



# African Honey Bee

## subsistence farming

### guide



by Elize Ferreira



Happy farming.

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B A T T E R I E S



## Introduction

*Can you imagine what it must have been like for the Israelites when they were suffering hardship and poverty in the Desert for 40 years? No home, no water, difficult to produce food, clothes and so on. It sounds like poor people living in South Africa doesn't it? Life is hard especially in rural areas.*

*Like the Israelites that complained to God through their leader Moses, we as poor people complain to our government. Our government has after all promised us a better life. We often feel entitled and feel that we voted for them so they should now give us things to make our lives better. When the government doesn't give us the things that make our lives better we complain and Toyi-Toyi. The Israelites were the same, they complained to God.*

*When the Israelites complained to God, He said back to them "the Lord your God has blessed you in all the work of your hands. He knows you are going through this great wilderness. These forty years the Lord your God has been with you. You have lacked nothing."  
(Deuteronomy 2:7)*

*We must understand that Jesus died on the cross for our sins so that we can be free. We must also know that God gave us skills - He has blessed our hands - He has made it possible for us to not only survive but to make our lives better for ourselves with our own hands. We don't need to rely on anyone or anything except for God our creator and redeemer.*

*This booklet gives a few ideas of how you can change your own life with the things that you have around you, with your own hands and abilities that God blessed you with.*

*God bless*

**Guy Stubbs**  
African Honey Bee

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BATTERIES



# First!

## A Business Plan

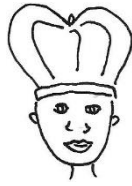
The first thing you need to understand is how to run a business.

An example of a simple business that you can turn R40 into R80 is to make sandwiches and sell them the same day.

It is very important to record all your expenses and income for each transaction. At the end of the transaction you will have available cash. It is important to keep a Cash Flow sheet going all the time.

### Cash Flow

Date	Transaction	Out	In	Available Cash



**Sandwich**  
BUSINESS PLAN



**PRODUCTION PLAN**



16 slices of bread + 8 slices of ham + 8 slices of tomato + a small Rama + 8 sandwich bags

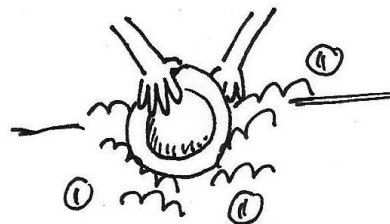
**HYGENE AND QUALITY MANAGEMENT**



Wash your hands



Keep your work place clean



Wash your utensils

**CASH FLOW**

Date	Transaction	Out	In	Available cash
02-Feb	Buy 1 fresh loaf of sliced white bread @ R12	R12		-R12
02-Feb	Buy 8 slices of fresh sandwich ham @ R1 each	R8		-R20
02-Feb	Buy 2 tomatoes @ R3 each	R6		-R26
02-Feb	Buy a small pack of Rama @ R8 each	R8		-R34
02-Feb	Buy 8 sandwich plastic or wax paper bags 50c each	R4		-R38
02-Feb	Make 8 sandwiches			-R38
02-Feb	Sell the sandwiches just before lunch @ R10 each		R80	<b>R42</b>

