

Food for Life

GOLD



Welcome to the Food for Life programme. This is the third part of an exciting journey in learning how to grow food for your family and friends, and maybe even sell it.

Follow these easy steps carefully and discover how rewarding, both nutritionally and financially, it can be.

By being a Scout, you are indeed “Prepared for Life”.



Introduction

In this phase of the agricultural skills programme you will learn:

- How you can sell your excess vegetables (entrepreneurship).
- Packing and preserving of the vegetables/fruit/herbs.
- More about soil types: sandy and clay soils.
- How to plant and harvest different fruit trees.
- How to irrigate fields.

Entrepreneurship

You have started your own garden and it is producing more than your family needs. It is now time to start a business. By starting a business venture, you will learn valuable lessons and skills that will be very useful to you in future. This is the Scout way – learning by doing!

The first step in starting a business is the drafting of a business plan. This is normally presented to a bank or other potential funder, but it is useful even if not needed for this purpose, because it helps you to plan the business properly.

Drawing up a Business Plan

The following table sets out the details that should be included in a business plan:

Heading	What this involves	Reference to guidance
Name of the business	<ul style="list-style-type: none">• Give your business a name.• Provide your contact details.	
Background	<ul style="list-style-type: none">• Give details of when you started your garden and what you will use the produce of the garden for.	



Heading	What this involves	Reference to guidance
Vision (your dream for the business)	<ul style="list-style-type: none"> • What you want to achieve by starting the business. 	
Products (what you are going to sell)	<ul style="list-style-type: none"> • Describe the product that you are going to sell. • What is good about the product. • The price compared to competitive products. • If you are going to process your fruit or vegetables (e.g. make jam or dry them), explain how you are going to do it. • The packaging of your product, e.g. what your containers and labels will look like or how you will pack or display your fresh vegetables, fruit and herbs. 	Page 4
Markets (who are you going to sell to, and where)	<ul style="list-style-type: none"> • Your customers. • How you will sell your product. • Where you will sell your product • Competitors, and what you can do better than them. 	Page 6
Marketing plan (how you are going to sell your product)	<ul style="list-style-type: none"> • How people will know about your product, and how can they get hold of it. • Make a poster to advertise your business. 	Page 8
Staff	<ul style="list-style-type: none"> • Who will manage the business. • Who will sell the product. • Who will do the bookkeeping. <p>(You can do it all yourself or your parents or friends can help you.)</p>	
Budget	<ul style="list-style-type: none"> • A detailed budget of your income, costs and profits. 	Page 9

Guide to drawing up a business plan

The following is a guide on how to write some of the sections in the business plan.

Product

In order to decide on the best product for you to sell, you can follow the following thought process:

- Make a list of products that you can sell, e.g.:
- Fresh fruit and vegetables to your community.



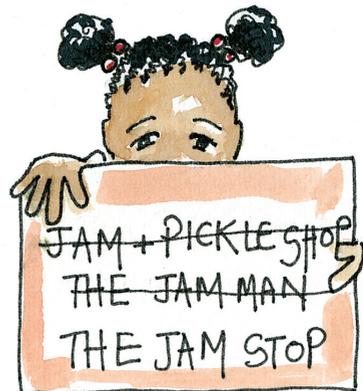
- Dried fruit, vegetables or herbs to your community. You will need to build food driers for drying the produce and then sell it in bottles or packets.

- Jam made with fruit from your own trees, as well as wild fruits. You can ask your friends, family or a local church group to collect screw-top bottles for you. You can ask your parents to wash and sterilise the bottles so that they are ready to use.



- Sell vegetables or fruit or herb seeds or seedlings. (You can start your own nursery.)

- Make a preliminary choice of a product.
 - This involves choosing the best product from the ones you have listed.
 - Make a list of factors to help you choose the best product, e.g. will this product sell in my area?
 - Is there anyone else nearby offering the same product? Survey the shops and markets in your area.
 - Is there someone who could give you advice on which product to select?
 - Does it interest the community? Will they support you?
 - Are there any other important considerations?
- Do you know how to make the product?
 - Where can you find out what you need to know?
 - Who can help or advise you?
 - How long will it take to make it?
- Make samples of the products you want to sell.
 - Keep records of how you make it.
 - Keep records of what it cost to make.
 - Keep records of how long it takes to make each item.
 - Try to improve your techniques and become more efficient - be creative.
- Take samples of your products to some potential buyers (e.g. family, friends, and neighbours) and ask them:
 - If they would be prepared to buy something like it.
 - How much they would be prepared to pay for it.
 - How it could be improved.



You can now decide on a name for the business. As a business name is often descriptive of the business, it is a good idea to choose a name only after deciding on a product.

