTIVATION

PRODUCTION

USE The leaves are cooked and eaten. It is a food flavouring.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A very minor food flavouring plant. Occasionally reported eaten in P.N.G.
**Scientific name:** Lysimachia japonica Thunb. var. papuana S. Moore

**Plant family:** Primulaceae

**DESCRIPTION** A slender, little branched herb which lies on the ground. The stem is angular and brown hairy. The plant is 5-10 cm long and the leaves are 4-7mm by 3-5mm. Flowers are singly in the axils of leaves. They droop.

**DISTRIBUTION** Plants occur between the altitudes of 1050m and 2900m. They occur on damp banks along roadsides or in abandoned fields.

**CULTIVATION** Plants grow wild from seed.

**PRODUCTION**

**USE** The leaves have been reported as eaten.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provit A</th>
<th>provit C</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** A minor wild edible leafy green.
Scientific name: *Marattia* sp.
Plant family: Marattiaceae

DESCRIPTION A fern with a short creeping starchy rhizome. The rhizome is large like a tuber. The fronds are large and shiny. When cut the surface of the rhizome stains purple.

DISTRIBUTION

CULTIVATION It grows wild. It can be cultivated.

PRODUCTION

USE The starchy rhizome has been processed for the starch which is eaten.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS Wild pigs uproot the plant for the starchy rhizome.

IMPORTANCE A minor wild edible reserve food.
Scientific name: *Medusanthera laxiflora* (Miers) (Syn. *M. papuana* (Becc.) Howard.) Howard

Plant family: Icacinaceae

**DESCRIPTION** A shrub or tree up to 15m tall. The branches spread almost horizontal. Leaves are oblong 12-21cm long and 4-8cm wide. Flowers are unisexual. Fruit is green and 1.5cm x 0.8cm with a fleshy pad on the flat side.

**DISTRIBUTION** It is mostly an understorey tree in the lowland rainforest. It occurs up to 900m.

**CULTIVATION** It mostly grows wild, the fruit probably being distributed by cassowaries.

**PRODUCTION**

**USE** The leaves are reported to be eaten. (They are also reported as medicinal against malaria.)

**FOOD VALUE** / 100 g edible portion

- moisture
- energy
- protein
- calcium
- iron
- provitA
- provitC

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** A very minor wild edible green.
364

NAMES
English: Lemon balm
Scientific name: Melissa officinalis L.
Plant family: Lamiaceae

DESCRIPTION A vigorous perennial herb up to 0.5m high. The leaves are wrinkled and toothed at the edge. The leaves have a lemon smell when crushed. The flowers are whitish yellow.

DISTRIBUTION It occurs in some highland gardens.

CULTIVATION It can be grown from seeds or cuttings. The flowers should be picked off.

PRODUCTION

USE The lemon flavoured leaves are used for drinks or flavouring either raw or cooked.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE It is only occasionally seen in the gardens of some Europeans.
MINT

English: Mint
Scientific name: *Mentha spicata* L.
Plant family: Lamiaceae

DESCRIPTION A creeping leafy herb with numerous long runners. It has underground stems. The leaves have a strong smell. The plant tends to be stiff and upright with long narrow pointed leaves. It has pink flowers at the top and small brown seeds.

DISTRIBUTION It mainly occurs in the highlands. It suits damp ground.

CULTIVATION Plants are easily grown by using runners or rooted cuttings. They can be grown from seed.

PRODUCTION

USE The leaves are used for flavouring food.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitamin A</th>
<th>provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td>89.3%</td>
<td>32 cal</td>
<td>3 g</td>
<td>194 mg</td>
<td>3.8 mg</td>
<td>2160 g</td>
<td>64 mg</td>
</tr>
</tbody>
</table>

INSECTS Coffee leaf roller *Homona coffearia* Nietn.

DISEASES Rust due to fungus

PESTS

IMPORTANCE It can fairly commonly be seen near highland villages and gardens.
NAMES
English: Horseradish tree Drumstick tree
Scientific name: Moringa oleifera Lam.
(Syn. M. pterygosperma Gaertn.)
Plant family: Moringaceae

DESCRIPTION A small tree up to 9m high. It has fern-like divided leaves. The seed capsules are up to 45cm long. Some kinds are better for edible fruits than others, while some are selected for leaves.

