

Food Plant Solutions Brief Plant Guide for Machame



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.	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 30 cm 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 ways including boiled, roasted, dried and steamed.	Energy, Protein, ProvitA, Iron.
	Finger millet	<i>Eleusine coracana</i>	It is grown from seed. Often plants are grown mixed with sorghum or maize. Good soil preparation is needed to reduce weed competition. Young plants need to be weeded and thinned.	The seed are eaten either roasted or ground into flour. This is used for porridge and flat bread.	Energy, Protein, Iron, Zinc.
	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 planted in undug loose soils. It needs a sunny position. Tubers won't form if the ground is waterlogged when tubers start to develop. They are not tolerant to shading, where 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.
Legumes provide protein for growth.	Soybean	<i>Glycine max</i>	It is grown from seed. Seeds need to be inoculated with bacteria before planting. Plants need to be about 20cm apart.	The young pods and ripe seeds are eaten. They are used for flour. The dried seeds are boiled or baked and used in soups, stews and casserole. Toasted seeds are eaten like a snack. The young leaves can be eaten.	Energy, Protein, ProvitA, Iron.
	Pigeon pea	<i>Cajanus cajan</i>	Grown from seeds and best to sow seeds where the plants are to grow. 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 allowed to re-grow. Plants can also be grown from cuttings.	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.	Energy, Protein, ProvitA, Iron.

Food Group:	Common Name	Scientific Name	Cultivation:	Use:	Nutrients:
	Lablab bean	<i>Lablab purpureus</i>	Seeds are sown at 30 x 60cm spacing near stakes or trees. About 20 kg of seed per hectare are required. Fertilising with nitrogen and potash until flowering is recommended. Young pods are ready 4-6 months after planting and seeds 6-8 months. Pods are often harvested over 2 or 3 years	The young pods, ripe seeds and young leaves are edible, cooked. Flowers can be eaten raw, steamed or added to soups and stews. Dried seeds can be cooked as a vegetable. The seeds can also be sprouted then crushed and cooked. The large root is edible.	Seeds (dry):- Energy, Protein, Iron.
Leafy greens are a source of iron.	Prickly amaranth	<i>Amaranthus spinosus</i>	Plants are often self-sown. Plants can be grown from seed. They can be sown direct or transplanted.	The young leaves are edible cooked. They are boiled or fried. The seeds are ground into flour and cooked.	ProvitA, VitC, 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, Zinc.
	Silver spinach	<i>Celosia trigyna</i>	Plants are grown by seeds. Seeds germinate in 4-5 days. It grows for 90-120 days. Because the seeds are small they are best mixed with sand to give a more even distribution.	The young shoots and leaves are cooked and eaten. They are finely cut and used in soups, stews and sauces. They can be bitter and need extensive cooking or mixing with other foods.	ProvitA, Iron.
Fruit are an important source of vitamins and dietary fibre.	Banana	<i>Musa x paradisiaca</i>	They are planted from sword suckers. Suckers are usually put 30cm deep.	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.	Energy, ProvitA, VitC.
	Pineapple	<i>Ananas comosus</i>	The suckers and slips can be used for planting as well as the top of the fruit. The time to maturity is the fastest for the suckers near the bottom of the plant and slowest when the top of the fruit is planted.	The fruit is eaten fresh or used for juice. The fruit can also be sliced and cooked with ham. The fruit is used in ice cream, jams and juices. The young heart leaves can be eaten and cooked in curry dishes. Unripe fruit are also cooked and eaten. The flower spikes are peeled and sliced and steamed as a vegetable or added to stews.	ProvitA, VitC.

Food Group:	Common Name	Scientific Name	Cultivation:	Use:	Nutrients:
	Pawpaw	<i>Carica papaya</i>	Pawpaw seeds grow easily and plants grow quickly. Fresh seeds can be used, or if dry seeds are used they should be soaked before planting. Seeds should be planted with a temperature of 24-30°C. Seedlings can be transplanted when they are about 20cm high. Plants should be about 3m apart.	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.	ProvitA, Zinc.
Vegetables are an important source of vitamins and dietary fibre.	Pumpkin	<i>Cucurbita maxima</i>	They are grown from seed. Usually 2 or 3 seeds are planted together in a mound.	The young leaf tips are eaten cooked. They can also be dried and stored. The fruit can be eaten cooked. They are baked, boiled, fried, steamed or mashed. They are used in pies and cakes. The seeds are edible, raw or roasted. They are also ground into a meal. The male flowers are eaten after removing the stamen and calyx.	Seeds; Energy, Protein, Iron, Zinc. Leaves: ProvitA, VitC. Fruit: Energy.
	Choko	<i>Sechium edule</i>	The entire fruit is planted as the seed cannot withstand drying out. It is planted flat and thinly covered with soil. Often chokos start to develop shoots and roots while they are still attached to the original plant. These eventually fall off and continue growing if they fall on soft moist dirt. A spacing 2m apart along a fence is suitable. Trellis support is required. A well-drained fertile soil is needed.	The fruit are edible cooked. They can be pickled, baked, steamed, or made into fritters and puddings. The young leaf tips are eaten. The seeds can be eaten cooked. They are often deep fried. The fleshy root can be eaten cooked. They can be boiled, baked or fried.	Energy, Protein, ProvitA, VitC.
	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 0.3kg; 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, 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 Machame”, 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 Machame. It is not a comprehensive guide of food plants for Machame. 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

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:

- makes any expressed or implied representation as to the accuracy of the information contained in the database or the Field Guide, and cannot be held legally responsible or accept liability for any errors or omissions
- can be held responsible for claims arising from the mistaken identity of plants or their inappropriate use
- assume responsibility for sickness, death or other harmful effects resulting from eating or using any plant described in the database or this Field Guide

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