Market

You should look at the following aspects when you decide who you will be selling to:

- Customer profile
 - Who is going to buy from you?
 - Where are they?
 - Are they currently buying a similar product from someone else?
- How will you sell it?
 - How will you bring it to potential customers' attention?
 - How will you get it to them?
 - When is the best time to sell it to them?
 - Are you going to ask others to help you sell it?



- Where will you sell it?
 - You can organise a market day at your Scout group, church or meeting place where the community can buy produce from you.
 - You can sell door-to-door to your neighbours.
- Are there competitors?
 - Do you have competitors who are providing a similar product at a competitive price? Record their products, prices, quality, where they sell and their marketing methods.
 - Can you change your product(s) so that you offer something that none of these competitors do? For example: perhaps a number of people are selling fresh vegetables and you need to sell another product or identify another market. Is there a restaurant or hotel in your area? Find out if they will buy organically grown fresh produce, like sun-dried tomatoes, artichokes and baby vegetables from you. If they are willing, find out what vegetables the hotel or restaurant needs, as well as what quantities and how often, so that you can plan your planting accordingly. You will then need to find a way to get the vegetables to the buyer on a regular basis.



- Do a study of your:
 - Strengths: why are you better than your competitors, e.g. you are closer to your market, your fruit is exceptionally fresh or your prices are better.
 - Weaknesses: why are your competitors better than you, e.g. their produce is cheaper, or they have a wider selection of vegetables and jams.
 - Opportunities: what opportunities are there to gain customers? What can you do to increase your market or profits? Are you going to diversify your product range, e.g. move from selling only fresh fruit to making and selling jams as well.
- Decide why you are better than your competitors.

- If you need to deliver your product
 - How are you going to deliver it to the buyers?



- How many items do you think you would be able to sell?
 - Will you have them ready in time?

Marketing plan

In order for people to buy a product, they need to know that it exists (and it has to be a good product at a good price, of course!). Getting publicity is an important aspect in establishing a successful business. How are you going to become well known, preferably at little or no cost?

Here are a few ideas:

- Take part in events such as markets or open days where people can set up a stall with advertising posters.
- Shops, churches and community centre notice boards: make use of these free advertising spaces. You can make posters on the back of other old posters (e.g. ask local shops to give you their posters at the end of in-store promotions) or on old cardboard boxes.



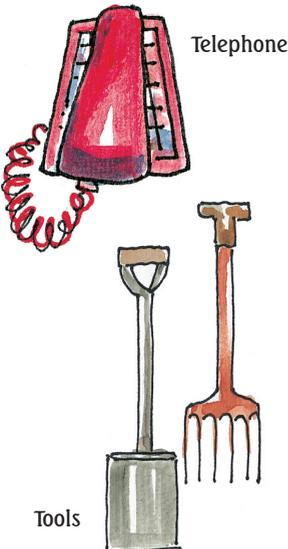
- Radio: most radio stations have a community slot. Make a note of the presenter and phone number and give the station a call, or write the station a note – radio is an effective way to reach many people.
- Newspapers and magazines: many newspapers have a diary/coming events/ community services section. Send your details to the person in charge of this. Find out what magazines are read in your area and ask the editor to place a story about what you are doing.

Remember to include the cost of marketing/publicity in your budget!

Budget

You need a budget to plan and control your income, costs and profits. When you compile a budget, remember to consider the following:

- Income: calculate what you think your income will be.
- Costs (expenses): will you be using electricity or water? How will it be paid for? Also stationery, telephone, transport, delivery of goods, materials (bottles and other equipment), marketing (labels, posters and packaging), seeds and tools.



Tools



Stationery



Transport for the delivery of goods



Materials (bottles and other equipment)

Marketing (labels, posters, packaging)

Seeds

- Equipment: do you have all the equipment that you need? If not, can you get it?
- Do you expect to make a profit? You will make a profit if your income is more than your costs, and it is therefore very important that you remember to take all expenses into account (as indicated above).

A budget can look like this:

Budget	
Income	
50 vegetables @ Ksh 20.00	Ksh 1000.00
10 jams @ Ksh 120.00	Ksh 1200.00
Total income	Ksh 2200.00
Costs	
10 Bottles @ Ksh 5.00	Ksh 50.00
Seeds	Ksh 100.00
Sugar	Ksh 190.00
Marketing poster	Ksh 30.00
Spade	Ksh 350.00
Total Cost	Ksh 720.00
Profit (Total income - Total cost) Ksh 1480.00	

Capital requirements

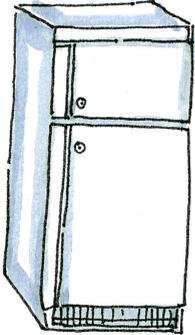
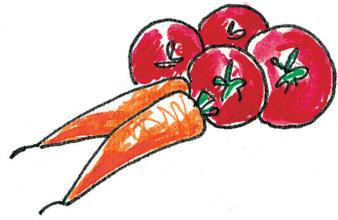
Do you need to invest further money in the business in addition to the basic expense items above?

