

Rainwater Harvesting

Rainwater harvesting is important in dry areas or in times of drought. The best way to save rainwater is with a tank. A tank can be built under the ground or above it and must be big enough to store all the water you collect. Tanks above ground must be put higher up than your crops so you can use gravity to water your plants.

You can use a MONEYMAKER HAND PUMP to get water from your underground tank easily. Tanks must be covered to stop animals or children falling in, and a net put over the top to stop mosquitoes.



Tank on stilts



Cement pouring into the guttering

Gutters can be added to the roof to collect rainwater and ditches can be dug into the ground to catch any water and take it to the tanks when it rains. Remember, for each millimetre of rain on a metre of roof or ground, you get one litre of water.

Planting Trees

Planting trees can help reduce problems in an arid or semi arid area. There are many types of trees that have many uses, like timber, animal food, making soil healthier and do not need a lot of water.

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|--|---|-------------------------------------|
| • Cassia – good for firewood and improves soil. | → | Stops soil erosion. |
| • Grevillia – improves soil, provides timber, drought resistant | → | Animal fodder. |
| • Moringa – a shade tree, improves soil, can be fed to animals too | | Provides firewood, Provides timber. |

When planting trees, dig a hole two feet wide and two feet deep, mix the top soil with manure in the hole and plant the seedling. Make sure you water it with at least six inches of water.

For more information SMS 'TREES' to 30606

Produced by Mediae



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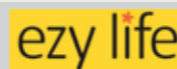
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Series 3: Episode 6

Bernard & Regina's farm – MAKUENI

This leaflet contains information on:
water harvesting, flying gardens, cow farming,
tree planting and mango farming.



Flying Gardens

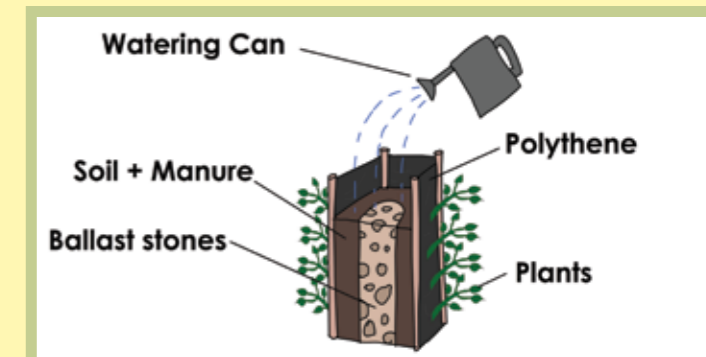
A flying garden is a good way for growing vegetables when you have very little water. It can also be grown in very little space. Flying gardens are simple and cheap to build and do not need very many materials. Plants like green vegetables work best, such as spinach and sukuma.

How to make a flying garden

- Place 4 wooden stakes into the ground in a 2 foot square shape with a hollow tin in the middle of the square. Wrap a polythene bag around the 4 stakes to make an outer layer. Or use a large plastic bag or sack between the sticks with the tin inside the sack
- Mix manure and top soil and put around the tin inside the polythene/sack, leaving the inside of the tin completely empty. Once you reach the top of the outside of the tin, remove it and fill the hole with ballast or kokota stones Repeat this until the polythene/sack is filled. Make holes in the side of the polythene about the size of a 5 Ksh coin along the polythene wall, 6 inches apart.
- Plant vegetable seedlings in the holes on the side. Then pour water down the ballast/kokota tunnel. This holds the water and allows plants to grow. Refill the flying garden with 20 litres of water (1 jerry can) every 2 days.

A flying garden like this can hold up to 150 plants and uses no expensive chemicals!

For more information SMS 'VEGETABLES' to 30606



A flying garden is a useful way of growing crops where there is not much water available.



Using ballast or kokota stones collects the water and keeps it available for longer.



The plants only need 20 litres of water every 2 days.

Mango Farming

Mango farming is popular in areas of drought or where there is not much water. This is because mangoes do not need much water to grow and produce fruit. However, many types of diseases can damage a mango tree and the fruit on it.

Early Pests And Disease

Leaf flush is when the mango tree makes many new leaves. The leaves are soft and easy to damage. GALL MIDGE and POWDERY MILDEW are problems during leaf flush.



A sign of gall midge infection is black spots.



THIOVIT can be used to cure powdery mildew.

GALL MIDGE is a small fly, which lays eggs on mango leaves. The larvae then eat the leaves, making black spots which kill the leaves.

