Rotary | FOOD PLANT SOLUTIONS ROTARY ACTION GROUP
Solutions to Malnutrition and Food Security

Food Plant Solutions Brief Guide to Food Plant Gardens in Narrandera

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. 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?

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.

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.

Starchy Staples provide energy and dietary fibre				
Common Name	**Scientific Name**	**Cultivation:**	**Use:**	**Nutrients:**
Oca	*Oxalis tuberosa*	Plants are grown from tubers or cut pieces of tubers which contain 1-3 eyes. Planting is normally done at the beginning of the rainy season or Spring as soil temperatures increase. Plants are weeded and soil mounded around them. A spacing of 20-40 cm x 20-36 cm is recommended.	The tubers are acid when fresh but are dried slightly then cooked and eaten. The bitter kinds are freeze dried and stored for later use. They can be used in soups and stews. The young leaves and shoots can be eaten. **Caution:** Fresh tubers contain oxalates, which affects calcium absorption.	Tuber (cooked): Energy
Quinoa	*Chenopodium quinoa*	Grown from seeds sown directly where to be grown. Rates of 15-20 kg of seed per hectare are used. Normally a range of varieties are mixed to allow for variations in conditions.	The seed is used for soups and stews. They can be puffed or eaten as a side dish like rice. The seeds can be eaten or ground into flour. Young leaves can be cooked and eaten as a vegetable. Sprouted seeds are used in salads. The flower clusters are steamed like broccoli.	Seed: Energy, Protein. Leaf: Vit A Vit C

Jerusalem Artichoke	*Helianthus tuberosis*	Plants are grown from vegetative setts. These can be dormant for 7 months before they will grow. The flowers on the plants are removed to increase the yield. Plants can be grown from seed. Tubers are often sweetest after a frost.	The tubers are eaten boiled or baked. They can be steamed, fried, pickled, pureed, or used in soups and casseroles. They can be eaten raw in salads. They are suitable for people with diabetes. Roasted tubers are used as a coffee substitute.	Energy

Legumes provide protein for growth				
Common Name	**Scientific Name**	**Cultivation:**	**Use:**	**Nutrients:**
Soybean	*Glycine max*	It is grown from seed direct planted or in a nursery and then plants transplanted to the garden. Plants need to be about 20cm apart. *Plant in garden in spring once all frosts have finished.*	The young pods and ripe seeds are eaten. The dried seeds are boiled or baked and used in soups, stews, and casseroles. Toasted seeds are eaten like a snack. The young leaves can be eaten.	Energy, Protein, Vit A, Iron

Pea	*Pisum sativum*	Plants are grown from seed. Seed can be collected for re-sowing. A spacing about 5cm apart in rows 25cm apart is suitable. Seed can be 3-5cm deep. If rotting is a problem, plants can be supported off the ground.	Mostly the young seeds are eaten. They can be eaten raw or cooked. Sometimes the young pods and leaves are eaten. The flowers are eaten in salads. The sprouted seeds are eaten. The young leaves and buds are cooked as a vegetable. The dry seeds are eaten. They are used in soups and stews and ground into flour.	Seed (raw): Protein, Vit A, Iron Seed (boiled): Vit A
Lucerne sprouts (Alfalfa)	*Medicago sativa*	Plants are grown from seed sown where they are to grow. Plants can be 10 cm apart. Plants can be cut back to encourage new growth for the young leaves.	Seeds are often sprouted, and the young sprouts eaten raw. Young leaves are eaten cooked. They are often lightly cooked and added to meat dishes. The seeds can be ground into flour for bread. The dried and powdered leaves and flowers can be used as tea.	Seed (sprouted): Energy, Protein, Vit A, Vit C

Leafy greens are a source of iron				
Common Name	**Scientific Name**	**Cultivation:**	**Use:**	**Nutrients:**
Silver beet	*Beta vulgaris subsp. cicla*	A spacing of 30cm between plants is suitable. Seed are sown 2.5cm deep.	The leaves and stalks are cooked and eaten. They can be eaten raw in salads. The leaf stalks can be cut from the leaf and cooked separately as an asparagus substitute.	Vit A, Vit C, Iron and Zinc
Cabbage	*Brassica oleracea* var. *capitata*	Plants are normally first grown from seeds, but they can re-grow from cuttings or sprouts that develop on the cut stalk.	The leaves can be eaten raw or cooked.	Leaf (raw): Vit A, Vit C
Spinach	*Spinacia oleracea*	It is normally sown directly from seeds. Plants need to be 25 cm apart.	Leaves are cooked in a small amount of water. They are also used in soups and salads. Young leaves are eaten raw and older leaves are cooked. The sprouted seeds can be used in salads. **Caution**: Spinach can contain oxalates which affects calcium absorption.	Vit A,Vit C, Iron

Fruit are an important source of vitamins and dietary fibre				
Common Name	**Scientific Name**	**Cultivation:**	**Use:**	**Nutrients:**
Strawberry	*Fragaria x ananassa*	Plants are grown from runners. These runners form roots and then new plants. Plants are spaced about 45cm apart in rows 75cm apart.	The ripe fruit are eaten raw. They are also used in desserts, jams, preserves and for flavouring.	Vit C
Cape Gooseberry	*Physalis peruviana*	Frost tender. Plants should be spaced 45cm apart. They regrow from seed each year. *Do not plant seedlings or sow seed until all frosts are finished.*	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.	Vit A, Vit C
Raspberries	*Rubus idaeus*	Rooted cuttings are used. Soft wood cuttings can be used. Fruit are usually produced on one year old canes. After harvesting the fruit bearing canes are cut at ground level and removed.	The fruit are eaten raw. They are also used in jams, drinks and for sweets. Young leaves can be cooked and eaten as a vegetable. Dried leaves are used as a substitute for tea.	Energy, Vit A, Vit C

Vegetables are an important source of vitamins and dietary fibre				
Common Name	**Scientific Name**	**Cultivation:**	**Use:**	**Nutrients:**
Leek	*Allium ampeloprasum var. porrum*	They can be grown from seed. Seedlings can be transplanted when 15-20 cm tall. The base of plants or suckers may be used for planting. If plants are planted in a hole 10-15 cm deep they develop long white edible stalks. The soil should be mounded up around the base of the plant. A spacing of 15-20 cm between plants and in rows 30-36 cm apart is suitable.	The whole plant is boiled, stirfried and added to casseroles, except for the tops of the leaves. They can also be eaten raw. Sprouted seeds are eaten.	Vit A, Vit C, Iron
Broccoli	*Brassica oleracea var. italica*	The seeds are planted in a nursery then transplanted after 4-6 weeks. A spacing of 60 cm x 60 cm is suitable.	The central flower is cooked and eaten. The leaves are edible. The sprouted seeds are eaten.	Vit A, Vit C, Iron, Zinc

Carrot	*Daucus carota subsp. sativus*	They are grown from direct sown seed. The seed are very small, mix with sand before sowing to allow a more even distribution of plants. A spacing 5cm apart in rows 15-20cm apart is suitable. Often this spacing is achieved by thinning out plants.	Both the roots and the leaves are edible. The young leaves are used in soups. The roots can be eaten raw or cooked, steamed, fried, pickled, made into jam, or used in stews. Carrot seed oil is used as a flavouring. The juice is used raw and fermented. The roots can be dried and the flour used to flavour and thicken soups.	Vit A, Vit C, Iron, 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 "Narrandera, NSW" 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 Narrandera, NSW. It is not a comprehensive guide of food plants for Narrandera, NSW. 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:

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