- E.g. do you need to rent additional land?
- Are you going to dry your fruit or vegetables? Will you need to rent additional space to do it, and do you need driers?

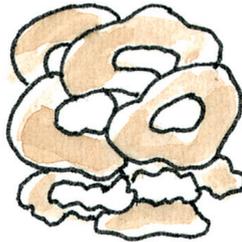
By doing the above you will learn valuable entrepreneurial skills!



Packing and preserving of the vegetables/fruit/herbs



Vegetables and fruit can be kept in the fridge to be used later, but not everyone has a fridge. There are ways of making your own fridge, so that food can be kept longer. Have a look at your Scout Trail to see how a fridge can be made. In a world where many people cannot store their food in refrigerators, food preservation is important in order to store the excess harvest for future use.

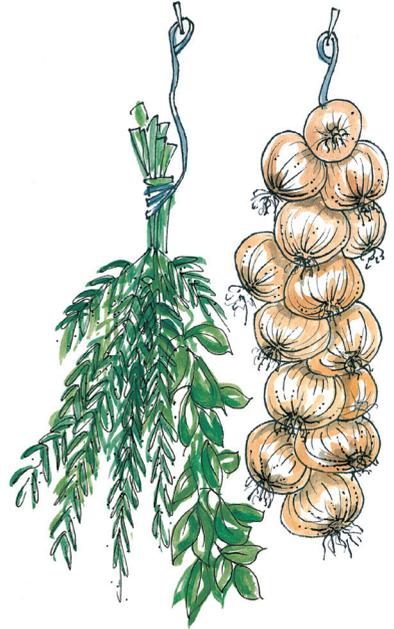


Most of the fruit we grow in our gardens can be preserved in sugar as jam, while vegetables can be pickled in vinegar. In hot climates apricots, peaches with loose pips and figs can be sun dried by halving them and laying them out in the sun to dry on wooden trays and bringing under cover at night, until the excess moisture is lost. These fruit can be softened again by soaking (rehydrated) or boiling in water. A food drier can be built to dry sun-dried tomatoes, which generate a much higher income than selling fresh tomatoes.

The best time to harvest herbs is between 10h00 and 12h00 because this is when the plant's oils are active.

Drying of herbs:

- Hang bundles of the small leaved herbs, such as thyme, rosemary and parsley, in a warm, dry airy spot.
- Larger leaf herbs can be stripped and place on a wire rack in an oven on its lowest setting. When the herbs are dry, crumble them between fingers and store in airtight containers.

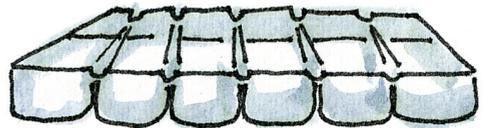


Freezing of herbs:

1. Chop the herbs finely
2. Fill ice cube trays with the herbs
3. Top up with water and freeze
4. When herbs are needed, put the ice cube in the food.

or

1. Sprigs of herbs can be quickly boiled in water for a half a minute.
2. Dry on paper (e.g. absorbent kitchen paper or newspaper) and store in plastic bags.
3. Put the bags in the freezer.
4. When herbs are needed, crumble frozen herbs into dish.



Look in “Be Prepared for Life, Kit Three: Food for Life” for more ideas and how to preserving vegetables and fruit. You will find great ideas there.



Harvesting seed

To save money and even to earn money eventually, you can learn to save seeds. Collecting the seeds from your garden and saving them in containers for future use is good permaculture. A clear and sunny day is the best day to collect seeds – if it is damp or raining, the seeds will rot or germinate right then and be spoilt.

Select plants that are healthy (do not have diseases), and that produce fruit or vegetables that are of a good size, shape and colour and taste good. Pick the mature fruit or vegetable. Make sure that the sun shines (do not do this on rainy days). The seeds need to be dried in the sun on newspaper as soon as possible. Pawpaw and tomato seed should be washed first before drying. Pick out those seeds that look the best. Treat the seeds by mixing them with materials that will protect them from insect attacks. These materials include dry ash, dry neem leaves, or other locally adapted leaves. After this treatment the seeds should be stored in a bottle or airtight container. Put drying material such as rice or dry ash with the seeds in the bottle. Keep the bottles in a dry, dark, cool place. Mark and date each container, so that you can know what seeds you will be planting next time. Old tins, film canisters, bottles (especially dark coloured ones) and old medicine containers can be used. Try to avoid using plastic, if possible.