DISTRIBUTION They suit the dry lowland areas and grow up to 500m altitude.

CULTIVATION It is best to grow plants from 1m cuttings but they can be grown from seed. They can be used as a hedge and pruned regularly to produce more leaves.

PRODUCTION The tree flowers continuously.

USE The young tops and leaves are eaten cooked.
   The very young long pods are eaten cooked.
   The young seeds are eaten roasted.
   Sometimes the roots are used as a horseradish substitute.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>77.6%</td>
<td>72cal</td>
<td>7.6g</td>
<td>297mg</td>
<td>3.6mg</td>
<td>8855g</td>
<td>167mg</td>
</tr>
<tr>
<td>pods</td>
<td>86.7%</td>
<td>42cal</td>
<td>2.5g</td>
<td>58mg</td>
<td>0.8mg</td>
<td>75g</td>
<td>159mg</td>
</tr>
<tr>
<td>young seeds</td>
<td></td>
<td></td>
<td>3.6g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE An introduced tree probably not widely used for food in P.N.G..
Scientific name: Musa ingens Simmonds
Plant family: Musaceae

DESCRIPTION A wild banana with angular seeds in the fruit. The seeds are up to 8mm across and the fruit is green but turn yellow/brown when ripe. The fruits are close together on the bunch.

DISTRIBUTION It grows wild in some areas between 1000 and 2100m altitude.

CULTIVATION It grows from seeds and also has some suckers.

PRODUCTION

USE The central pith of the false stem of some kinds is used as a food by hunting parties.

FOOD VALUE

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE A very minor food.
368

NAMES

English: Nutmeg
Scientific name: Myristica fragrans Houtt.
Plant family: Myristicaceae

DESCRIPTION A tree up to 10m tall. Leaves are simple, pointed and dark green on top. Male and female flowers are separate but often on the same tree. The fruits are round, about 6cm across and yellow when ripe. All parts of the tree when bruised have a smell of nutmeg.

DISTRIBUTION It suits humid places and needs a fertile well drained soil. It grows in lowland areas and needs protection from wind. It cannot tolerate drought.

CULTIVATION Trees are normally grown from seed. A spacing of 9m apart is suitable.

PRODUCTION Seeds take 3 months to germinate. Trees begin producing after 5-7 years.

USE The seed is used for the spice called nutmeg.
The red layer (aril) around the seed produces the spice called mace.

CAUTION The oil in the seed contains a poisonous drug called myristicin.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC
nut aril

INSECTS

DISEASES

PESTS

IMPORTANCE Mainly grown in Botanical Gardens and research farms.
NAMES

English: Sweet basil
Scientific name: Ocimum basilicum L.
Also O. americanum L. (Syn. O. canum Sims)
Plant family: Lamiaceae

DESCRIPTION
An annual herb up to 45cm high. The stems are square and the plant is covered with small hairs except the leaves. It has white flowers with a purple tinge.

DISTRIBUTION
It suits both the lowlands and the highlands. It cannot stand frost.

CULTIVATION
It is grown from seed. If top shoots are picked off, a more bushy plant is produced and flowering is delayed.

PRODUCTION

USE
The leaves are used raw or boiled to flavour foods.

FOOD VALUE

<table>
<thead>
<tr>
<th></th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>moisture</td>
</tr>
<tr>
<td></td>
<td>86.5%</td>
</tr>
</tbody>
</table>

INSECTS

DISEASES

PESTS

IMPORTANCE
It is mainly only seen in the gardens of Europeans.
NAMES

English: Marjoram  
Scientific name: *Origanum majorana*  
Plant family: Lamiaceae

DESCRIPTION  An annual bushy plant up to 40cm high. It has a strong smell. It has small grey green leaves on tough woody stems. It has knotted flower heads with white flowers.

DISTRIBUTION  It is suited to highland areas. It is sensitive to frost.

CULTIVATION  Plants are mostly grown from seeds.

PRODUCTION

USE  The sweet spicy leaves are used to flavour meat dishes.

FOOD VALUE

/ 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC

INSECTS

DISEASES

PESTS

IMPORTANCE  A minor food flavouring grown occasionally by Europeans.
**NAMES**  
English: Oregano  
Scientific name: *Origanum vulgare* L.  
Plant family: Lamiaceae

**DESCRIPTION**  
A perennial plant. It is a leafy bush with creeping roots. It has small dark green leaves and red-brown stems. It has purple or pink flowers. It has a smell like thyme.

