



FANRPAN
Food, Agriculture & Natural Resources Policy Analysis Network

2021

HOME GARDEN RECOMMENDATIONS



INTRODUCTION

Home gardens are important in ensuring food security and good nutrition. They enhance consumers' access to fresh, wholesome foods, thus improving dietary diversity. By growing food at home, families are able to save money that they would have used to buy from the market. In addition, families that have home gardens can gain income from selling the surplus produce, which enables them to buy other nutritious foods that they are unable to grow. Increased dietary diversity and the ability to buy other nutritious foods helps to keep families healthy and prevent malnutrition. This guide provides some basic recommendations on how to grow vegetables within the homestead or home environment. It also provides information on good gardening practices that increase the yield. In addition, recommendations are included on how to harvest, process and store products from the home garden.



WHY IS IT IMPORTANT TO HAVE A HOME GARDEN?

- Improves the variety of foods in your home.
- Availability of fresh vegetables most of the times.
- Saves you money because you will not be buying vegetables.
- Increases your income when you sell extra vegetables to your neighbours and friends in your community.
- Income gained from selling vegetables can be used to pay for other foods which you are not able to produce, pay school fees for your children and other expenses.
- Income from vegetable sales gives women a chance to contribute towards household expenses.
- Gardening helps the family to exercise and keep fit by working in the garden.





HOW TO START A NUTRITION GARDEN

- If you do not have experience, start with a small garden or grow your vegetables in a container, then increase gradually.
- Locate your garden close to a water source for easier watering, and where there is good sunlight. Most vegetables require 6 - 8 hours of sunlight a day.
- Create a foot path to avoid stepping on your crops when working in the garden.
- Get tools needed for gardening, such as a shovel, fork, watering can, hoe, flat spade and pointed spade.
- Erect a fence around your garden to protect it from animals and thieves. The fence can also provide support to climbing vegetables and fruits such as tomatoes, cucumbers, green beans and small fruit trees.
- Plant trees or plants to shield your garden from excessive winds. The shade from plants also reduces the need for watering.
- Remove tins, bottles, pieces of glass, trees and shrubs to clear the land for the garden.
- Level your ground and make a slope for growing your vegetables. Make a drain at the lower and upper part of the slope to allow water to flow easily and avoid flooding. Make sure the slope is not too steep to prevent soil erosion and the possible washing away of your plants by rainwater.
- Dig about 25-30cm into the ground to loosen and mix the soil and wait for a month before planting.
- Use good quality seeds for growing your vegetables.
- Other than seeds, vegetables may be grown through grafting or planting bulbs, tubers, stems and other parts of a plant.
- Cover the garden with mulch to keep weeds away and keep the ground moist. This reduces the need for constant watering. You can cover the ground with damp newspapers and walk over the covered surface to maintain moisture and prevent the growth of weeds.
- Apply compost to keep the soil in good health. You can collect kitchen waste, dry leaves, manure, weeds, ash and grass for making your compost.
- Add fertiliser and liquid or animal manure to keep your soil healthy and to encourage your vegetables or plants to grow well.
- Rotate your plants to prevent disease.
- Water your garden with recycled water and harvested rainwater.
- Drip irrigation helps you to water your plants more efficiently and save water.





WHAT IF YOU DO NOT HAVE ENOUGH SPACE TO START A VEGETABLE GARDEN?

- You can plant your vegetables and fruits in containers.
- Make sure your container allows for proper water drainage. Choose or make a container with drainage holes at the bottom.
- A good container holds 1-5 gallons of soil. Herbs can grow in smaller containers, whilst vegetables such as cucumbers, cabbage, tomatoes and beans need bigger containers.
- Do not use containers that were previously used for keeping toxic substances or poisons.
- Use organic soils for planting your vegetables in containers.
- Water your seeds immediately after planting.
- It is advisable for you to plant seed twice as deep as their size.
- You can keep your plants indoors before transplanting them to a garden or bigger container outside.
- Water your plants or garden at dusk or early morning when it is not too hot. Watering during the afternoon might not be helpful because of evaporation.
- Tie strings or use sticks to support heavy vegetables or those that grow out of control, e.g. tomatoes, squash, cucumbers and peas.
- You can talk to your neighbours and ask for permission from authorities to start a community garden at a local clinic, school, church or communal land.