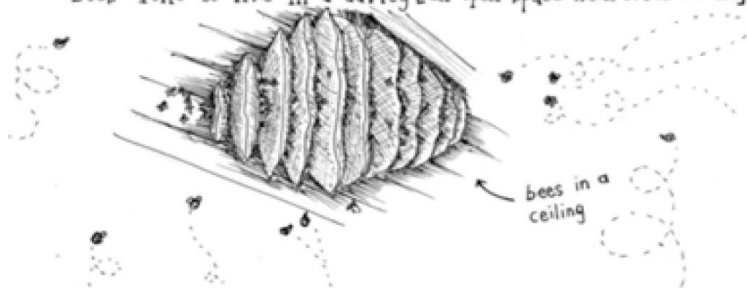




# How to make an Afri-hive

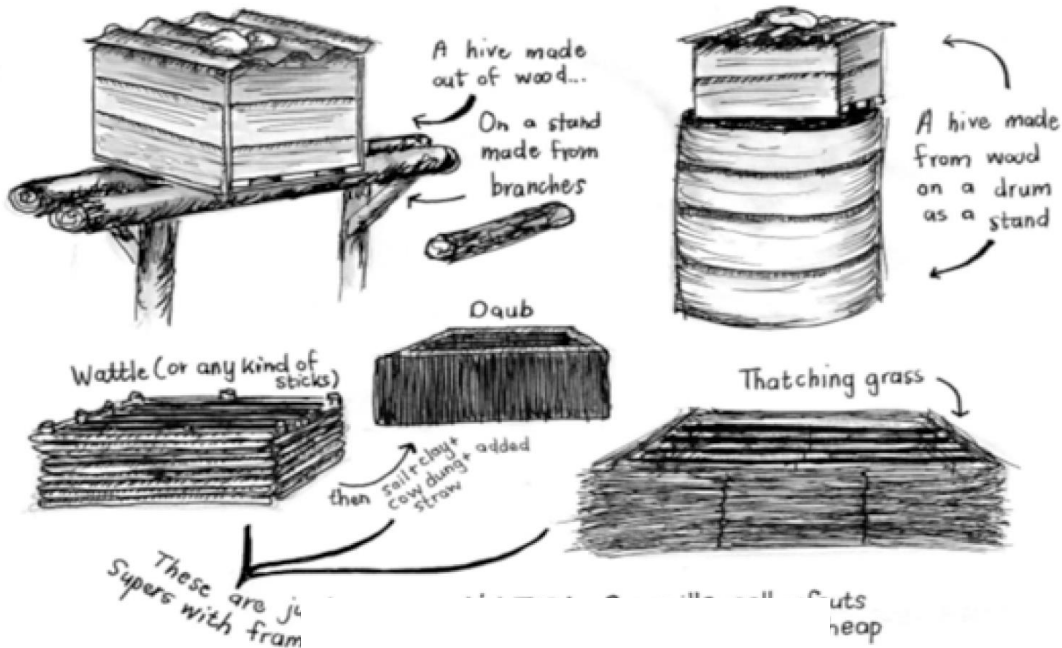


Bees like to live in a cavity [an open space with walls around].



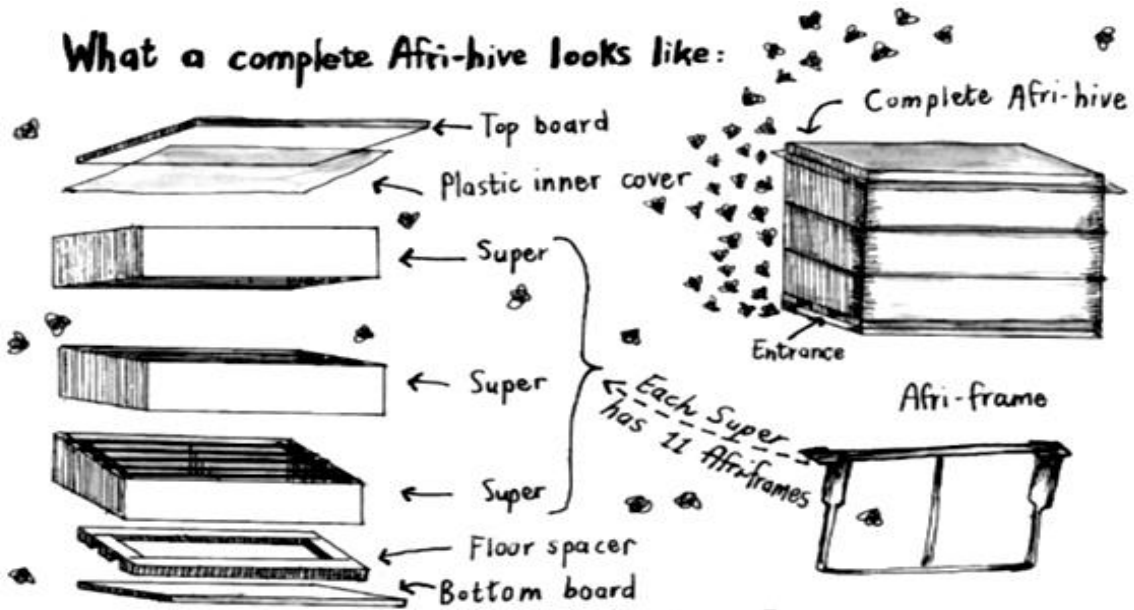
So we make a cavity in the shape of a box to keep the bees in.

You can make a hive with stuff that can be found around your home/village. A lot of people make hives from wood. You can also use thatching grass, clay, cement, daub and wattle and so on.