**DISTRIBUTION**  
It grows in highland areas and suits slightly warmer areas.

**CULTIVATION**  
It can be grown from seed, cuttings or division of established plants.

**PRODUCTION**  
The leaves and flowers can be dried and stored.

**USE**  
The leaves and flowers are used to flavour food.

**FOOD VALUE**  
/ 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE**  
A minor food flavouring grown by Europeans.
NAMES

English: Parsley
Scientific name: *Petroselinum crispum* (Mill.) Hym. ex A.W.Hill
(Syn. *Carum petroselinum* Benth.)
Plant family: Apiaceae

DESCRIPTION A short lived perennial plant. It has stems up to 50cm long which are upright and with grooves. The leaflets are finely divided.

DISTRIBUTION It can be grown from sea level up to 2400m altitude. It grows best in moderately cool, shady and humid conditions.

CULTIVATION It is grown from seed and transplanted. Seeds are slow to germinate.

PRODUCTION It has a short plant life in P.N.G..

USE The leaves are used for flavouring.

FOOD VALUE

<table>
<thead>
<tr>
<th>nutrient</th>
<th>/ 100 g edible portion</th>
</tr>
</thead>
<tbody>
<tr>
<td>moisture</td>
<td>83.8%</td>
</tr>
<tr>
<td>energy</td>
<td>50 cal</td>
</tr>
<tr>
<td>protein</td>
<td>3.7g</td>
</tr>
<tr>
<td>calcium</td>
<td>228mg</td>
</tr>
<tr>
<td>iron</td>
<td>4.8mg</td>
</tr>
<tr>
<td>provitamin A</td>
<td>1550 g</td>
</tr>
<tr>
<td>provitamin C</td>
<td>153mg</td>
</tr>
</tbody>
</table>

INSECTS Larvae of a moth *Phytometra orichalcaea* (F.)

DISEASES

PESTS

IMPORTANCE Moderately commonly seen in many areas of the country.
English: Betel pepper  Scientific name: Piper betle L.  
Tok pisin: Daka  (Syn. Chavica betle Miq.)  
Plant family: Piperaceae

DESCRIPTION  A woody vine which attaches to trees by roots at the nodes on the main vine. The leaves can be 12cm long. The flowers are separately male and female. Male spikes are thinner and longer than female. The spikes droop.

DISTRIBUTION  It occurs in the lowlands and up to about 700m altitude. It needs a reasonably good rainfall.

CULTIVATION  Plants are grown from cuttings of the main vine. It also grows wild. It needs stakes or a tree to climb. Fruiting branches can be increased by pruning.

PRODUCTION  Plants can last for 10-12 years.

USE  It is used as a masticatory with betel nut. The leaves and/or fruits are used.

FOOD VALUE  
/ 100 g edible portion  
moisture energy protein calcium iron provitA provitC
leaves  85%  42cal  3g  150mg  5.7mg 13800 g  5ug

INSECTS

DISEASES  A diffuse black spot due to fungus Myrothecium roridum Tode ex Fr.

Mosaic possibly due to a virus.

PESTS

IMPORTANCE  A common and important condiment in the lowlands.
Scientific name: *Piper stenocarpum* C.DC.
Plant family: Piperaceae

**DESCRIPTION** A vine like daka and pepper which climbs up logs and tree trunks in the bush. The fruiting part is a long (20cm) thin (1cm) part like daka. It is longer than the leaves and turns red at maturity.

**DISTRIBUTION** It grows in the highlands between 1500 and 3500m altitude and is most common in oak type forest near 2200m altitude.

**CULTIVATION** It grows wild.

**PRODUCTION**

**USE** The leaves are eaten.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>Moisture</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ 100g edible portion</td>
<td>/ 100g edible portion</td>
<td>/ 100g edible portion</td>
<td>/ 100g edible portion</td>
<td>/ 100g edible portion</td>
<td>/ 100g edible portion</td>
<td>/ 100g edible portion</td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** A minor edible leafy green in some high altitude areas.
NAMES

English: Pepper  
Scientific name: *Piper nigrum* L.  
Plant family: Piperaceae

DESCRIPTION A climbing plant with roots on the main stem which attach to tree trunks. It has clusters of berries on side branches. The berries are red when ripe.