CROP MANAGEMENT STRATEGIES

CROP ROTATION

- Vegetables or crops in the same family should not be replanted in the same position of the garden year after year. Tomatoes, green peppers and potatoes belong to the same family, whilst peas and beans are in another family. Pumpkins and watermelons are also in their own family.
- Rotate crops to destroy pests that feed on specific types of crops.

The table shows vegetables in similar groups.



| VEGETABLE FAMILIES | |
|-------------------------|--|
| FAMILY | EXAMPLE |
| Cucurbitase | Cucumber Pumpkin Squash Watermelon |
| Leguminosae | Groundnut Soybean Long bean Cowpeas Pigeon peas Bambara nut |
| Solanaceae | Chili Eggplant Tomato Potatoes Peppers |
| Brassicaceae | Cabbage Kale Cauliflower Broccoli Chinese cabbage |
| Roots family | Carrots Beet Sweet potatoes Yams |
| Allium family | Garlic Onions Shallots Leek |
| Goosefoot family | Beet Spinach |

INTERPLANTING

- Interplanting is another important gardening method which helps to prevent weeds, and maximises the use of the land and minerals. An example of interplanting is when tall or climbing vegetables are planted together with short ones. In this case, the shorter crops will help to keep the soil moist. When interplanting, plants should be 10 to 15 cm apart.

INTERCROPPING

- Intercropping/ mixed cropping is the planting of different crops in the same garden, for instance, legumes and vegetables
- Intercropping helps to prevent crops from being attacked by pests and also saves water.
- Intercropping helps to improve soil fertility.
- When intercropping, it is best to plant four different plants in the same garden to prevent pests and diseases.



SOIL MANAGEMENT

- Cover the soil with mulch to prevent soil erosion.
- Planting pigeon peas helps to improve soil fertility.
- Raised beds drain excess water and lead to the best results for your plants. Raised beds can be used in clay soils, but not sandy soils.
- You can make liquid manure by filling three-quarters of a plastic container with green leaves of plants (for example castor beans, amaranth, and pigeon peas) and a little bit of water. The container should be closed to allow the leaves to rot for about two weeks. The strong-smelling liquid should be diluted until it doesn't smell too much and then added to crops.



CONTROLLING WEEDS

- Remove weeds regularly as they compete for nutrients with your crops and reduce the yield of your produce.
- Plant tall and short crops together. The shorter crops will cover the soil and reduce the need for weeding and watering.
- Weeds can be used to make compost.

PEST MANAGEMENT

- Grow herbs such as garlic and chilli because their strong smells discourage pests from attacking your garden produce. Plant herbs around the edge of your garden to keep pests away.
- Clean your garden regularly and remove rotten fruit which attracts pests and animals that might attack your crops.
- Planting different types of plants (intercropping) in the same garden helps to keep away pests, e.g. onions and tomatoes.
- You can use strong smelling substances such as onions, garlic and chilli to make a pesticide that prevents pests from attacking your crops.
- Make a chilli and garlic spray to kill pests that might attack your plants. Chop 5 chillies and 5 cloves of garlic and soak them overnight in 1 litre of boiling water in a plastic container. Remove the solid garlic and chillies and add 1 tablespoon of dishwashing liquid, then shake until you see bubbles. Apply the liquid to the leaves of the plant affected by pests.
- You can also physically remove pests from leaves, fruits and shoots using your hands.



FOOD SECURITY

- For continued food supply, plant crops that produce more than one year/season such as moringa, pigeon pea, cassava and fruit trees.
- After harvesting your produce, plant new ones for a continuous supply of vegetables.
- Staggered planting where you plant at regular intervals e.g. every 4 weeks, help you to have a constant supply of food.
- Keep livestock such as chicken, goats and rabbits to have variety in your diet, e.g eggs, meat and milk.
- Gather wild fruits, vegetables, and insects to add variety to your diet.



