

GOOD GARDENING AND GROWING ROOT AND GRAIN CROPS IN ADDIS ABABA, ETHIOPIA

*PRACTICAL WAYS OF GROWING LOCAL
FOOD PLANTS AND DOING IT WELL*



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



A project of the Rotary Club of Devonport North and
District 9830 www.foodplantsolutions.org



NUTRITION 4 EDUCATION & DEVELOPMENT

Good gardening and growing root and grain crops in Addis Ababa, Ethiopia



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Food Plant Solutions produces educational materials to enable people to understand the nutritional value of local food plants and increase awareness of highly nutritious plants that are adapted to the local environment. Some of these plants are under-utilised species and many are superior to imported foods and plants. Food Plant Solutions produces these materials because every minute of every day, five children under the age of five die from malnutrition.

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We welcome and encourage your support.

Food Plant Solutions - A project of the Rotary Club of Devonport North & Rotary District 9830.

This booklet is based on information from the Food Plants International (FPI) database developed by Tasmanian agricultural scientist Bruce French, AO.

Version 1, Dec 2025 (English)

Good nutrition is simple

Grow and eat a wide range of food plants.
Then if a nutrient is missing from one plant, it will be included in other plants and produce a balanced diet.



Bush okra



Sweet potato

Healthy Diets

All people, and especially children, should eat a wide range of food plants to stay healthy. This should include some plants from each of the food groups – energy foods, growth foods and health foods. Then each of the nutrients required by our bodies will be met in a balanced manner.

Health food



Avocado

Energy food



Oats

Growth food



Soybean

Local plants give a regular food supply

Use a range of local or well adapted plants to get a regular supply of food.



African cabbage

Because they are local, they will have already survived local conditions and pests.



Carrot

They each have different ways to survive poor conditions or seasons.



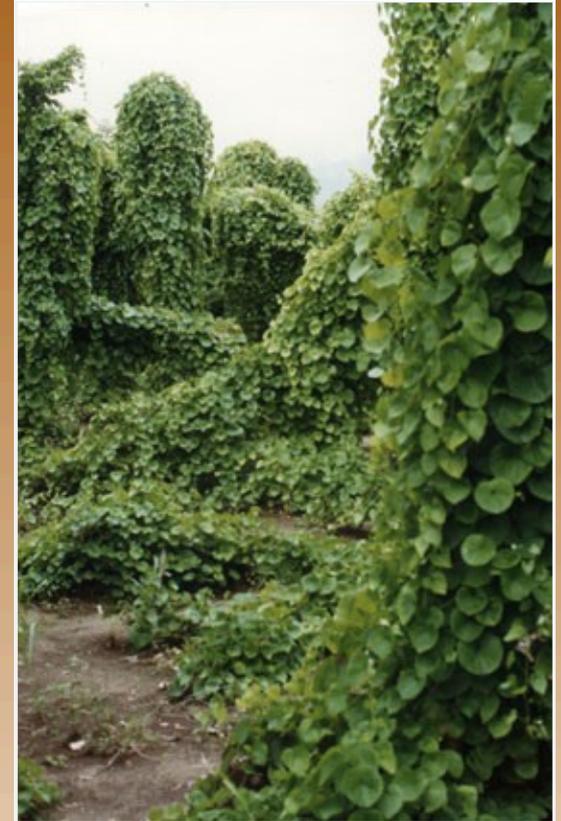
Banana

Good gardening practices

Good practices can help grow productive plants and avoid pests and diseases:

- **Grow the right plants in the right places**
- **Grow local, resistant varieties**
- **Grow them well, so they stay healthy**
- **Use a mix of varieties and crops**
- **Avoid using diseased plants for planting material**
- **Improve the soil with compost, cover crops and nutrients**

Agroecology - growing plants a natural way



Growing foods in a mixed garden is a good and simple way to reduce pests and disease.

Agroecology - how plants grow in nature

Plants don't grow in rows in nature.

Growing only one type of plant is not used in nature.

Lots of varieties are maintained in nature.

In nature, the right plant grows in the right place.

In nature, fruit is produced in season.

Nutrients are recycled in nature.

Natural systems are sustainable.

In nature, the soil remains alive and humus rich.

Mixed cropping is good

Amaranth and maize mixed.



Yams, bananas & vegetables.

