

Food Plant Solutions Brief Guide to Food Plant Gardens in Solomon Islands

Our bodies need nutrients to be healthy and strong - nutritious food provides these:

- Starch:** Starch provides sustained energy for the body.
- Protein:** Protein helps the body repair cells and make new ones. Protein is also important for growth and development of children, teens, and pregnant women. Symptoms of protein deficiency include wasting and shrinkage of muscle tissue, and slow growth (in children).
- Vitamin A:** Vitamin A is very important for eyesight and fighting disease, particularly in infants, young children and pregnant women. People who are short of vitamin A have trouble seeing at night.
- Vitamin C:** Vitamin C helps us avoid sickness, heal wounds, prevent infections and absorb iron from food. Severe vitamin C deficiency increases the risk of scurvy with symptoms such as inflammation of the gums, scaly skin, nosebleed and painful joints.
- Iron:** Iron is important because it helps red blood cells carry oxygen from the lungs to the rest of the body. Low levels of iron cause anaemia, which makes us feel fatigued. Iron is also important to maintain healthy cells, skin, hair and nails. Iron is more available when Vitamin C is also present.
- Zinc:** Zinc is particularly important for the health of young children and teenagers, and to help recovery from illness. It is needed for the body's immune system to work properly. It plays a role in cell division, cell growth, wound healing, and the breakdown of carbohydrates. Zinc is also needed for the senses of smell and taste. Zinc deficiency is characterized by stunted growth, loss of appetite, and impaired immune function.



Starting a garden

PLAN:

Identify a suitable location for the garden. Factors to consider include:

A site that receives 6-8 hours a day of sunlight and is not shaded by buildings or trees.

Easy access – a garden that is difficult to get to will not be maintained.

Protection from predators like native animals. If this is an issue, consider what can be used as a barrier and install it before planting.

Adequate and easily accessed water, whether it be a garden hose or a watering can.

TOOLS AND EQUIPMENT:

You will need tools to turn over the soil, to plant seeds and seedlings (e.g. spade, hand trowel, hoe) and to move the soil to cover seed (e.g. rake). Can you borrow tools to reduce your start-up costs?

SIZE:

Gardens can be all different sizes. Plan the size of your garden – what space is available and how much time do you have? Start small and increase the area as you become more confident. If space is limited, remember plants can be successfully grown in containers or pots.

BUILD:

Clear the area, removing any existing plants and large weeds (turn the soil – dig, lift and turn it over onto itself). Once the soil has been loosened,

spread compost and work it into the soil. Avoid stepping on freshly turned soil, as this will compact the soil and undo your hard work. Once the digging is complete, smooth the surface with a rake and water thoroughly. Allow the bed to rest for several days before planting. Use a good quality potting mix if using pots and containers.

PLANT:

Seeds and seedlings can be purchased from nurseries, garden centres and most hardware stores. A packet of seeds will grow a lot of seedlings but take longer to mature than transplanted seedlings. Plant seeds and seedlings in accordance with their specific directions and apply sufficient water to ensure the soil around the seeds and/or seedling roots is moist. Consider how tall and wide each plant will grow when planning the space between plants. Information on seed packets or seedling labels will indicate the appropriate distance between neighbouring plants. Add a thick layer of mulch around seedlings to help keep the soil moist. Make small signs to stick in the ground to show what you have planted.

MAINTAIN:

Plants need regular watering, which ideally should occur in the morning, never in the heat of the day. Weeds will compete with the plants for nutrients and water, so it is important to keep them to a minimum. Hand weeding and adding mulch around seedlings will help keep weeds under control.

Starchy Staples provide energy and dietary fibre

Common name: Taro

Scientific name: *Colocasia esculenta*

Cultivation: Taro can be planted from cormels or from the top of the central corm. Taro can be grown under flooded conditions, but root rots develop if the water becomes stagnant. For dryland taro, the soil is prepared by digging the soil and plant into a hole 5-7 cm deep.

Use: The corms, petioles and leaves are all edible after cooking. The leaves are also dried and stored. The flowers are also cooked as a vegetable.

Nutrients: root: energy, zinc, protein; leaf (cooked): protein, vit A, vit ...

Common name: Lesser yam

Scientific name: *Dioscorea esculenta*

Cultivation: Normally small tubers are planted (50 – 15 g), but cut portions of a tuber can be used. Using either the top section or the bottom section of a tuber gives better establishment and yield than middle portions. Using larger tubers gives larger individual tubers and higher yields for individual plants. Tubers are planted 8-12 cm below the ground.

Use: The tubers are cooked and eaten. They can be used in soups, stews, mashed or fried. The tubers are often cut into pieces, steeped in water, and boiled prior to eating.

Nutrients: energy, zinc, protein, vit A, vit C.

Common name: Cassava

Scientific name: *Manihot esculenta*

Cultivation: Cassava is planted from sections of the stalk. Sections about 15-20 cm long of the more mature woody stem are cut and stuck into the ground. They can be completely buried or put at almost any angle. Roots form and leaves start to sprout from the stalk. It can be planted at any time of the year but to get started it needs moisture so is often planted near the beginning of the wet season. Once established it can survive for several months without rain.