DISTRIBUTION It grows from sea level up to at least 1100m altitude. It has been planted in commercial stands in a few coastal areas.

CULTIVATION Plants are normally grown from cuttings of the main (rooted) vine. Pruning of the tips can increase branch formation on which berries are produced. It needs a support to climb.

PRODUCTION

USE The seeds are dried and crushed and used as a spice.

FOOD VALUE / 100 g edible portion

moisture  energy  protein  calcium  iron  provitA  provitC
12%  325cal  12.2g

Its value is as a spice, not a food.

INSECTS Variegated bugs *Antestiopsis semiviridis* (Walker)  
Pepper bug *Mesocypselas piperica*  
Grasshopper *Valanga sp*

DISEASES Leaf blotch due to fungus *Colletotrichum piperis* Petch  
Algal spot *Cephalosporium virescens* Kunze

PESTS

IMPORTANCE It is becoming of some importance as a cash crop but is little used locally as a spice.
English: Madras thorn  Scientific name: *Pithocellobium dulce* (Roxb.) Benth.

**Plant family:** Mimosaceae

**DESCRIPTION** A tree up to 15m tall. The branches are spiny. The young leaves are usually reddish. The flowers are greenish white in rounded heads. Fruits are twisted and red to brown. The black shiny seeds are covered by a white to red fleshy aril.

**DISTRIBUTION** It suits dry coastal areas probably below 800m altitude.

**CULTIVATION** Plants can be grown by seeds or cuttings.

**PRODUCTION**

**USE** The seed pulp is sweet and edible and is used for drinks.

**CAUTION** It is recorded as causing haematuria.

**FOOD VALUE** / 100g edible portion

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>77.8%</td>
<td>78cal</td>
<td>3g</td>
<td>13mg</td>
<td>0.5mg</td>
<td>15g</td>
<td>133mg</td>
</tr>
</tbody>
</table>

**INSECTS**

**DISEASES**

**PESTS**

**IMPORTANCE** It is mainly grown near Port Moresby and is probably rarely used for food.
NAMES

English: Pittosporum pullifolium Burk. (Syn. P. nubigenum Ridl.)
Plant family: Pittosporaceae

DESCRIPTION A small tree or shrub 1-5m high. The tree type and leaf shape vary with altitude. Young shoots are yellowish brown and softly hairy. Leaves are stiff leathery and oval. Often the edges of the leaf bend backwards. Flowers are large and on the ends of branches. Inside the capsule there are many irregular flattened seeds.

DISTRIBUTION It grows in rainforest from 1200m to 3700m altitude.

CULTIVATION It can be grown from seeds or cuttings. They tend to grow as epiphytes attached to other plants.

PRODUCTION

USE The seeds are eaten. They contain a resinous coating.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor wild edible seed.
NAMES

English: Polygonum chinense L.
Plant family: Polygonaceae

DESCRIPTION A straggling perennial weed often woody near the base and up to 2-3m tall. Branches are ridges and grooved. Leaves are up to 10cm long. Flowers are at the top and are white or pink. A black berry-like fruit develops with a 3 sided shape.

DISTRIBUTION It occurs in natural forest clearings and in abandoned gardens. It is mostly between 1000m and 2500m altitude.

CULTIVATION It grows wild from seed.

PRODUCTION

USE The leaves are eaten as a salad or condiment.

CAUTION Several Polygonums or smart weeds are considered poisonous for animals.

FOOD VALUE

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS

DISEASES Rust due to fungus Puccinia congesta Berk.& Br.

PESTS

IMPORTANCE A minor wild edible leaf.
names
english: mesquite scientific name: Prosopsis juliflora (Sw.) DC. plant family: Fabaceae

description A small tree up to 20m tall with long cracks in the bark. It is spiny and deciduous. It has brown seeds embedded in a whitish pulp. It is a legume.

distribution It has been introduced and is grown in some coastal areas. It has also become self sown.

cultivation It grows from seeds.

production

use The sweetish white pulp of the pod is eaten.

food value / 100 g edible portion
moisture energy protein calcium iron provitA provitC

insects

diseases

pests

importance It only occasionally occurs in a few coastal towns and is probably rarely used for food.
NAMES

English: Scientific name: Rhodomyrtus novoguineensis Diels
Plant family: Myrtaceae

DESCRIPTION A shrub. The young leaves are coppery coloured and the older leaves are dark green with a rusty bloom underneath.

