

Food Plant Solutions Brief Guide to Food Plants in Ghana

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.



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:

What do you need 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 should not occur in the heat of the day, and should preferably occur early in the morning, although sometimes late in the day may be more convenient. 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: 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.

Common name: Finger millet

Scientific name: *Eleusine coracana*

Cultivation: 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.

Use: The seeds are eaten either roasted or ground into flour. This is used for porridge and flat bread.

Nutrients: energy, protein, iron, zinc

Common name: Purple amaranth

Scientific name: *Amaranthus cruentus*

Cultivation: Plants can be grown from seed if the soil is warm. Seeds are small and grow easily. They can be put in a nursery and then transplanted after 2-3 weeks. Cuttings of growing plants root easily.

Use: The leaves and young plant are eaten cooked, or dried and stored. The seeds are ground into flour and used to make bread. **Caution:** This plant can accumulate poisonous nitrates if grown with high nitrogen inorganic fertilisers.

Nutrients: seed: energy, protein, iron; leaf: vitamin C, iron



Legumes provide protein for growth

Common name: Chickpea

Scientific name: *Cicer arietinum*

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

Use: Mainly the ripe seeds are eaten. They are often boiled and mashed. The young leaves, shoots and pods are sometimes eaten. Sprouted seeds are eaten. The seeds can be roasted, boiled, fried and used in soups and stews. When roasted they can be eaten as a snack. It is used to make flour.

Nutrients: energy, protein, iron

Common name: Lablab bean

Scientific name: *Lablab purpureus*

Cultivation: Seeds are sown at 30 x 60 cm spacing near stakes or trees. 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.

Use: The cooked young pods, ripe seeds and young leaves are edible. 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 starchy root is edible.

Nutrients: energy, protein, vitamin A, iron

Common name: Hausa groundnut

Scientific name: *Macrotyloma geocarpum*

Cultivation: Plants are grown from seeds. They are often intercropped.

Use: The seeds are cooked and eaten. They are boiled with salt and eaten with palm oil. They are also boiled in soup. Dried seeds are ground into flour and made into cakes and other dishes. The leaves are also cooked and eaten.

Nutrients: energy, protein, iron



Leafy greens are a source of iron

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, vitamin A, vitamin C, iron

Common name: Vegetable kenaf

Scientific name: *Hibiscus cannabinus*

Cultivation: It is usually grown from seeds but can be grown from cuttings. Seeds will last for about 8 months. Seeds germinate best at 35°C.

Use: The leaves are eaten cooked as a vegetable. They can be used as a substitute for tamarind in curries and in soups. The leaves are cooked with the aid of potashes. The seeds can be roasted or fermented. The seeds yield an edible oil. The flowers are eaten cooked as a vegetable. The bark is sweet and is chewed by children.

Nutrients: seed: energy, protein; leaf: 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: vitamin A, vitamin C, iron



Fruit are an important source of vitamins and dietary fibre

Common name: Cape gooseberry

Scientific name: *Physalis peruviana*

Cultivation: Plants should be spaced 45 cm apart. They regrow from seed each year. Do not plant seedlings or sow seed until all frosts are finished as they are frost tender.

Use: The ripe fruit are eaten fresh or cooked. They are used for jam or can be dried, preserved, stewed, pureed, or used in pies, cakes, jellies and sauces.

Nutrients: vitamin A, vitamin C

Common name: Tamarillo

Scientific name: *Cyphomandra betacea*

Cultivation: Plants can be grown from seed or cuttings. Seeds produce a high branched erect tree. Cuttings produce a lower bushier plant. Cuttings 60-90 cm long and 1-2 cm thick are suitable and should be taken from 1-2 year old wood. It has shallow roots, so needs careful weeding. Because the roots are easily damaged by nematodes, plants grafted onto nematode resistant rootstocks will live longer. Root rot fungus can make establishment in old gardens difficult. High humidity can cause stem rots. Young plants can be pruned to produce lower branches. Fruit is produced on new branches, so branches which have fruited can be pruned out. Flower pollination by wind can occur within the one plant.

Use: The fruit is eaten raw or cooked. The layer just under the skin can be bitter. The layer around the seeds is sweet. The seeds can be eaten or strained out. The outside skin is easily removed by immersing fruit in boiling water for 1-2 minutes. The fruit can be boiled, stewed, grilled, baked or pickled, or used in jams, jellies, chutneys, conserves, pies, preserves and sauces.

Nutrients: vitamin A, vitamin C

Common name: Gumvine

Scientific name: *Saba senegalensis*

Cultivation: Plants are grown from seeds. It is a creeper or liana that grows over 40 m long. The fruit are oval with yellow pulp that is sweet-sour, soft and edible.

Use: The fruit are eaten raw. They are also used for drinks.

Nutrients: fruit: vitamin C, iron



Vegetables are an important source of vitamins and dietary fibre

Common name: Moringa

Scientific name: *Moringa oleifera*

Cultivation: It is best to grow plants from 1 m long cuttings but they can be grown from seed. Properly dried seed can be stored for a long time in sealed containers in a cool place. They are fast growing. There is one variety that flowers and fruits continuously while another flowers and fruits once per year. The fruit ripens 3 months after flowering. Annual types produce fruit 6 months after planting.

Use: The young tops and leaves are eaten cooked. They are eaten as potherbs or used in soups and curries. They can be dried and stored for later use. The flowers are also used for curries. The very young long pods are eaten cooked, especially in curries and soup. They are also pickled. The young seeds are eaten roasted or fried. Sometimes the roots are used as a horseradish substitute. A gum from the bark is used as seasoning. The bark is used for tea. The roots, leaves, flowers and fruits are eaten cooked in water and mixed with salt and chilli peppers. The oil expressed from the seeds is used in salads.

Nutrients: seed: protein; leaf: protein, vitamin A, vitamin C, iron; flower: iron; pod: protein, vitamin C, zinc

Common name: Smooth loofah

Scientific name: *Luffa cylindrica*

Cultivation: Plants are grown from seed. Seeds are sown 4-5 cm deep about 1 m apart. It is best to have a trellis for the plant to climb on or be left to climb over trees.

Use: The young fruit are eaten as a vegetable. They are skinned and have the centre removed. They can also be sliced and dried for later use. They can be pickled or used in soups, stews and curries. The seeds yield an edible oil. The seeds are roasted with salt and eaten as a snack. The young leaves and flowers are edible. They are blanched by covering to make them white. **Caution:** Older fruit are bitter and fibrous and contain poisonous substances.

Nutrients: vitamin C, iron

Common name: Sweet potato

Scientific name: *Ipomoea batatas*

Cultivation: Vine cuttings are used for planting. It is grown in mounds, ridges, or other raised beds or in undug loose soils. It needs a sunny position. Enlarged roots will not form if the ground is waterlogged when enlargement starts to develop.

Use: Roots are boiled or baked. They can be steamed, fried, mashed, or dried. 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.

Nutrients: root: energy, vitamin A

Acknowledgements:

This guide is based on information from the Food Plants International (FPI) database developed by Tasmanian agricultural scientist Bruce French AO. "Food Plant Solutions Brief Guide to Food Plants in Ghana" 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 understanding of the important local food plants in Ghana. It is not a comprehensive guide of food plants for Ghana. 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. This Brief Guide has been funded by the Rotary Club of North Hobart.

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 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.

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

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



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V1 (English)