

Food Plant Solutions Brief Guide to Food Plant Gardens in Ukerewe Island

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 in 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

Food Group:	Common Name	Scientific Name	Cultivation:	Use:	Nutrients:
Starchy Staples provide energy and dietary fibre.	Sweet potato	<i>Ipomoea batatas</i>	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. Sweet potato are not tolerant to shading. Under shaded conditions, both foliage growth and storage root production are decreased.	Tubers are boiled or baked. They can be steamed, fried, mashed or dried. They can also be used in pies, cakes, puddings and candies and jams. They can be used in noodles. The chopped and dried tubers can be boiled with rice or ground into flour and mixed with wheat flour to make cakes or bread. The young leaves are edible.	Energy, ProvitA.
	Bullrush millet	<i>Pennisetum glaucum</i>	Plants are grown from seed. It is usually sown directly into the field. The plant density is adjusted to suit rainfall and soil fertility. The spacing is 45cm apart up to 200cm apart. It is also intercropped with other crops such as cowpea, sorghum and peanut. Crops are normally weeded 2 or 3 times.	The seeds are eaten like rice. They are also ground into flour and made into bread and cakes and porridge. They are mixed with other grains and seeds to make fermented foods. Some kinds have sweet stalks that are chewed. The young ears can be roasted and eaten like sweet corn. The plant is also infested by a fungus which is eaten.	Energy, Protein, Iron and Zinc.
	Maize	<i>Zea mays</i>	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.	The cobs are eaten cooked. The dried grains can be crushed and used. The meal can be used for breads, cake, soups, stews etc. Maize is cooked and prepared in many different ways including: boiled, roasted, dried and steamed.	Energy, Protein, ProvitA and Iron.
Legumes provide protein for growth.	African yam bean	<i>Sphenostylis stenocarpa</i>	It can be grown from seed or tubers.	The pods, leaves, seeds and tubers are cooked and eaten. They are used in soups or with maize or rice. The hard seeds need to be soaked in water for 12 hours before cooking and being ground. The tubers are cooked and eaten.	Seeds: Energy, Protein and Iron.

Food Group:	Common Name	Scientific Name	Cultivation:	Use:	Nutrients:
	Jack bean	<i>Canavalia ensiformis</i>	It is grown from seeds. Seeds need to be 2cm deep. A spacing of about 60cm is suitable. Plants preferably need a support to climb over. Can be grown with maize/corn which would provide support for the bean plant.	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.	Energy, Protein, ProvitA and Iron.
	Pigeon pea	<i>Cajanus cajan</i>	They are grown from seeds. It is best to sow seeds where the plants are to grow. Seeds normally germinate easily and well. Before sowing seed it helps to soak them in cold water for one day. Seeds store well if kept cool and dry. A spacing of 1.5m x 1.5m is suitable. Plants can be cut back and re-grow.	Young leaves, shoots and pods are eaten. The pods can be used in curries. The leaves and shoots as potherbs. Young seeds are cooked and eaten like peas. Ripe seeds are also cooked and eaten in soups and curries. Bean sprouts can be produced and eaten.	Seeds: Energy, Protein, ProvitA, VitC, Iron and Zinc.
Leafy greens are a source of iron.	Flower-of-an-hour	<i>Hibiscus trionum</i>	Plants can be grown from seed or cuttings.	The shoots and leaves are cooked and eaten. The pods are used in soups and stews. The seeds are eaten raw.	Protein, Iron and Zinc.
	Balsam apple	<i>Momordica balsamina</i>	Plants are grown from seed or tubers. It climbs over fences and huts.	The young fruit are cooked as a vegetable. They are boiled or fried. They are also eaten raw. They are used in stews and pickled. They are used as a flavouring. The young leaves and tendrils are used as a potherb. The seeds are eaten after steeping in salt water and cooking. <i>Caution: The ripe fruit cause diarrhoea.</i>	Leaf: Protein, Iron Fruit: Energy, VitC, Zinc
	Fat hen	<i>Chenopodium album</i>	Plants are grown from seed. Seedlings can be transplanted at a spacing of 30cm.	The seeds can be ground into flour and used for bread, pancakes, muffins and biscuits. They contain saponin which should be leached out. The tender leaves are cooked and eaten as a vegetable. They are also used in stews and soups and in stir fries. They can be dried and stored for winter use. Young flowers are cooked and eaten. The sprouted seeds are edible.	Leaf (boiled): Energy, Protein, ProvitA, VitC, Iron and Zinc.