It is not advisable to save seeds from vegetables that are 'Hybrids'. Vegetable packets that say 'F1 Hybrid' on them contain seeds that have been produced by 'crossing' two types to get the best of both. However when you save these seeds and try to plant them the next season, they might not grow at all or will 'revert' back to one or other of the 'parent' types.



Service idea

Why not give vegetables to a worthy cause e.g. local orphanage, HIV/AIDS sufferers or old age home, or assist a needy organisation or person to make their own vegetable garden.



Understanding soils

Every living being needs air, water and food. If we take away any of these ingredients, the person, plant or animal will die. It is the same with soil. Farmers talk about the soil being alive or dead. Soils can suffocate, drown, starve, die of thirst, heat or cold. However, fortunately for us, soil can be healed.

What is soil and what gives it life?

Soil comes from rocks that have been broken up, by exposure to sun, rain and wind, into millions of tiny grains and particles. The soil on the earth's surface is known as topsoil, and is the soil where plants live and grow. It is like a skin on the earth's surface. Topsoil is made up of soil particles, air, water, organic matter and soil life (micro organisms).

Soil types

The size of the soil particles determines the type of soil. What type of soil do you have?

- **Sandy soil:** made up of big particles. It contains lots of air and water passes through it quickly. It therefore dries out quickly and plant food is washed away easily. It is easy to dig.
- **Clay soils:** made up of small particles. It holds water well, but contains little air. Clay soils are heavy and often very hard or sticky, and this can prevent proper root development. Clay soil is difficult to dig. Digging helps to loosen the soil and introduces more air to the soil.
- **Loam soils:** made up of a mixture of sand and clay. It holds water, but still allows for air movement in the soil.

Here is an experiment that you can do with different soils, to determine what type they are. Pick up a handful of soil, wet it a bit and roll it into a sausage in your hands.

The Ring Test for Soils

When rolled	Damp sample	The soil is ...
Cannot be rolled into a sausage		Very Sandy
Can be rolled into a sausage but can't be bent		Sandy
The sausage can bend a little		Sandy Loam
Sausage bends half way round finger		Loam or Silt Loam
Sausage bends more than half way round finger		Clay Loam or Sandy Clay
Sausage bends into a ring		Clay
Sausage bends into a ring with cracks		A short Clay
Sausage bends into a ring with no cracks		A fat Clay

What make soils alive and healthy?

Organic matter, macro organisms and micro organisms are necessary for healthy soil.

Organic matter is made up of the decomposed (rotting) remains of plants and animals, and is called compost and manure. This material is the food that feeds life into the soil (macro and micro organisms) and brings the soil to life and fertility.

Macro organisms refer to worms, spiders and insects. They help to break down the organic matter in the soil and turn it into food for the micro organisms and plants. They improve soil conditions by loosening and airing the soil.

Micro organisms are microbes, bacteria, fungus and viruses that cannot be seen without the aid of a microscope. There are millions and millions of these even in small quantities of soil. They need air and moisture to live. These organisms help plants to grow by becoming and making plant food in the soil. They make this food by helping dead plant and animal waste to rot and decompose, creating a material called humus. Humus is the dark, rich part of the soil: it is very rich in nutrients. A soil that has lots of humus is very healthy, and can maintain high levels of nutrients to plants over a long period.

Fruit trees

Various kinds of fruit trees can be planted, of which apricot, fig and peach trees are the easiest. Most fruit trees need to be pruned every cool season. This is important as pruning ensures good quality fruit. We will first have a look at pruning of fruit trees in general and then we will discuss different fruit trees, when and where they can be planted, and if they have specific pruning needs.



Pruning

It is important to prune your fruit trees. Pruning means that you cut some branches of the tree to ensure that other branches grow better and that they will receive enough sun. It is best to prune the fruit trees in the cool, moist season, when they do not carry leaves or fruit. This will ensure that the fruit will be healthier. You must only prune on dry days, because the trees can get diseases easily if you prune on rainy days.

If you need to prune your tree, ask your Scouter to help you.

Specific Fruit

Apricots

Where: In places that have cool seasons with not too much frost or wind.

When to plant: Cool season.

Soil: Well-drained.

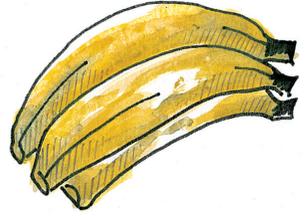
Planting: Allow 3m between an apricot tree and another large growing tree. Plant in well-prepared holes. The tree must be watered well to ensure plenty of fruit, especially during long dry spells.