Plants for garden beds



Sweet potato



Tomato



Broccoli



Bush okra

Plants for garden edges



Cumin



Fenugreek

Larger plants can be grown around the edges of gardens.



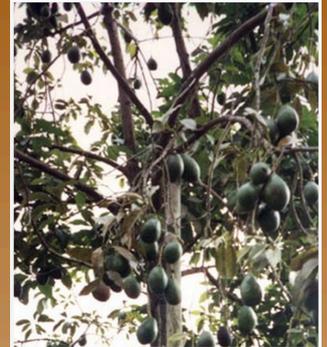
Garlic



Bird's eye chillies

Fruit and nut trees for around houses

Fruit to be enjoyed by all. Some need to be planted for the future. Many fruit are seasonal. Some grow quickly.



Avocado



Papaya



Lemon



Banana

Plants to climb on fences

Many plants can be grown on fences around houses and gardens.



Cucumber



Scarlet runner bean



European grape



Pea

Information on gardening



Deficiencies

We all need to learn together and share what we know.



Seed-saving



Pests



Diseases

Are your plants healthy?

Plants show special signs when they are not growing well.

This maize leaf is indicating the plant is short of a nutrient called nitrogen. It shows a dry 'V' shape down the centre of the oldest leaves.

Other grass plants show similar signs.

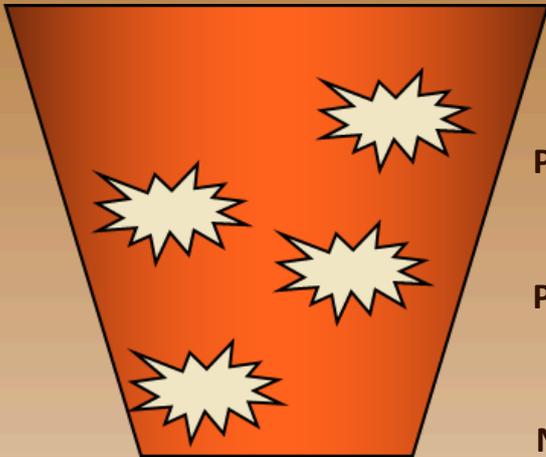
Nitrogen is in the air, but plants cannot use it unless small bacteria in the soil, and on the roots of bean family plants, change it into a form plants can use.



A bucket of nutrients!

If we imagine soil as being like a bucket of nutrients, then we need to fix the lowest hole, (or add the nutrient which is in shortest supply), before the bucket can carry anything more.

We can learn to recognize which nutrients are in shortest supply by looking at plants carefully.



Phosphorus



Potash



Nitrogen



Different plants grow on different soils



Yams need fertile soil



Taros need good soil



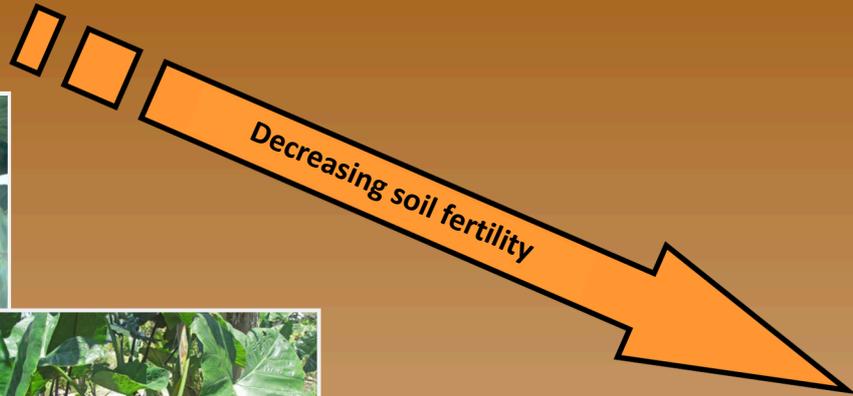
Chinese taro can grow on moderate soils



Sweet potato grows on poorer soils



Cassava will produce on poor soils



Most root crops produce more food if the soils are rich in potash. Ashes from fires have potash.

When nitrogen is short...