DISTRIBUTION It occurs at about 2000m altitude.

CULTIVATION

PRODUCTION It flowers and fruits most of the year.

USE The leaves and fruits have been reported as eaten.

CAUTION The fruit of a related plant Rhodomyrtus macrocarpa in Aust. have caused blindness when eaten. But fruit of other related plants Rhodomyrtus tomentosa are eaten in other countries.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A minor wild edible plant.
Tok pisin: Pitpit

Scientific name: *Saccharum spontaneum* L.
(Also includes other grasses.) Plant family: Poaceae.

**DESCRIPTION** A strong clumpy perennial grass. The stalks are upright, hard and slightly thickened at the nodes. They can be 4 m high. The leaves are long (150cm) and narrow (4cm) with fine teeth on the edge. The flowers at the top are like feathers.

**DISTRIBUTION** It grows in the lowlands from sea level up to at least 1650 m. It is often common in areas with a strongly seasonal rainfall, and in grassland areas.

**CULTIVATION** Plants are mostly grown by dividing up the old clump.

**PRODUCTION**

**USE** The very young flower shoots are eaten cooked.

**FOOD VALUE**

<table>
<thead>
<tr>
<th>/ 100 g edible portion</th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
</table>

**INSECTS**

**DISEASES** Mostly as for sugarcane.

**PESTS**

**IMPORTANCE** The plant is common. The shoots are a very minor food only occasionally used.
HARMS

English: Sage Scientific name: *Salvia officinalis*

Plant family: Lamiaceae

DESCRIPTION A low shrub up to 40 cm high. The leaves can be up to 12 cm long and grey green and hairy. The leaves have a wrinkled surface and irregular edges along the side of the leaf.

DISTRIBUTION It grows in the highlands and up to 2600 m altitude.

CULTIVATION Plants can be grown by seeds, cuttings or division of an established plant.

PRODUCTION

USE The leaves are used as a flavouring.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE Only a minor herb grown mostly by Europeans.
NAMES
English: Raintree
Tok pisin: Marmar
Scientific name: Samanea saman (Jacq.) Merr.
(Syn. Pithocellulium saman (Jacq.) Beth.)
Plant family: Fabaceae

DESCRIPTION A large spreading tree up to 20m high. The fernlike leaves close up at night. It has pink tipped flowers and long black pods. The pods are up to 20cm long and with reddish seeds inside. It is a legume.

DISTRIBUTION Trees grow almost wild in some areas and are planted as a street tree in coastal towns. It suits riverside locations in dry areas. It should grow up to about 1800m altitude.

CULTIVATION Trees are grown from seeds. They can also be grown from cuttings.

PRODUCTION It is a quick growing tree.

USE The pods have a sweet sap which is occasionally eaten. It is also enjoyed by animals.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS Branch borer moth Cryptophasa setiotricha

DISEASES

PESTS

IMPORTANCE The tree is moderately common in some coastal areas but it is only a minor food.
384

NAMES

Scientific name: Scleria pergracilis (Nees) Kn.
(Syn. Hyorough pergracile Nees)
Plant family: Cyperaceae.

DESCRIPTION
An annual sedge. It has slender tufted erect stems 50cm long
with rigid flat leaves. A small 3-sided nut is produced on the flower at the
top.

DISTRIBUTION
It occurs from sea level
to 1500m. It is normally on open slopes
and near the edges of swamps.

CULTIVATION
Grows wild.

PRODUCTION

USE
The strongly lemon scented leaves
are eaten with salt.

FOOD VALUE

/ 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE
A minor wild edible leaf.
** NAMES **

** English: Sesbania **

** Scientific name: Sesbania grandiflora (L.) Poir **

** Plant family: Fabaceae **

** DESCRIPTION **

A small tree up to 10m tall. The trunk has rough bark and the branches often droop. The leaves are made up of 41 to 61 leaflets. The flowers are large and white to red. It has long narrow pods with up to 30 small seeds.

** DISTRIBUTION **

It is cultivated in coastal towns. It does well in both dry and moist areas. It probably grows up to about 1500m altitude.