Harvesting: The fruit becomes ripe in February and March. The fruit will be soft to the touch.

Bananas

Where: Along the East African coastline and the frost-free areas of the Great Lakes region. They need lots of rain.



Soil: Clay soil which stays wet for a long time after rain.

Planting: You can grow banana trees by planting the suckers which grow around the bottom of old trees.

- The suckers are joined to the trunk of the tree under the ground. The best suckers to use for new trees have thin leaves and are about as high as your knee.
- Cut the sucker away from the old tree and take off all the roots and leaves. It is important to take off the roots because banana suckers often have eelworm disease. After you have taken off the roots, dip the suckers into eelworm poison.
- Plant the suckers in the cool season at the beginning of the planting season. Dig a hole 70cm square and make the hole deep enough so that you can bury the sucker in 15cm of soil. If you are growing lots of banana trees, plant them in rows 3m apart.

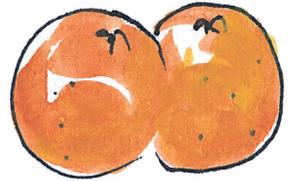
Pruning: Four months after planting, cut out all the suckers except one. This sucker will take over from the old tree and give you bananas next year. The suckers you have cut will grow up again. After another four months repeat the process and cut away cut all these suckers except one. Now you will have the old tree with a big sucker and a small sucker.



Harvesting: Pick the bananas when the sides start to become round but before they become soft. After you have picked the bananas, cut off the top of the old tree so that it is as high as your shoulder. Put the old leaves and pieces of stem around the bottom of the plant. This stops weeds and is good for the soil.

Citrus

Citrus trees are oranges, naartjies, lemons and grapefruits.



Where: Prefer cool and warm to hot temperatures. They produce the best in frost-free areas, but can be grown anywhere in the East-African region, except where there is severe frost.

When to plant: Any time of the year.

Soil: Well-drained.

Planting: They need more water than other fruit trees. If there is no rain when they are flowering or when the fruit starts to grow, give them plenty of water every three weeks. The area around the tree must be heavily mulched and nothing should be planted around it as it has a shallow root system. The sun easily damages the trunks of citrus trees, so wrap them in sacks or newspapers, or paint them with whitewash until there are enough leaves to shade them. A citrus tree needs food three times a year. It needs the following amount of balanced organic fertiliser:

Year	October	March	June
1	0,1 kg	0,3 kg	0,5 kg
2	0,7 kg	0,9 kg	1,1 kg
3	1,3 kg	1,5 kg	1,7 kg
4	1,9 kg	2,1 kg	2,3 kg

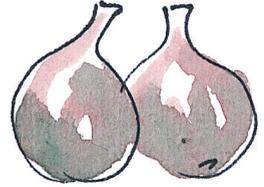
After five years you need to continue to feed the trees three times a year with 2,5kg of fertilizer.

Pruning: No pruning is needed, except for cutting off dead branches.

Harvesting: The fruit is ready when it has fully coloured.

Figs

Where: Nearly everywhere in East Africa. It should be done during the dry season when it is fairly warm and dry, and towards the end of the rain season. Heavy rains when the fruit ripens can cause it to split.



When to plant: Plant during the cool season.

Soil: Well drained, alkaline soils.

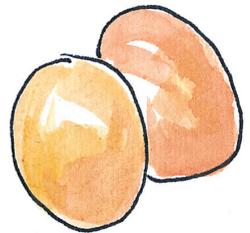
Planting: Should be planted well away from buildings and walls, as they have large root systems. The area around the tree should be mulched.

Pruning: Do not prune the first few years. After that, prune only a little in the cool season.

Harvesting: Figs should ripen on the tree. Harvest figs twice a year – at the beginning and end of the dry season or during the short rains. They will feel soft to the touch. When you pick them, no white juice should come out of the stem.

Guavas

Where: Grow well in warmer areas. Can also be grown in colder areas, but will then have to be sheltered from frost and cold winds.



When to plant: Any time during the year.

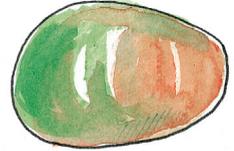


Pruning: Prune the tree in October, after all the fruit has been harvested. Keep about six buds on each branch.

Harvesting: Guavas are ripe from August to December. When their skins turn yellow, they are ready for picking.

Mangoes

Where: Hot dry places and they are not easily killed by drought. They do not grow in places where the seasons are too cold because young trees are killed by frost.



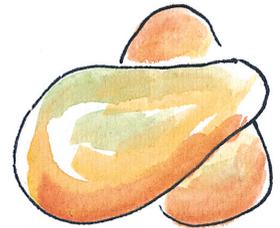
Soil: Grow in all soils, even stony and sandy.