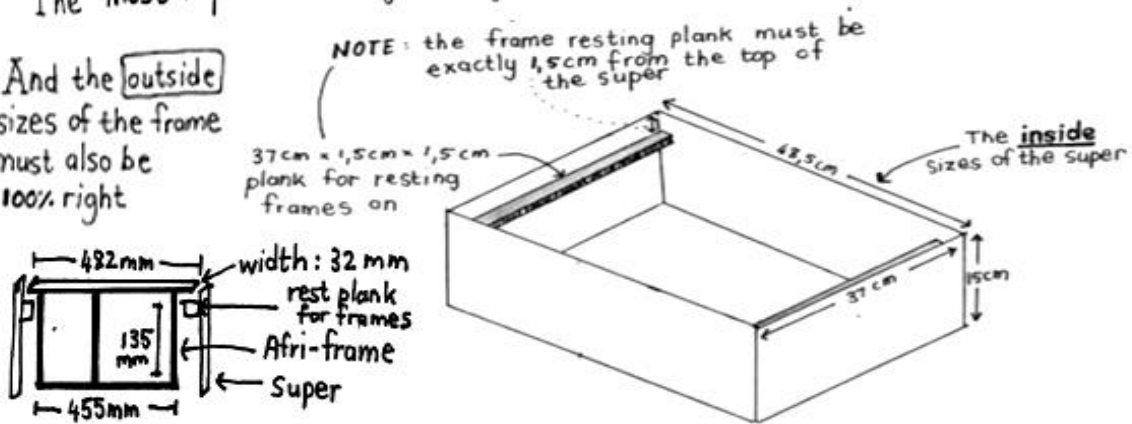
What a complete Afri-hive looks like:



## Things to think about

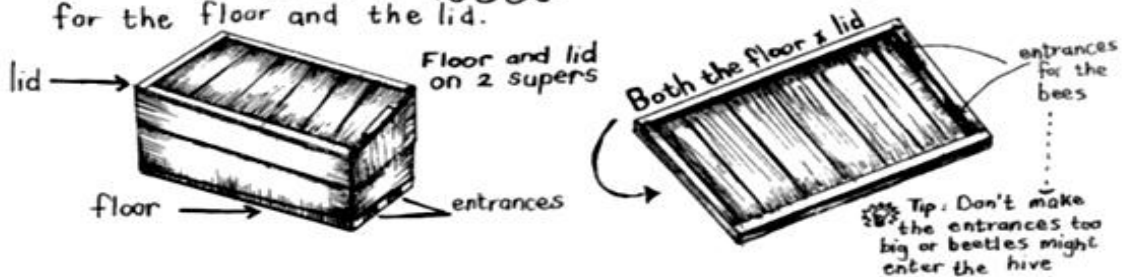
The most important thing is to get the inside sizes of the super 100% right!

And the outside sizes of the frame must also be 100% right



If you make a box with a floor and a lid- the bees can live in it.

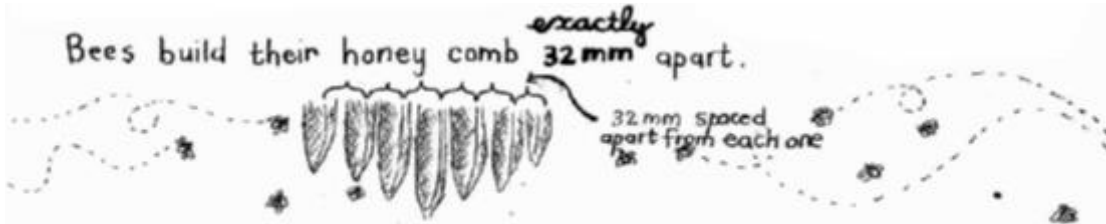
You can use: wood, corrugated iron, cement, grass, plastic for the floor and the lid.



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Bees build their honey comb **exactly 32 mm** apart.

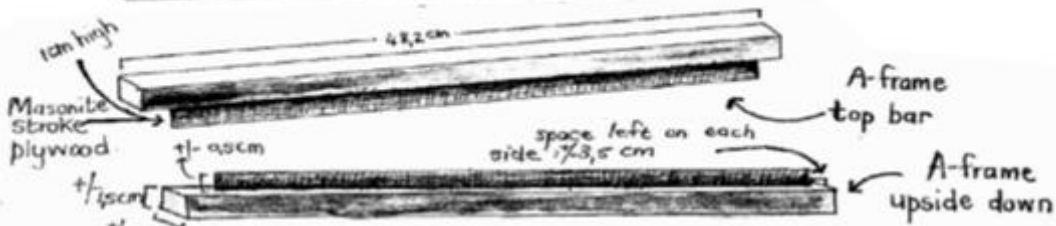


So if we put bits of wood inside the box where each bit of wood has a small strip with beeswax on and we space these bits of wood exactly 32 mm apart – the bees will build their comb onto the bits of wood. We call these bits of wood: **FRAMES**

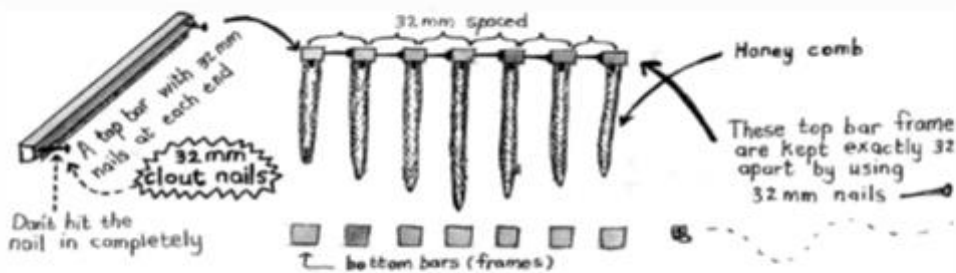
Frames can also be bought – Like the Afri-frame