HARVESTING

- Harvest fruits and vegetables when they have matured.
- Handle your produce with care and as little as possible to avoid damaging and infecting it with germs.
- Keep harvested produce under a shade and sort it according to size, maturity and quality, i.e. separate ripe fruit from unripe fruit.
- Remove stems from apples, tomatoes and oranges which might cause bruising to others.
- Use newspapers, banana leaves and dry leaves to line containers used for storing produce after harvesting.
- Do not over pack your produce to avoid squashing and damaging it.
- Do not harvest fruits or vegetables that have been recently sprayed with a pesticide. Follow the manufacturer's instructions on when it is safe to harvest and consume to avoid getting sick.
- It is best to harvest early in the morning or later in the afternoon when it is cool.



PRESERVATION OF PRODUCE

- You need to preserve your produce within 48 hours after harvesting and store it properly to prevent it going bad or wasting.
- Green vegetables start to lose vitamin C from the time they are harvested.
- Grains and legumes can stay fresh for a bit longer compared to vegetables.
- Besides avoiding wastage, preservation enables you to enjoy a variety of foods even when they are not in season.

Below are a few methods that you can try for preserving your produce



BLANCHING

Blanching vegetables before drying lengthens their shelf life as well as maintaining their taste and appearance.

- Wash vegetables and remove any unwanted parts stems.
- To blanch vegetables, boil for a short time or steam them.
- When steaming, the vegetables should not come in contact with water. The vegetables should be on a wire basket/clean rocks covered by sticks above the boiling water. Boil for 1-3 minutes until they are soft.
- Another method to steam is by wrapping vegetables in a piece of cloth and placing it over a pot with boiling water.
- Do not blanch onions, garlic, okra and chillies.



DRYING

Drying fruits and vegetables helps to remove moisture that promotes the growth of germs that cause food to go bad.

- Drying makes your produce become concentrated (packed) with nutrients. (Nutrients are substances in food that your body needs to function properly).
- Foods that can be dried include bananas, mangos, paw paw, cassava, onions, okra, green leafy vegetables, guava, okra and sweet potatoes.
- Meat, fish, insects, mushroom and beans can also be dried.
- There are three main ways for drying food. These are direct sun drying, shade drying and solar drying in a closed solar drier. Direct sun drying where food is directly exposed to the sun until it loses moisture is not advisable. Exposing food directly to the sun leads to significant losses of vitamins.



DIRECT SUN DRYING

- Direct sun drying where food is directly exposed to the sun until it loses moisture is not advisable. Exposing food directly to the sun leads to significant losses of vitamins.



SHADE DRYING

- Shade drying is done under a shade structure with open sides.
- Slice your food/produce about 1 cm thick to make the drying process quicker.
- Leafy vegetables that are thin can be dried whole, e.g. amaranth leaves.
- Onions, garlic, and chillies are dried whole and can be hung around the shade.
- Place food on trays or mats and put them under the shade on a raised stand or table. Food should not be put on the ground because it can be mixed with dust or soil and other dirt.
- Turn your food daily for it to dry quickly.
- Drying in the shade takes longer but is better than drying in the sun when it comes to maintaining the vitamins and minerals in the food.
- Avoid drying your vegetables in the sun because the sunlight and high temperatures destroy vitamins, especially vitamins A and C.





SOLAR DRYING

- If you want vegetables to dry quickly without losing a lot of nutrients, solar dry them.
- You can make a box or a container of any shape using wood, and black and clear plastic for drying vegetables
- When you put produce in the solar dryer, the sun will make the air hot inside it and remove moisture from the food.
- The warm air with moisture escapes through the opening at the top of the dryer, whilst fresh air comes in through the holes at the bottom.
- The process continues until your food is dry.



CURING

Curing is mostly applied to roots, tubers and bulbs, e.g. cassava, sweet potatoes, potatoes, pumpkins and yams.

- Curing prevents your food from going bad by hardening the out layer. It also cures wounds or bruises on the produce.
- To cure your food, leave it to dry under shade where it will form a thin layer that prevents germs from getting into it.
- Depending on the type of food, curing takes about 4 to 7 days at a temperature around 30 degrees Celsius.