Planting: You can grow trees from smooth pips. To grow mangos from the pip, carefully take the hairs and the skin off the pip. Keep it between two pieces of wet sack until it starts to grow. This will take about a month. Then plant it in a plastic bag full of soil. Let it grow as high as your knee. Then you can plant it in the ground. Plant it 10m away from the other trees, because they grow very big.

Harvesting: Pick mangoes after the skin starts to become orange.

Pawpaws

Where: Grow well in tropics especially in warm climates. The tree is not easily killed by drought.



When to plant: At the beginning of the rain season (March is a good time).

Soil: Well-drained soil, which is not too acid.



Planting:

- With paw paws, the male and female flowers are produced on separate plants. You will thus need more than one tree in your garden.
- Plant the seed 2m apart. Plant about 5 seeds in each hole. Do not use any compost or manure in the holes.
- You will now have to wait for the seedlings to flower, before you will know which plant will carry the female and which one the male flowers.
- Do not pull the weak seedlings out, as they are often the female flowering plants. Wait until the plants are 1m high. The female flowers are larger than the male ones and they are usually single, or form small clusters. The male flowers grow in long hanging clusters, which could be up to one metre long.
- One male flowering plant can pollinate up to 20 female flowering plants. So you only have to keep one male flowering pawpaw tree and as many female flowering ones as you wish.
- Mulch should not touch the stems.
- Pawpaws are not fond of other plants close to them.
- You get the best fruit from the tree in the first two to three seasons, whereafter the quality of the plant's fruit declines.

Harvesting:

September to May. Harvest while the fruit is still slightly green. The fruit will ripen after it has been picked.

Peaches and nectarines

Where:

Everywhere in cool, moist climates, but they grow best where the dry seasons are hot and the rain season is cold. It is important that the temperature drops sufficiently in the cold rain season.



When to plant: At the beginning of the rain season.

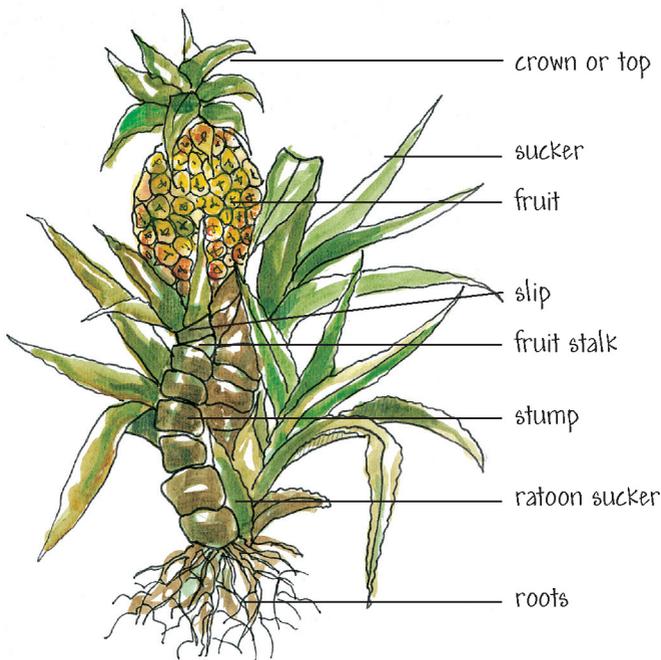


- Soil:** Well-drained soil.
- Planting:** Trees should be planted 3-5m away from other trees and each other.
- Pruning:** Prune as was described earlier, but also remember the following. When cutting the side branches from the main four branches, you should leave all the branches which have three buds and cut off those which have only got one or two buds. It is important to thin the fruit: the first time when it is still the size of a marble and the second time when the fruit is the size of a small egg. The space between the fruit should be approximately 10cm. This will give you bigger peaches.
- Harvesting:** Pick when they are ready to eat – they do not ripen after being picked. You will get the best fruit if you only pick the fruit when it is soft to the touch, but because of fruit flies you might have to pick the fruit when still slightly under ripe.

Pineapples

- Where:** Hot places. They are not killed by drought but are easily killed by frost.
- Soil:** Any well-drained soils.
- Planting:** You must cut off a part of a pineapple tree and plant it. You can use the branches from the sides of the stem (slips) or the new stems (suckers), which grow from the ground. Slips must be longer than 30cm, and suckers longer than 60cm (drawing).
- Leave the suckers upside down in the sun for two weeks to dry out before planting.
- Harvesting:** When half the skin has turned yellow, about 20 months after planting. Twelve months later the plant gives a second crop, usually not as good as the first. After this, plough the fields and plant another crop in the crop rotation.