** CULTIVATION **

Trees are grown from seed.

** PRODUCTION **

It is a quick growing tree. It is short lived.

** USE **

The leaves and flowers are used as a vegetable. The young pods are also eaten.

** FOOD VALUE **

<table>
<thead>
<tr>
<th></th>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitA</th>
<th>provitC</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>76%</td>
<td>77cal</td>
<td>8.7g</td>
<td>404mg</td>
<td>0.6mg</td>
<td>6230 g</td>
<td>58mg</td>
</tr>
<tr>
<td>flowers</td>
<td>89%</td>
<td>38cal</td>
<td>1.6g</td>
<td>16mg</td>
<td>70 g</td>
<td>52mg</td>
<td></td>
</tr>
<tr>
<td>pods</td>
<td></td>
<td></td>
<td>4g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** INSECTS **

** DISEASES **

** PESTS **

** IMPORTANCE **

A common ornamental tree. It is not known how much it is used for food.
ENGLISH: Sowthistle

SCIENTIFIC NAME: *Sonchus oleraceus* L.
and possibly *Sonchus asper* Hill

PLANT FAMILY: Asteraceae

DESCRIPTION A weedy herb. It has
hollow stems and a milky juice. The
flowers are pale yellow.

DISTRIBUTION It occurs between 1000m
and 2500m altitude.

CULTIVATION It grows wild from seeds.
Seeds are blown in the wind.

PRODUCTION

USE The young tops and leaves are eaten.

CAUTION Some forms and species are bitter.

FOOD VALUE / 100 g edible portion

<table>
<thead>
<tr>
<th>moisture</th>
<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>provitamin A</th>
<th>provitamin C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2.4g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INSECTS Red cotton bug *Dysdercus cingulatus* Fab.

DISEASES

PESTS

IMPORTANCE A minor wild edible green.
NAMES
English: Chickweed   Scientific name: *Stellaria* sp probably *media*
Plant family: Caryophyllaceae

DESCRIPTION  A low leafy plant which grows from seed. The stems have a line of hairs down one side. The flowers are small and white.

DISTRIBUTION

CULTIVATION  It is self sown from seed.

PRODUCTION

USE  The whole plant can be eaten raw or cooked.

FOOD VALUE  / 100 g edible portion
moisture  energy  protein  calcium  iron  provitA  provitC

INSECTS

DISEASES

PESTS

IMPORTANCE  A very minor wild edible green.
NAMES

English: Thyme
Scientific name: *Thymus vulgaris* L.
Plant family: Lamiaceae

DESCRIPTION A low shrub with very small leaves. It is an evergreen with woody grey roots. The flowers are pale mauve. The plant has a sweet smell.

DISTRIBUTION Plants are occasional in the highlands. They grow up to 2600m altitude.

CULTIVATION It can be grown from seeds or by cuttings or by dividing up an established plant. Cutting tips off plants often will encourage a bushy growth.

PRODUCTION The leaves can be picked and dried and stored.

USE The leaves are used as a seasoning to flavour foods.

FOOD VALUE / 100 g edible portion

moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE It is mainly seen near the houses of Europeans.
NAMES
English: Nasturtium  Scientific name: Tropaeolum majus L.
Plant family: Tropaeolaceae

DESCRIPTION A creeping climbing annual plant with trumpet like flowers. The flowers are orange and yellow and have a pointy piece at the back of the flower.

DISTRIBUTION It prefers a sunny position. It is mainly seen between 600 and 1800m altitude.

CULTIVATION Plants are grown from seed. Plants reseed easily.

PRODUCTION

USE The leaves, flower petals and seeds are all edible and have a hot peppery taste. The leaves and flowers are eaten raw. The seeds are used as a substitute for capers in sauce.

FOOD VALUE

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<tr>
<th></th>
<th>leaves</th>
<th>flowers</th>
<th>seeds</th>
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<tbody>
<tr>
<td>moisture</td>
<td>energy</td>
<td>protein</td>
<td>calcium</td>
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</table>

INSECTS Leaf miner

DISEASES Leaf spot due to fungus Heterosporium tropaeoli Bond

PESTS

IMPORTANCE A common garden flower but not widely eaten.
HAMES

English: Vanilla

Scientific name: *Vanilla tahitiensis* J.W. Moore
and *Vanilla planifolia* Andrews
(Syn. *Vanilla fragrans* (Salisb.) Ames
Plant family: Orchidaceae

DESCRIPTION A climbing orchid. It has long pointed fleshy leaves. Aerial roots arise from the stem opposite the leaves. The flowers are greenish yellow and occur in groups of up to 30 in the axils of the leaves. The fruit is a long fleshy pod with small black seeds inside.