FOOD STORAGE

- Wash all fruit and vegetables with clean water and dry them before storing.
- Dried and cured foods should be stored in appropriate containers that are clean, dry, dark and can be closed without allowing air inside.
- Some foods can be stored as flour, for example bananas, cassava, sweet potatoes and pumpkins.
- Most vegetables need to be stored in cool temperatures.
- Avoid storing food that has damaged skin or is bruised.
- Soft fruits and vegetables should not be stored.
- You can store root vegetables in dry pits. The pits should be lined with dry materials such as grass.



COOKING VEGETABLES



- To avoid Vitamin C losses, it is better to tear leafy vegetables than cutting with a knife. If cutting vegetables do not use a blunt knife.
- Avoid using bicarbonate of soda, for example when cooking okra and other green vegetables to prevent the loss of vitamins. You can use ash instead of soda.
- Frying your vegetables in oil helps vitamin A to be easily absorbed by the body.
- It is better to steam your vegetables without boiling them. To steam vegetables, place them on a sieve on top of a pot with boiling water. Make sure the vegetables do not get in contact with water.
- If you prefer to boil vegetables, remember to boil for only a short time. Boiling dissolves some vitamins in vegetables which are left in the water. Use the liquid used to boil vegetables to make stews and soups rather than throwing it away because it contains vitamins.
- Cook vegetables for the shortest possible time to avoid losing important vitamins and minerals.
- Dried vegetables can be boiled or fried and enjoyed as part of your main meals.








CROPS FOR YOUR GARDEN AND THE NUTRIENTS THEY PROVIDE

Different crops are classified into food groups according to the nutrients they provide. The table below shows the plants that can be grown in your garden, the main nutrients they provide, favourable planting season as well as expected harvest. Harvest times may differ by climate and area.

| FOOD GROUP | NUTRIENTS AND FUNCTIONS | EXAMPLE OF FOODS THAT CAN BE GROWN | FAVOURABLE SEASON | DAYS TO HARVEST |
|--|--|---|---|---|
| Staples/ starchy food (grains, roots and tubers)  | <ul style="list-style-type: none"> Mainly contain carbohydrates which provide energy that helps you to do your daily activities. Roots and tubers such as sweet potatoes that are orange inside are good sources of Vitamin A, which keeps your eyes healthy and protects you from illnesses. Starchy foods also provide: <ol style="list-style-type: none"> some of the B group vitamins that help your body to produce energy; roughage which helps to prevent constipation and improves your stomach health; and, proteins required for your body's growth and repair. | Cassava | Throughout the year | 250-300 |
| | | Potatoes | Most cool dry season, especially in hot areas | 90-120 |
| | | Yams | Throughout the year | 130-150 |
| | | Sweet potatoes, especially orange fleshed | Throughout the year | 20 days for leaves and 100 days for roots |
| Legumes and nuts  | <ul style="list-style-type: none"> They mainly provide proteins which are important for growth and repairing your body. Legumes also provide roughage which helps to prevent constipation. They are a healthier source of protein compared to meat. Legumes are also a good source of iron which is required for making blood and preventing anaemia. Nuts provide healthy oils for your body. | Butter beans | Throughout the year | 70 |
| | | Cow peas | Throughout the year | 28 for leaves |
| | | Pigeon Pea | Throughout the year | 120 |
| | | Sugar beans | Throughout the year | 70-120 |
| | | Soya beans | Throughout the year | 45-65 |
| | | Round nuts | Rainy season | 90-180 |
| | | Ground nuts | Rainy season | 100-150 |
| | | Green beans | Throughout the year | 60-90 |