Strawberries

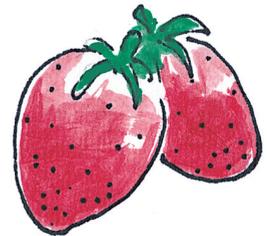
Where: Can grow in a wide range of climatic conditions.

When to plant: In the late long rain season to the beginning of the short rain season.

- Planting:**
- Strawberries can be used as edging for your vegetable garden and do very well in containers.
 - The plants should be planted 30cm apart.
 - Mulching is very important.
 - Less water should be used, when the plant starts to bear fruit.
 - Strawberries will produce good fruit for 3-4 years and should then be replaced.

Harvesting: Wait until the fruit is fully ripe, before harvesting.

Fruit trees are susceptible to pests and diseases. If you have any problems, talk to your adult leader.



Irrigation

Sandy soils must be watered often, because the water drains out easily. It is best to give clay soils a lot of water, but less often or else they become too wet. The best soils for irrigation are sandy loams. They hold water but also drain well.

How much water?

Clay soils hold water and plant foods. They do not have to be watered often, but when they are watered, they must be watered well. Sandy soils do not hold water well, so they must not be watered for too long, otherwise they wash plant foods out of the soil.

The following amount of water is needed for the different kinds of soil:



When to water?

The time to turn on irrigation water is when the soil is about seventy percent dry (half wet). Clay soil is half wet when the soil feels dry but you can press it into a ball that breaks when you drop it.

It is best to water in the cooler part of the day, early morning or late evening.

If your plants wilt, give them water as quickly as possible. However, this is not a very good way to see when to water your plants.

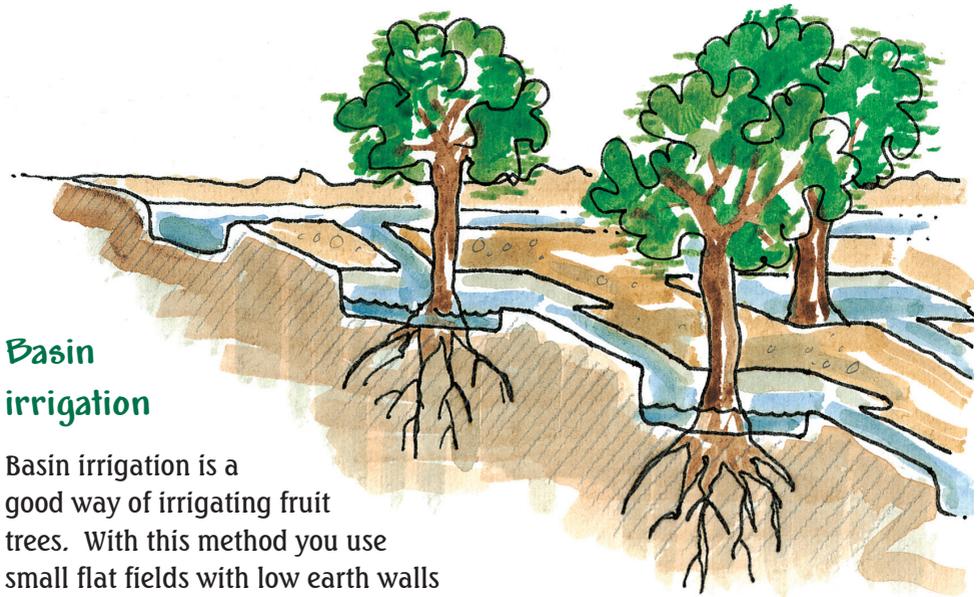
Irrigation water

Irrigation water can come from rivers, streams, springs and boreholes. Unlike rain, borehole water sometimes has a lot of salt in it. These salts can damage your soil so badly that few things will grow.

Flood irrigation

Flood irrigation means using channels to lead water out of a river or a dam. Most irrigation schemes use this method. If channels are very long, it is best to line them with concrete, but unlined canals on small schemes work well too, especially in clay soils. Lead the water from the canal into the field through an outlet pipe or by using siphon tubes.

Make sure that your field has a gentle and even slope. The field should be less than 200m long for clay soils and shorter for sandy soils. You will also need a drainage canal at the end of the land to take away extra water. Always measure how much water you are putting into the field.



