

Food Plant Solutions Brief Guide to Food Plants in the Magdelana Milpas Altas region

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: Sweetcorn

Scientific name: *Zea mays*

Cultivation: It is grown from seeds. It is normal to plant one seed per hole at 1-2 cm depth. A spacing of about 30 cm between plants is suitable.

Use: 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 ways such as boiled, roasted, dried and steamed.

Nutrients: energy, protein, vit A, 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. Tubers will not form if the ground is waterlogged when tubers start to develop.

Use: Tubers 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: tuber: energy, vit A

Common name: Chinese taro

Scientific name: *Xanthosoma sagittifolium*

Cultivation: They are planted by using the top piece of the main central corm or stem. Pieces weighing 1.5 kg 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.

Use: 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.

Nutrients: energy, vitA , iron



Legumes provide protein for growth

Common name: Pigeon pea

Scientific name: *Cajanus cajan*

Cultivation: 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. A spacing of 1.5 m x 1.5 m is suitable. Plants can be cut back and allowed to re-grow. Plants can also be grown from cuttings.

Use: Young leaves, shoots and pods are eaten. The pods can be used in curries. The leaves and shoots are used 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.

Nutrients: seed: energy, protein, vit A, iron

Common name: Scarlet runner bean

Scientific name: *Phaseolus coccineus*

Cultivation: It is grown from seeds. Seed are planted 2.5 cm deep. Plants are spaced 20 cm apart. It needs sticks to climb up. It can be allowed to re-grow from the tubers or the tubers re-planted.

Use: The very young pods can be eaten. They are boiled, steamed, baked etc. The seeds are edible. They are dried then soaked. The flowers have a bean like flavour and are used in salads. Young leaves can be used as a potherb.

Nutrients: energy, protein, iron

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



Leafy greens are a source of iron

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 C.

Common name: Amaranth

Scientific name: *Amaranthus hypochondriacus*

Cultivation: Plants can be grown from seed if the soil is warm. Seeds are small and grow easily. Seeds germinate 3-4 days after sowing. Cuttings of growing plants root easily.

Use: The seeds are eaten cooked. They are made into tortillas and chapaties. The leaves are eaten cooked. The seeds can be sprouted and eaten.

Nutrients: leaves: iron; seeds: energy, protein

Common name: Bottle gourd

Scientific name: *Lagenaria siceraria*

Cultivation: Seed should be soaked for fast and uniform emergence. Seeds are best sown in raised beds. Seedlings emerge in 5-7 days and can be transplanted if required. Fruit types vary because plants cross-pollinate. Removing young fruit to use as a vegetable will prolong the life of the plant and produce larger fruit. A spacing of 1-2 m is suitable. It prefers a trellis to climb. It grows fast and flowers 2 months after seeding.

Use: The young fruit are boiled as a vegetable. The skin and seeds are removed and can also be steamed, fried or pickled. Young tips and leaves are edible. They are often cooked with milk or coconut milk to improve the flavour. They are also mixed with other edible leaves. The seeds are sometimes eaten and provide an edible oil. Old fruit are used as containers, and the seeds are not normally edible.

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



Fruit are an important source of vitamins and dietary fibre

Common name: Guava

Scientific name: *Psidium guajava*

Cultivation: Trees can be propagated by budding, grafting, layering, root cuttings or stem cuttings. 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

Common name: Pawpaw

Scientific name: *Carica papaya*

Cultivation: 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 when temperatures are 24-30°C. Seedlings can be transplanted when they are about 20 cm high. Plants should be about 3 m apart

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.

Nutrients: vit A, zinc

Common name: Soncoya

Scientific name: *Annona purpurea*

Cultivation: Plants can be grown from seed.

Use: The fruit are eaten fresh. They are also used to produce a drink by straining the juice. The flowers and leaves are used in soups.

Nutrients: fruit: vit A, vit C, energy, iron



Vegetables are an important source of vitamins and dietary fibre

Common name: Choko

Scientific name: *Sechium edule*

Cultivation: 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 soil. A spacing 2 m apart along a fence is suitable. Trellis support is required. A well-drained fertile soil is needed.

Use: The fruit are edible when 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.

Nutrients: energy, protein, vit A, vit C

Common name: Cassava

Scientific name: *Manihot esculenta*

Cultivation: Cassava is planted from 15-20 cm long sections of mature woody stem.. 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 any time of the year but needs moisture to get started. Once established it can survive several months without rain.

Use: 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: Marrow, Zucchini

Scientific name: *Cucurbita pepo*

Cultivation: They are grown from seeds which germinate after one week, or from cuttings. They are best planted on mounds with 2-3 m spacing between plants. Hand pollination assists fruit set.

Use: Young fruit are eaten steamed, boiled or fried. They are used in pies, soups, stews, and cakes. Young leaves and ripe seeds can also be eaten cooked. The seeds are dried, salted and toasted and eaten as a snack food. The sprouted seeds are used in salads.

Nutrients: fruit: vit A, iron; leaf: vit A, vit C; seeds: energy, protein, iron



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 the Magdalena Milpas Altas region" 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 the Magdalena Milpas Altas region. It is not a comprehensive guide of food plants for Magdalena Milpas Altas. 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 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.