| FOOD GROUP | NUTRIENTS AND FUNCTIONS | EXAMPLE OF FOODS THAT CAN BE GROWN | FAVOURABLE SEASON | DAYS TO HARVEST |
|--|---|---------------------------------------|--|-----------------------------------|
| Vegetables  | <ul style="list-style-type: none"> Vegetables supply Vitamins and Minerals which help protect you from illnesses such as blood pressure, diabetes, heart diseases, stroke and cancers. They also have roughage which helps to prevent constipation. Orange and yellow vegetables such as carrots are rich in Vitamin A. Dark green leafy vegetables such as kale, spinach, cassava leaves, black jack, moringa leaves and amaranthus, cow peas leaves, sweet potato leaves are: <ul style="list-style-type: none"> good sources of Vitamin A which is needed to keep your eyes and body healthy. provide iron which is important for making blood in the body. Iron prevents anaemia, especially in women of reproductive age (15-49 years old). a good source of folate which helps in blood formation and prevents birth abnormalities in babies. Dark green leafy vegetables are also good sources of calcium which helps to build and maintain strong bones. | Cabbage | Throughout the year | 45 |
| | | Carrots | Throughout the year | 65-85 |
| | | Squash | Throughout the year if not too cold | 100-120 |
| | | Eggplant | Throughout the years especially warm weather | 100 |
| | | Pumpkin | Throughout the year if not too cold | 100 |
| | | Amaranthus | Throughout the year | 25-60 |
| | | Black jack | Throughout the year | 56-84 |
| | | Spinach | Throughout the year without too much rain | 60 |
| | | Rape and other green leafy vegetables | Throughout the year | 30-40 |
| | | Okra | Wet or rainy season | 60-90 |
| | | Tomatoes | Throughout the year without too much rain or frost | 100 |
| | | Onions | Throughout the years especially during winter | 80 to turn green 135-180 bulbs |
| | | Cucumber | Throughout the year especially when it is warm | 80 |
| | | Peppers | Throughout the year | 60-90 |
| | | Moringa | Throughout the year | 90 |
| | | Broccoli | Throughout the year especially in cool weather | 45 |
| Cauliflower | Throughout the year | 45 | | |
| Lettuce | Throughout the year especially when cool | 30 | | |

| FOOD GROUP | NUTRIENTS AND FUNCTIONS | EXAMPLE OF FOODS THAT CAN BE GROWN | FAVOURABLE SEASON | DAYS TO HARVEST |
|---|--|------------------------------------|--|-------------------------|
| Fruits  | <ul style="list-style-type: none"> • These supply vitamins and minerals which help protect you from illness, including some cancers, heart disease, blood pressure and diabetes. • They also have roughage which helps prevent constipation and keeps your stomach healthy. Roughage helps you to maintain a good body weight because it makes you feel full quicker and for a long period. • Orange and yellow fruits such as ripe mangoes and ripe papaya are rich sources of Vitamin A, which keeps your eyes healthy and protects you from sicknesses e.g. night blindness. • Citrus fruits such as oranges and grapefruit are good sources of Vitamin C, which makes wounds heal faster and help the body to absorb iron. | Paw paw (Papaya) | Throughout the year | 1080 |
| | | Strawberry | Throughout the year | 120-180 |
| | | Pineapple | Wet or rainy season | 720 |
| | | Granadilla | Throughout the year | 210-240 |
| | | Mango | Throughout the year | 100-150 after flowering |
| | | Bananas | Throughout the year | 75-80 |
| | | Oranges | Throughout the year | 210-240 |
| | | Grapefruit | Throughout the year | 210-240 |
| Herbs  | <ul style="list-style-type: none"> • Most herbs have medicinal properties and can be used for home treatment of minor illnesses. • They contain vitamins and minerals that help to boost the immune system and fight against illnesses. • Growing herbs with strong smells also repel pests from attacking other vegetables. | Garlic | Cold season | 135-210 |
| | | Basil | Throughout the year | 21-28 |
| | | Ginger | Throughout the year especially when warm | 240 |
| | | Parsley | Throughout the year | 100 |
| | | Chillies | Throughout the year | 90-100 days |



About FANRPAN

The Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) is an autonomous regional stakeholder driven policy research, analysis and implementation network that was formally established by Ministers of Agriculture from Eastern and Southern Africa in 1997. FANRPAN was borne out of the need for comprehensive policies and strategies required to resuscitate agriculture. FANRPAN is mandated to work in all African countries and currently has activities in 17 countries namely Angola, Benin, Botswana, Democratic Republic of Congo, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe.

© FANRPAN Regional Secretariat: 141 Cresswell Road, Weavind Park 0184, Private Bag X2087, Silverton 0127, Pretoria, South Africa. Telephone: +27 12 804 2966. Facsimile: +27 12 804 0600. Email: policy@fanrpan.org, Website: www.fanrpan.org

FANRPAN, CCARDESA, SADC and German cooperation/ GIZ would like to express their gratitude for the contributions of numerous stakeholders, without whom this project would not have been possible.