Use: The tubers are eaten after thorough cooking. They are boiled, roasted, or made into flour. The starch is used in puddings, soups, and dumplings. Young leaves are edible after cooking. They are also sometimes dried and stored. Seeds are also eaten.

Nutrients: tuber: energy, zinc; leaf: protein, vit A, vit C, iron.



Legumes provide protein for growth

Common name: Jack bean

Scientific name: *Canavalia ensiformis*

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

Use: The leaves and top shoots are eaten. The very young pods are boiled and eaten. The flowers can be eaten. The young seeds are eaten boiled, roasted, or peeled and cooked. The seeds are also fermented. The ripe seeds are roasted and used as a coffee substitute.

Nutrients: energy, protein, vit A, iron

Common name: Winged bean

Scientific name: *Psophocarpus tetragonolobus*

Cultivation: Seeds germinate and grow slowly in the first 3 or 5 weeks. Plants are intolerant of waterlogging.

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.

Nutrients: seed: energy, protein, iron, zinc; leaf: vit A, vit C, iron; tuber: energy

Common name: Wing bean

Scientific name: *Vigna radiata*

Cultivation: Plants are grown from seed. In some areas these are broadcast while for small plots often 2-3 seeds are sown in holes 50-60 cm apart. It normally requires phosphorus fertiliser for adequate growth. Seeds germinate in 3-5 days.

Use: Seeds are eaten ripe. They are eaten raw or roasted. They are added to soups and stews. They are also fermented. Young pods can be eaten. Young leaves can be eaten. The seeds can be germinated for sprouts. These are used in salads and stir-fried dishes.

Nutrients: energy, protein, vit A, iron



Leafy greens are a source of iron

Common name: Green amaranth

Scientific name: *Amaranthus viridis*

Cultivation: It can be grown from seed or cuttings. Seeds grow easily.

Use: The young leaves and seeds are cooked and eaten. The harvested leaves can only be stored for 2-3 days. The leaves are used for *sarma* in Turkey. They are rolled around a filling of rice or minced meat.

Nutrients: vit A, vit C, iron

Common name: Indian spinach

Scientific name: *Basella alba*

Cultivation: It can be sown from seeds or cuttings. A spacing of 1 m is suitable. Plants grown from seed are more productive than from cuttings. When cuttings are used, 20-25 cm long cuttings are suitable. Partial shade, rich fertile soil, and adequate moisture favour abundant leaf production. It is responsive to nitrogen fertiliser. Light shade gives bigger leaves. It requires a trellis to climb over. Frequently picking off the bud encourages branching.

Use: The leaves can be eaten raw in salads or cooked like a vegetable. They are also dried and stored. When fresh they can be stored for 4-5 days. The young shoots and leaves are eaten cooked. They are somewhat slimy. In soups and stews the mucilage can be used as thickening. The purple colour of fruit is harmless and is used to colour vegetables and agar-agar. Some lemon juice added to the dye enhances the colour.

Nutrients: energy, protein, vit A, vit C, iron, zinc

Common name: Jute, Bush okra

Scientific name: *Corchorus olitorius*

Cultivation: Plants grow from seed, and they can be transplanted. Seeds are often broadcast into fine seed beds at the beginning of the wet season. Mixing the small seeds with sand makes it easier to sow them evenly. Often seeds are slow to start growing. This can be overcome by soaking them in hot water. A spacing of 20-30 cm between plants is suitable. For vigorous varieties this could be increased to 45-50 cm. Seeds are saved from pods for re-sowing.

Use: The young leaves and stem tops are eaten cooked. (They are slimy unless fried.) They are also used to make a thick soup. Leaves can be sun dried, pounded to flour, then stored for a significant time.

Nutrients: leaf (raw): energy, protein, vit A, vit C, iron

Fruit are an important source of vitamins and dietary fibre

Common name: Barbados cherry

Scientific name: *Malpighia glabra*

Cultivation: They can be grown from hardwood cuttings or budded onto seedlings. They can also be grown by ground layering. Plants can be grown from seed. Seed germinate poorly. A spacing of 3-4 m is suitable. Cross pollination is needed for good fruit production.

Use: The fruit are eaten fresh or used in juice. They can be used for wine. They can be used in jellies, jams and preserves. The sauce or puree can be used as a topping for cakes, puddings, ice cream or sliced bananas.

Nutrients: energy, vit A, vit C, iron

Common name: Banana

Scientific name: *Musa x paradisiaca*

Cultivation: They are planted from sword suckers oriented 30 cm deep.

Use: Fruit are eaten raw or cooked depending on variety. Male buds and flowers are eaten on some varieties. They are cooked as a vegetable. The central pith of the false stem and the underground rhizome are also sometimes eaten.