Without healthy leaves, the fruit cannot grow big. MATCH is a pesticide to control insects. Spray mango trees when leaf flush begins. Use 25ml in 20 litres of water.

You can use THIOVIT from Syngenta to control powdery mildew.



Mango flowers can also get infected

If the flowers get infected with the disease POWDERY MILDEW and ANTHRACNOSE it is important to act fast before the disease kills the whole tree.



Score can be used to stop the disease as well as protect against it.

To stop the diseases you can use a chemical called SCORE. SCORE is sprayed mixing 8g packet with 20 litres of water and will cover about 20 trees. SCORE can prevent and stop fungal disease.



Actara stops Mango Seed Weevils, which are damaging to the crop

MANGO SEED WEEVILS need to be controlled when the tree is flowering and starting to make fruit. This can be done by spraying the tree with ACTARA.



Disease in Mature Mangoes

ANTHRACNOSE is a fungal disease that spreads through mango trees and into the fruit causing many losses. Anthracnose causes black spots on the fruit skin or by the fruit bursting. It is worst in the rains.

ORTIVA can be used as a PREVENTATIVE and a CURE for diseases such as ANTHRACNOSE.

For more information SMS 'MANGO' to 30606

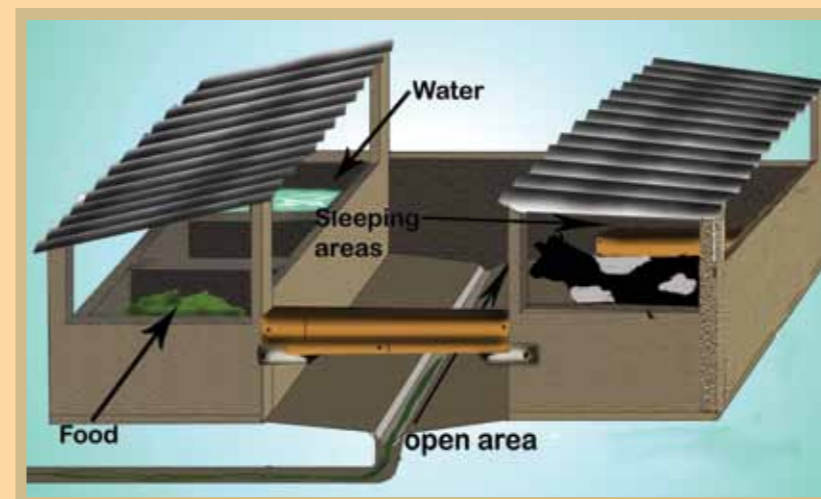
Caring For Your Cattle

Just as farmers must adapt to climate change, so must animals. It is important to treat animals such as cows carefully in such hot and dry areas as Makueni.

Zero Grazing Pen

Zero grazing pens are a good way to keep your animals well fed and making a lot of milk. It is important that your cow gets lots of food and fresh water daily. A healthy cow will give more milk. Zero grazing structures stop the cow from walking too much and saves their energy to make milk or meat.

The shed must have a place for the cows to eat and sleep. Make three troughs – one for water, one for grass or fodder and one for supplements or dry feed. Make a place for the mineral block. Make a roof to give the cows some shade and shelter.



You will need to build your pen:

- 14 wood posts (9 feet long)
- 30 round posts
- 9 off cuts
- Murram for the door
- 4 mabati sheets
- 1 pair of hinges
- Nails
- Wood preserver
- Wooden planks to make trough
- A drum (cut in half)

Use any recycled materials you can find on your shamba to build your new cattle shed!

Mineral Supplements

A mineral supplement can be given to cows called MACLICK PLUS. It is a mineral powder supplement and is good for heifers, especially heifers in calf. It reduces problems such as milk fever. Mineral supplements also help dairy cows produce more milk.

As well as this, feeding KUPA KULA ADVANCED FORMULA is good for cows in calf as it provides protein to help prepare its milk, its veins, its udders for birth. It is important to give it near the end of the pregnancy as this is when the calf grows the most. Protein supplements allow cows to make more milk.

Give
100g to a pregnant cow per day
200g to a milking cow per day

You can also add a salt lick to the trough so that the cows can get their salt intake whenever they want it!

For more information SMS 'CATTLE' to 30606



Maclick Plus is good for milking cows.



Kupa Kula Advanced Formula is suited to pregnant cows