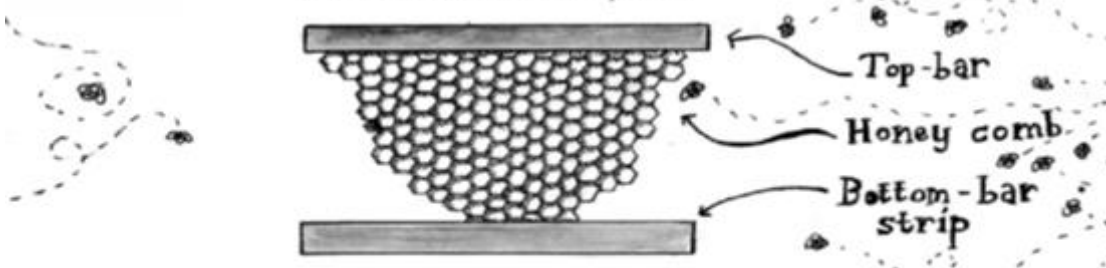
### HOW TO MAKE A TOP-BAR FRAME



Cut a groove along the plank (5mm deep). Leave 1/2 3,5 cm spaces at each end. Cut a piece of Masonite stroke plywood to fit into the groove. Glue the Masonite in the groove.



**Tip:** If you use loose strips of wood below the top-bars – the bees can build their honey comb down and attach it to the strips, separating the comb so that it can be taken out in one piece.



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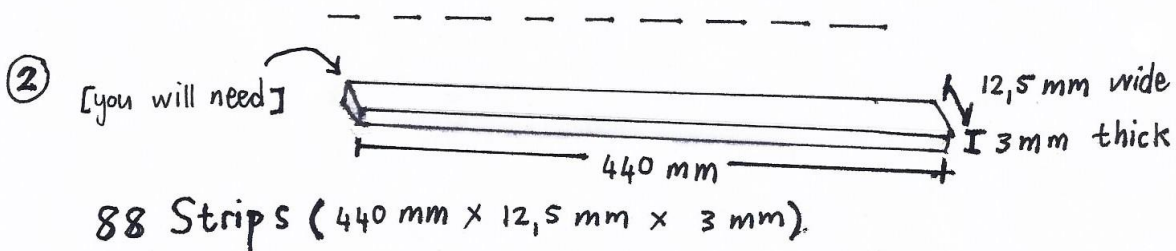
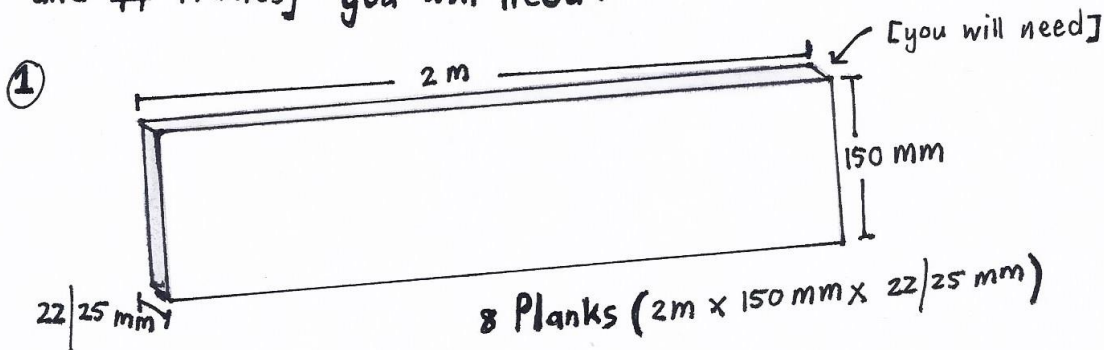




# A cost effective hive for small-scale beekeepers

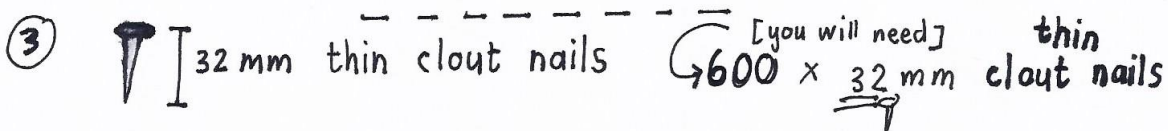
## Step 1

For making one hive [including: 1 floor, 1 lid, 4 supers, 1 inner cover and 44 frames] you will need:



★ **TIP**  
You can cut the strips to size yourself, if you can get sheets of board/plastic