Basin irrigation

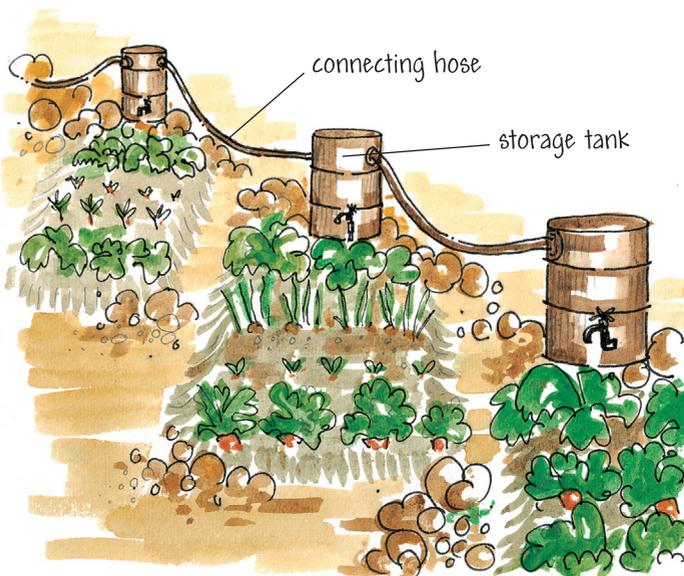
Basin irrigation is a good way of irrigating fruit trees. With this method you use small flat fields with low earth walls around them. Flood the field quickly to give the right amount of water.

Pipe irrigation

This is the simplest and cheapest way of irrigating small fields, especially if you use a garden sprinkler with the hosepipe.

If a group of people is sharing the water, then it is a good idea to use small storage tanks so that people can take water to their plots

by bucket or hosepipe. Oil drums of 200 litres make good tanks. The water is pumped into a pipe, which joins all the drums together. The number of drums depends on how much water you need.

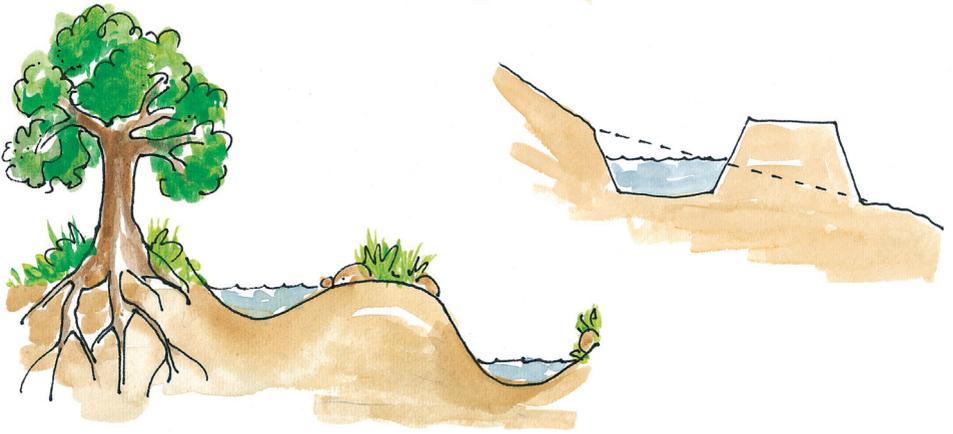


Crops under irrigation

Vegetables and fruit trees grow well under irrigation. Crops need the most water when they are growing fast and when they are flowering and beginning to make fruit. They do not need so much water when they are young or when they are ready to harvest.

Swales

You can build swales to slow down the flow of water and give it more time to let the water sink into the ground by building swales. This feeds the crops and raises the water table. A swale is a ditch plus a wall of earth. A ditch is dug along a contour line and the soil from the ditch is used to build a wall on the downward slope. Grasses, shrubs and trees are planted on the wall to stabilise the soil so that it does not wash away.



The increased amount of water that enters the soil at the swale as well as the nutrients collected in the ditch will make sure that the plants growing in the vicinity of the swale will thrive. At this stage only simple maintenance will be required to keep the swale in shape.

Congratulations!

You have earned all three Food for Life badges.



To earn the badge



Objectives:

By the completion of this stage the Scout would have the ability to draw up a business plan and apply the knowledge gained.

Badge requirements:

To obtain the badge you should be able to do all of the following:

1. Completion of the Food for Life Silver badge is a prerequisite for this badge.
2. Draw up a basic business plan, which includes:
 - (a) Name of the business;
 - (b) Market place – where you will sell your produce and who will your customers will be;
 - (c) Product – what you will be selling;
 - (d) Budget – how you will keep accurate record of income and expenditure and how much you will charge for your products;
 - (e) Staffing – who will be responsible for each job; and
 - (f) Marketing – how will you market your product – include a poster or banner that you will use.



3. Do one of the following:
 - (a) Pickle a vegetable
 - (b) Make jam
 - (c) Dry a vegetable or fruit

4. Grow two types of vegetables and donate them to a worthy cause or help an orphanage, old age home, church, etc. to start a garden.



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