DISTRIBUTION It needs a warm moist climate. It is grown commercially in a few lowland areas. It will grow up to at least 1300m altitude.

CULTIVATION Plants are grown from cuttings in a layer of rotting plant material and forest debris. It needs a pole to climb and should have light shade. When the vine extends along a branch it is pulled down to promote flowering. The flowers need to be hand pollinated in the early morning.

PRODUCTION The pods are ready for harvest about 9 months after pollination. The beans are partly dried and allowed to sweat to increase the flavour.

USE The pods are used to flavour foods. The flavour is extracted in alcohol.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitamin A provitamin C

INSECTS

DISEASES Shoot blight due to fungus *Gloeosporium* sp.
Rot of cuttings due to fungus *Sclerotium rolfsii* Sacc.
Leaf spot

PESTS

IMPORTANCE It is grown as a cash crop. It is probably little used locally as a food crop.
Scientific name: *Viola betaniciifolia* Sm.
Plant family: Violaceae

**DESCRIPTION** A small herb.

**DISTRIBUTION** It grows under coffee and other shade. It occurs below 2000m altitude.

**CULTIVATION**

**PRODUCTION**

**USE** The leaves are eaten

**FOOD VALUE** / 100 g edible portion

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<tr>
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<th>energy</th>
<th>protein</th>
<th>calcium</th>
<th>iron</th>
<th>rpovitA</th>
<th>provitC</th>
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</thead>
</table>

**INSECTS**

**DISEASES** Leaf spot due to fungus *Septoria australiae* McAlp.

**PESTS**

**IMPORTANCE** A very minor edible leaf.
English: A bluebell
Scientific name: *Wahlenbergia marginata* (Thunb.)
(Syn. *Campanula marginata* Thunb.)

DESCRIPTION A low shrub up to 60cm tall with a strong tap root. The stem has several thin upright branches. The leaves are very small and thin. Clusters of blue flowers grow at the end of the branches.

DISTRIBUTION It grows between 1000 and 3000m altitude especially above 1500m on sunny grassy slopes. It is more common in areas with a distinct dry season.

CULTIVATION It grows wild.

PRODUCTION

USE The plant is eaten

FOOD VALUE

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<th>/ 100 g edible portion</th>
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INSECTS

DISEASES

PESTS

IMPORTANCE It is recorded eaten in Sinasina in Chimbu. It is also eaten in Australia.
NAMES
English: Wild ginger

Scientific name: Zingiber zerumbet (L) J.E. Sm
Plant family: Zingiberaceae

DESCRIPTION An upright clumpy plant up to 1m high. The leaves are shorter and fatter than true ginger. The flower cone is also longer and thinner than true ginger.

DISTRIBUTION It occurs in coastal areas. It is most common in damp open forest.

CULTIVATION It mostly grows wild in regrowth forest.

PRODUCTION

USE The rhizome and leaves are eaten, used in medicine and magic.

FOOD VALUE / 100 g edible portion
moisture energy protein calcium iron provitA provitC

INSECTS

DISEASES

PESTS

IMPORTANCE A quite common plant but only a minor food plant.
### Tok Pisin name. Alphabeticall list.

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Some of the species listed in this index are not covered in the compendium. This is mostly because I did not have sufficient information either about the plant, or about the plant as it is grown in Papua New Guinea. Some well known plants like wheat and rye are rarely grown or used as food from local sources within Papua New Guinea.

The species listed are ones that are recorded in the literature from various sources, or are known to me.

The following species were omitted above:

- *Bonassus heineana* Becc. 320
- *Centella asiatica* (L.) Urban 79
- *Ceclipterus thalictroides* (L.) Bronin. 329
- *Feijoa sellowiana* Berg. 296
- *Leucaena leucocephala* De Wit - leucaena 359
- *Oxalis tuberosa* Molina - oka 22
- *Ullucus tuberosus* Lozano - ulluco 24
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