★ **TIP**  
The strips can be masonite or plywood or plastic or anything rigid & solid

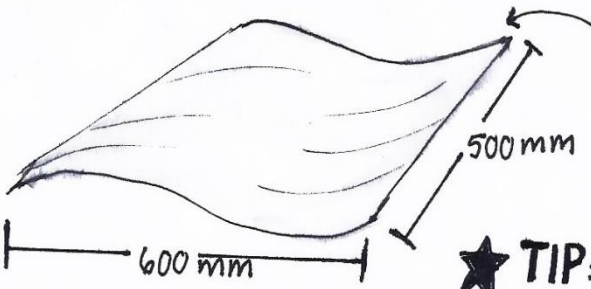


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⑤ [you will need] 200 x 15 mm thin pin nails

⑥ [you will need] 1 250 micron UV protected "see through" sheet



★ TIP: you can get this from plant nurseries

⑦ Beeswax [you will need 100g]

⑧ 1 Piece of tin, plastic (+/- 450 mm x 550 mm) or anything waterproof [you will need]

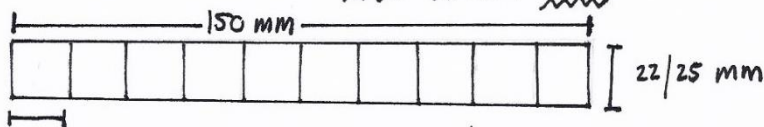
⑨ Old oil / paraffin / waxoll → [you will need] 1 Litre old oil mixed with paraffin or waxoll

⑩ [you will need] 4 m of bailing wire

## Step 2

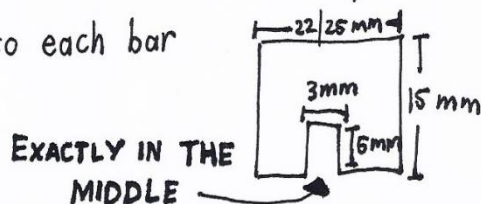
### Cutting cross bars

Cut 2 of the 2m x 150mm x 22/25 m planks into 15 mm bars



15 mm (each cut bar will thus be 15 mm x 22/25 mm)

NOW cut a 5 mm groove into each bar

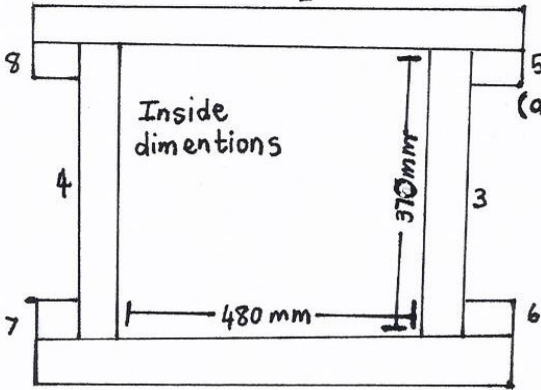


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### Step 3

Diagramme 1



Wood saw



\* Use a hand saw to cut the pieces and make sure that you cut square (a square) straight

For example:

If your plank is 25mm thick, your lengths will be as follows:

- 1] Inside dimension 480 mm + thickness of 3x4
- 2] eg. 25 mm + 25 mm + thickness of 5/6 & 7/8
- 3] eg. 25 mm + 25 mm = 580 mm
- 4] 375 mm      5/7/8 ] +/- 100 mm each

**IMPORTANT**

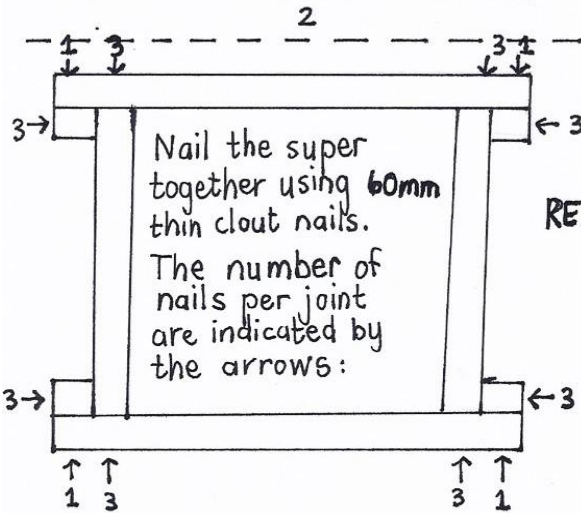


Make sure your super is 100% flat & square

**ALSO**

**REMEMBER:** YOUR INSIDE SIZES ARE THE MOST IMPORTANT!

**TIP:** Nail it together on a flat surface, like a concrete floor.



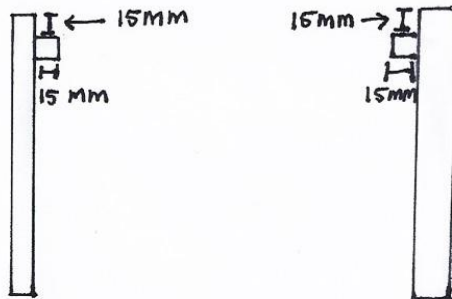
### Frame rests

✂ Cut 2 of the 15 x 22/25 mm (that you cut in step 2) into 370 mm lengths. Attach the bars to the inside of 3x4 (shown in diagramme 1).