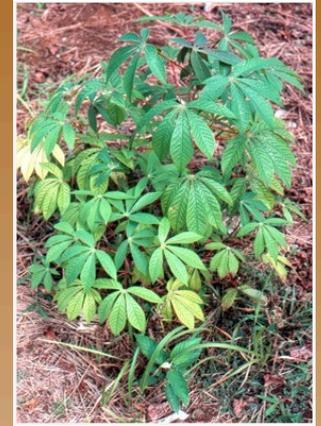


**Pineapple plants
turn red.**

**Nitrogen is important for plants to
grow healthy leaves.**



**Grass plants have a dead 'V'
shape in the old leaves.**



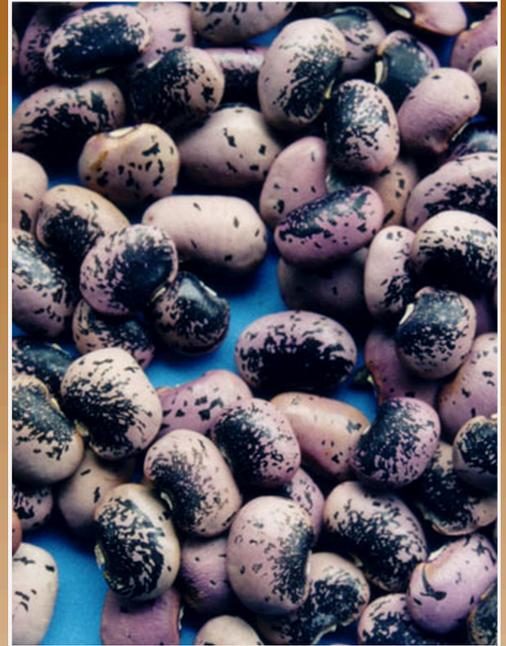
**Old leaves go
yellow.**

Beans provide protein and restore soils

Beans have special bacteria attached to their roots that allow them to take nitrogen from the air and put it into the soil for plants to use. It is free fertiliser!



Soybean



Scarlet runner bean

Climbing beans can be allowed to climb up maize in gardens and still get good crops of both beans and maize.

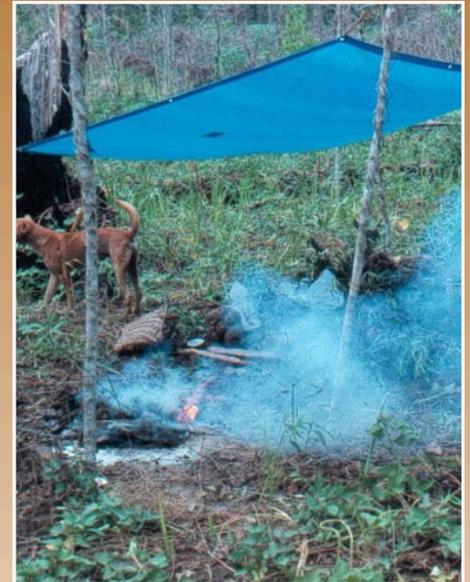
Burning loses nutrients and destroys soils

Burning is a quick and easy way to clear up a garden site, but wherever possible, plant material should be left to rot back into the soil.

This provides nutrients and helps the bacteria and other living things in the soil that are so important for plant growth.

A soil with humus, or rotted plant material, does not lose nutrients during heavy rain.

Nitrogen (and Sulphur) get lost into the air as plant material is burnt. Other plant nutrients, like potash, remain in the ashes.



Making compost



Don't burn rubbish - compost it!

**Compost is perfect for
small backyard gardens.**



How to make compost

The rules for compost making:

- **Build a simple, open box to keep animals out.**
- **Add some old rotting material to start the process.**
- **Mix green leafy and dry plant material.**
- **Allow air to get into the compost.**
- **Keep the compost bed moist.**
- **Add anything that has been living before.**
- **If possible, turn the heap to allow it to heat up and break down properly.**

The compost process

Small bacteria and other living things work hard to break down old plants and other living things into compost.



Because the bacteria are living, they need continual air and water, and a balanced diet of green and dry waste, or they die.

Living things already have plant nutrients in perfect balance for new plant growth, so compost is the perfect fertiliser.



To stay healthy, soil needs lots of compost and organic matter to do all the amazing work that goes on unseen within the soil.

Compost should become hot enough to kill weeds and pests.

Air-layering

Air-layering is a special way of taking cuttings. A shallow cut is made around a small branch while it is still on the tree. Some soil and mulch is wrapped around this and covered with plastic. It soon forms roots. It can then be cut off and planted.