Food Group:	Common Name	Scientific Name	Cultivation:	Use:	Nutrients:
Fruit are an important source of vitamins and dietary fibre.	Cape gooseberry	<i>Physalis peruviana</i>	Plants are grown from seed. They are broadcast over the soil. Seeds should be 1.5cm deep in loose soil. Seed germinate irregularly. Plants should be spaced 45cm apart. Plants can be grown from softwood cuttings from the upper parts of the shoots. Seedlings can be transplanted.	The ripe fruit are eaten fresh or cooked. They are used for jam. They can be dried, preserved, stewed, pureed, or used in pies, cakes, jellies and sauces. Roasted seeds are pickled. The leaves have been used instead of hops in beer. The leaves are also boiled and used as a potherb.	ProvitA, VitC and Iron.
	Red Coondoo	<i>Mimusops elengi</i>	Plants can be grown from seed. The seed should be sown fresh. They germinate in 6-14 days. They can be transplanted when the first true leaf appears. They can withstand pruning.	Ripe fruit are eaten raw. They can be used in preserves or pickles. The kernels yield a fatty oil which can be used for edible purposes. It is used in cooking.	Energy, Protein and VitC.
	Canteloupe	<i>Cucumis melo</i>	They are grown from seed. The seeds are planted about 1-4 cm deep. Plants need to be 1-2m apart. Seedlings can be transplanted when about 10-15cm high.	The ripe fruit are eaten raw. They are also dried, candied and made into jams, jellies and preserves. The seeds are sometimes eaten. They are roasted. The seeds are blended with fruit juice to form a drink. Sometimes the immature fruit are cooked as a vegetable. The seeds contain an edible light oil. The young leaves are eaten as a potherb.	Seed: Energy and Protein. Fruit: ProvitA and VitC.
Vegetables are an important source of vitamins and dietary fibre.	Okra	<i>Abelmoschus esculentus</i>	They are grown from seeds. Seeds are easy to collect. They need high temperatures for germination (over 20°C) and a sunny position. Often seeds are soaked for 24 hours before sowing to give quick germination. Seeds are sown 1.5-2.5cm deep with 2-3 seeds per hole. Later these are thinned out to one plant. Seeds can be sown in nurseries and plants transplanted. Pinching out the tops of plants when 30cm high encourages branching. A spacing of about 90 x 45cm is suitable.	Pods are eaten cooked. They are also less sticky if a little lemon is added. Dried powdered seeds can be used in soups. It thickens the soup. They can also be pickled. Young leaves can be eaten cooked. They can be dried and stored. Flowers can also be eaten.	Energy, Protein, ProvitA, VitC, Iron and Zinc.

Food Group:	Common Name	Scientific Name	Cultivation:	Use:	Nutrients:
	Angled loofah	<i>Luffa acutangula</i>	Seeds are sown direct at 40 x 80cm spacing and need stakes to climb. Because seeds can have a hard coating soaking seed in water for 24 hours before planting can assist. The plant benefits from full sunlight. Good soil fertility is beneficial. The soil needs to be well drained and adequate organic matter helps. Pinching out the growing tips when plants are 1.5 to 2 metres long can promote fruit development. Hand pollination once female flowers develop helps fruit set. This is best done in the evening.	The immature fruit are cooked and eaten as a vegetable. The ridges are removed with a vegetable peeler. The fruit are boiled, steamed or stir-fried. They can be added to soups, stews and curries. The fruit skin is made into chutney. The leaves are edible. They can be eaten in salads or cooked as a vegetable. The flower buds are dipped in batter and sautéed. Mature seeds are roasted, salted and eaten as a snack.	Fruit: Energy Leaf: Protein, VitC and Iron.
	Chinese taro	<i>Xanthosoma sagittifolium</i>	Planted by using the top piece of the main central corm or stem. Pieces weighing 1.5kg are often used. It can also be grown by using the small side corms which may weigh 0.3 kg; or pieces of the corm can be used as long as they have some buds on them.	Cormels are eaten roasted or boiled. Young leaves can be eaten after cooking. The leaf stalks are cooked as a vegetable and also used in chutney.	Energy, ProvitA and Iron.

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.

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 size as you become more confident.
- If space is limited, remember plants can be successfully grown in containers or pots.

Tools and equipment:

- What do you need to turn over the soil, to plant seeds and seedlings (e.g. shovel, hand trowel, hoe) and how will soil be moved to cover seeds (e.g. rake). Can you borrow tools to reduce your start-up costs?

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 medium 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 seedlings directly transplanted.
- 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 either early in the morning, or late in 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.

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 Ukerewe Island” is a limited selection of food plants, which is 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 understanding of the important local food plants in Ukerewe Island. It is not a comprehensive guide of food plants for Ukerewe Island. 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 selected.

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 exists in the form of local plants, which are well adapted to the prevailing conditions where they naturally occur, 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

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