**IMPORTANT**

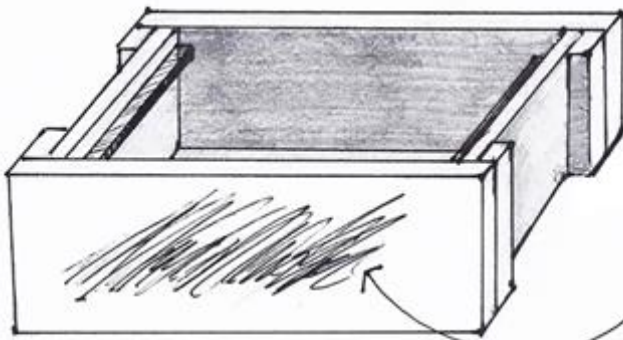
They must be EXACTLY 15 mm from the top and 15 mm wide



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Now paint your super on the outside with heated old oil/parrafin/waxoll.

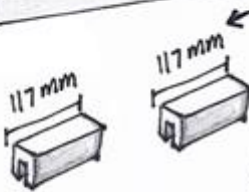


### Step 4

#### Frames



Step A: Cut a length of the cross bars explained in Step 2 to 480 mm.



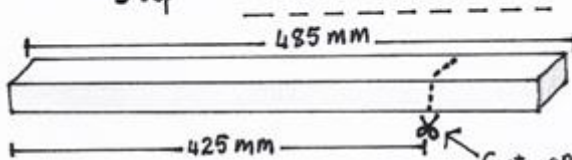
Step B: Cut 2 lengths of the cross bars explained in Step 2 to 117 mm.

Step C: Take 2 x 440 mm x 12,5 mm x 3 mm strips

Step D: Take 6 x 32 mm thin clout nails

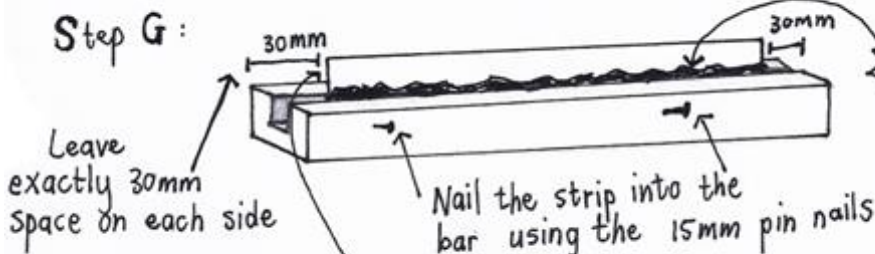
Step E: Take 2 x 15 mm thin pin nails

Step F:



Cut one of the 440 mm x 12,5 mm x 3 mm strips to 425 mm

Step G:



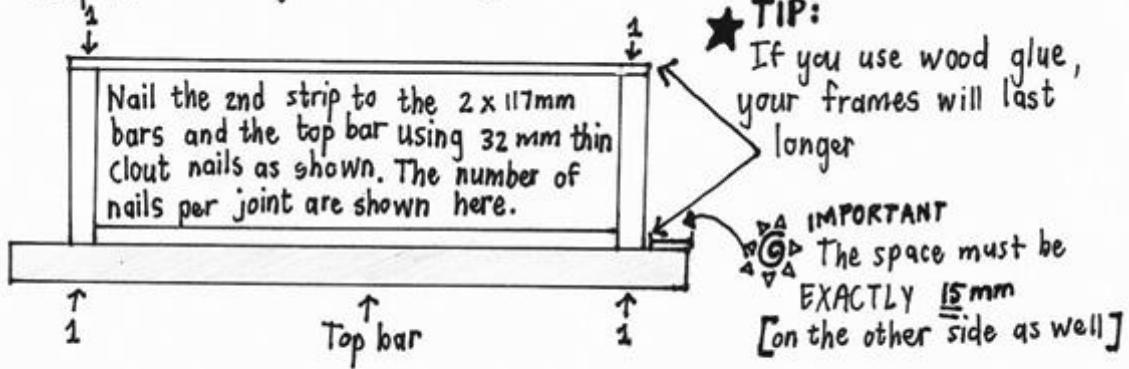
IMPORTANT  
Paint beeswax along your strip  
\* Do not spill any beeswax onto the top bar