If a sweeter or preferred fruit or nut is found, it is best to grow it from cuttings, or air-layering, so the new tree is the same as the old.

Save your own seed

Plants grown from seed that is saved locally usually get a lot less disease, as they are adapted to the area.



Root and grain crops in Addis Ababa, Ethiopia

Many root and grain crops
suit the climate of Addis
Ababa, Ethiopia.

These foods are the
backbone of the country, so
we need to get to know
them very well.



Oats



Maize



Teff



True millet



Rice

Root and grain crops provide energy

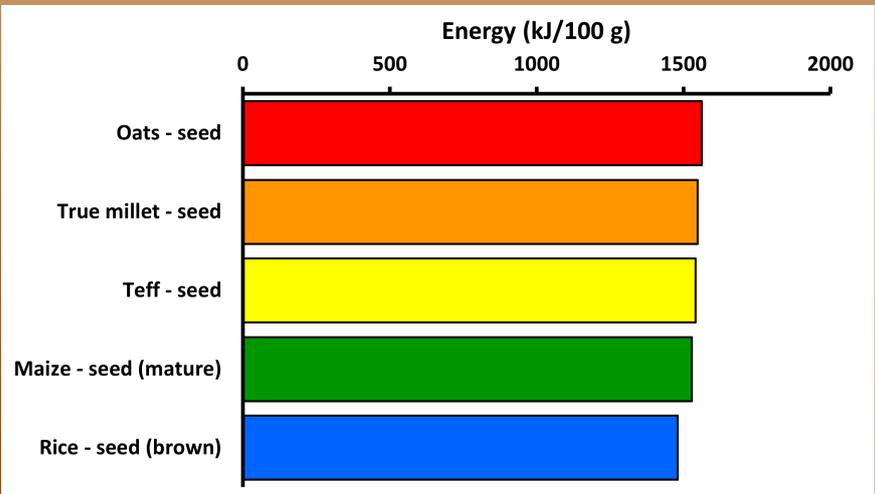
Oats



Root and grain crops are important foods for energy.



True millet



Oats

- Plants are grown from seed.
- The young seedlings are juiced or dried and used as a food supplement.
- Sprouted seeds are used in salads.



Avena sativa



The seeds are used as food after the outer layer is removed. They are used as rolled oats, porridge, breakfast foods and in cakes and biscuits.

True millet

- Seeds can be cooked and eaten whole or ground into flour for making bread, pasta or dumplings.
- They are often browned in a skillet before using in casseroles, stews and for stuffings.



Panicum miliaceum

The seeds can also be sprouted and used in soups and salads.



Maize

- Maize is grown from seeds.
- The cobs are eaten cooked.
- Dried grains can be crushed and used for breads, cake, soups, stews.



Zea mays



Maize is cooked and prepared in many ways such as boiled, roasted, dried and steamed.

Rice

- Plants are grown from seed.
- Huskless grains are boiled and eaten.
- Can be made into flour, desserts and noodles.
- Sprouted seeds are eaten in salads.



Oryza sativa



Young seedlings
can be used as a
vegetable.



Teff

- The seeds of teff are ground into flour.
- It can be used in stews and for making unleavened bread.



- Early varieties of teff mature in 90-120 days, later varieties take 120-160 days.



- Seeds can be stored for many years.



Eragrostis tef



Acknowledgements



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Review, layout and formatting - Alexandra Lindsay, John McPhee

For further details contact us at: info@foodplantsolutions.org, website: www.foodplantsolutions.org
Food Plant Solutions operates in accordance with Rotary International Policy but is not an agency of, or controlled by, Rotary International.

Image acknowledgements

Most images used in this publication are from the Food Plants International database ([Welcome - Food Plants International](#)). Acknowledgement is given for images of the following plants sourced from the internet.

Scientific name	Common name	Image URL
<i>Musa spp.</i>	Banana	https://cdn.pixabay.com/photo/2021/10/31/15/03/banana-6757733_1280.jpg
<i>Panicum miliaceum</i>	Common millet	https://florafinder.org/LargePhotos/DB/Panicum_miliaceum-D6C651C80B.jpg
		https://www.karengardentips.com/wp-content/uploads/garden/2021/04/PANICUM_MILIACEUm-Wikipedia.jpg
		https://www.plantarium.ru/dat/plants/3/333/617333_7ef32bd9.jpg

Notes



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