Nutrients: energy, vit A, vit C

Common name: Guava

Scientific name: *Psidium guajava*

Cultivation: They are mostly grown from seeds but seedling trees vary in quality. Seeds remain viable for a year or longer. Seeds germinate in 2-3 weeks but can take 8 weeks. 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. For stem cuttings the tips are used and grown under mist at 28-30°C with bottom heat. Suckers can also be used. Using vegetative methods of propagation enables better fruit kinds to be preserved.

Use: The young leaves are eaten raw or cooked. The fruit are eaten raw. The fruit can be used for jams and jellies. Half ripe fruit are added to help the jelly set. The liquid from boiled guava seeds is used to flavour cheese. The seeds are the source of an edible oil.

Nutrients: energy, vit A, vit C, iron



Vegetables are an important source of vitamins and dietary fibre

Common name: Okra

Scientific name: *Abelmoschus esculentus*

Cultivation: They are grown from seeds that need high temperatures (over 20°C) for germination. Seeds are soaked for 24 hours before sowing to give quick germination. Seeds are sown 1.5-2.5 cm deep with 2-3 seeds per hole. These are thinned out to one plant. Seedlings can be grown in nurseries and transplanted. Pinching out the tops of plants when 30 cm tall encourages branching. A spacing of 90 x 45 cm in a sunny position is suitable.

Use: Pods are eaten cooked. They are slimy, but less so if fried. They are also less sticky if lemon is added. Dried, powdered seeds can be used to thicken soups. Pods can be pickled, frozen or canned. Young leaves can be eaten, cooked or dried and stored. Flowers can be eaten.

Nutrients: seed: energy, protein; pod: vit A, vit C, iron; vit A, vit C

Common name: Wax gourd

Scientific name: *Benincasa hispida*

Cultivation: It is grown from seed, sown 3-5 cm deep at a spacing of 60-80 cm. If plants are going to trail over the ground a spacing of about 3 m is necessary. Seedlings can be grown in nurseries and transplanted when 15-20 cm tall. They are usually planted in mounds and grown over a trellis. Flowers are open in the early morning. Hand pollination may assist fruit development. Thinning of fruit gives larger fruit. The growing tips can be pruned to encourage branching or restrict growth.

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

Nutrients: energy, protein, vit A, vit C, iron, zinc

Common name: Bitter cucumber

Scientific name: *Momordica charantia*

Cultivation: Plants are grown from seed. 6-7 kg per hectare of seed are required. Seeds are sown 2 cm deep at 50 cm spacing in the place where the plants are to grow. They need a stick to climb up. Often plants are grown on raised beds 2 m apart with 0.5 m between plants. The seed has a hard coat. Soaking seed for 24 hours before sowing gives quicker, more even germination. Regular watering is required.

Use: The young bitter fruit are cooked and eaten. They are boiled, stuffed, fried or pickled. They are used in soups, stews and stir-fried dishes. The seed mass of the ripe fruit is used as a food flavouring. The leaves are also cooked and eaten as a flavouring. Tender shoots and leaves are sometimes eaten. **CAUTION:** Leaves may cause diarrhoea and vomiting.

Nutrients: seed: energy, protein; leaf: vit A; pod (raw): vit A, zinc

Acknowledgements:

This guide is based on information from the Food Plants International (FPI) database, "Edible Plants of the World", developed by Tasmanian agricultural scientist Bruce French AO. "Food Plant Solutions Brief Guide to Food Plant Gardens in Solomon

Islands" is a limited selection of food plants intended as a **Draft Guide only** to identify some local food plants that have high levels of nutrients that are important to human nutrition. This guide has been developed with the best intention to create interest and improve the understanding of important local food plants in Solomon Islands. It is not a comprehensive guide of food plants for Solomon Islands. Other important nutritious plants may be equally useful. Please contact Food Plant Solutions if you would like further information about these, or more detailed information about the ones in this guide.

Food Plant Solutions Rotary Action Group was initiated by the Rotary Club of Devonport North to assist in creating awareness of the edible plant database developed by Food Plants International, and its potential in addressing malnutrition and food security in any country of the world. In June 2007, Food Plant Solutions was established as a project of Rotary District 9830, the Rotary Club of Devonport North and Food Plants International. The primary objective of the project is to increase awareness and understanding of the vast food resource that exist in the form of local plants, which are well adapted to the prevailing conditions in which they are to be grown, and how this resource may be used to address hunger, malnutrition and food security. For more information, visit the website www.foodplantsolutions.org or email info@foodplantsolutions.org.

Disclaimer: This Guide has been produced using information from the "Edible Plants of the World" database compiled by Bruce French of Food Plants International. Although great care has been taken by Food Plants International and Food Plant Solutions, neither organisation, or the people involved in the compilation of the database or this Field Guide:

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- assume responsibility for sickness, death or other harmful effects resulting from eating or using any plant described in the database or this Brief Guide.

Always be sure you have the correct plant, and undertake proper preparation methods.

Compost - if it has lived once, it can
live again.