★ TIP: The strip should stick out 7,5 mm

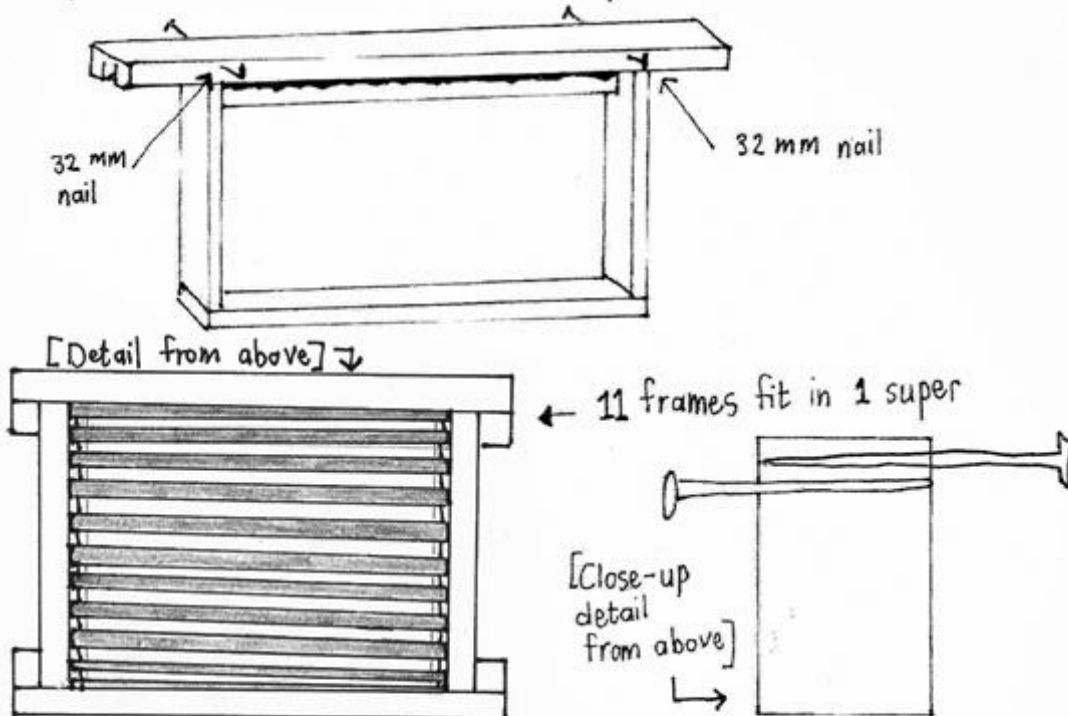
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### Step H: Nail your frame together



### Step I: Nail 32mm nails in as spacers



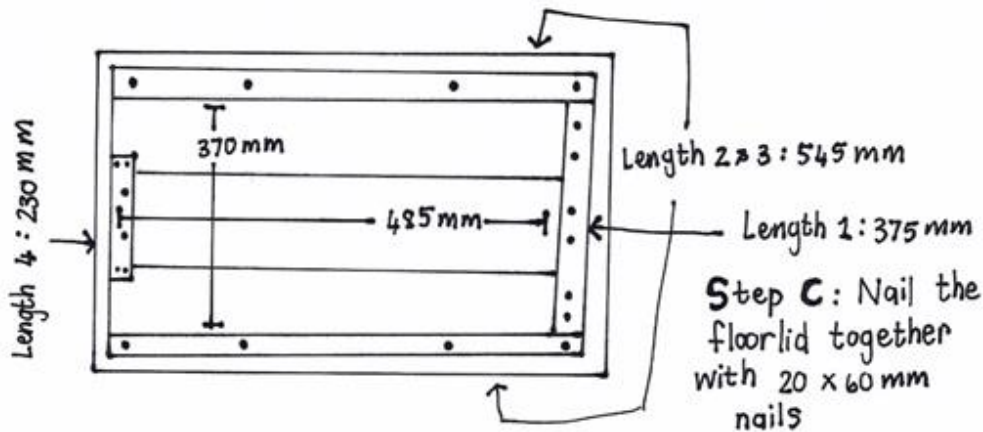
### Step 5

#### Floorlid

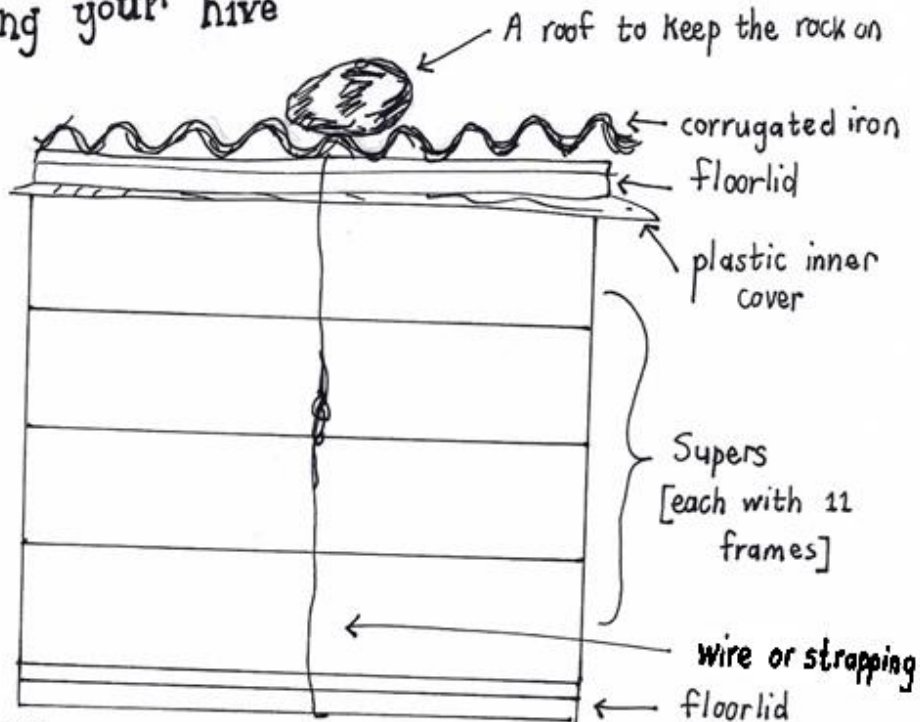
Step A: Cut 3 x 545mm planks from one of your 2m x 150mm x 22/25mm planks

Step B: Cut 4 lengths of the cross bars described in STEP 2 (instructions follows on the next page)

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## Step 6 Assembling your hive



### IMPORTANT

Your hive will only look like this when your swarm is very strong

You will move the plastic inner cover up and down depending on the strength of your swarm.

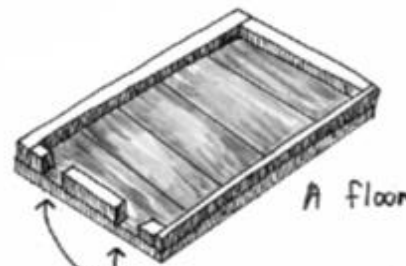
Start by using 2 supers to catch your bees and then add the other supers one by one as the colony gets stronger.

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## How to get bees to move into the beehotel you have now made!

YOU WILL NEED:

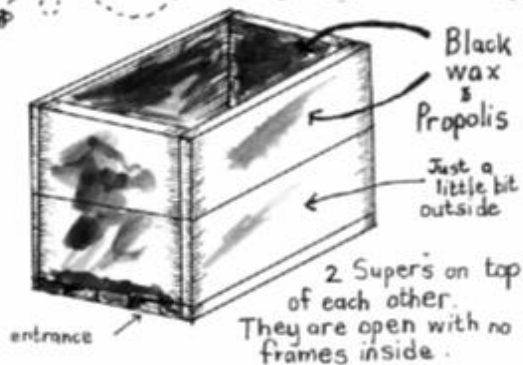


remember an entrance for the bees

Paint beeswax that you have melted onto the starter strips.



Paint some old black wax & propolis that you've cooked with water onto the sides of the supers; and at the entrances and some on the front of the hive.

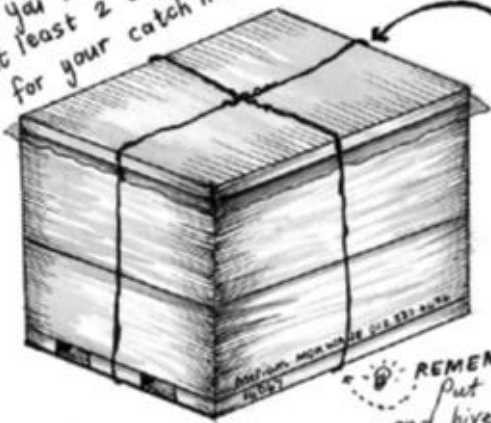




“The soul of the sluggard craves and gets nothing, while the soul of the hardworking is richly supplied.”

~ Proverbs 13:4

💡 you have to have at least 2 Supers for your catch hive



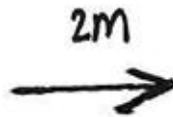
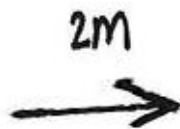
Strap the hive up with wire

Put the hive on roofs or tie them in trees



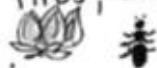
REMEMBER!  
Put your name + number and hive number on each hive

Move your hive at least 5 km from where you caught your bees so that the bees can't find their way back to where they were caught or 2m per day so that the bees can't find their queen.

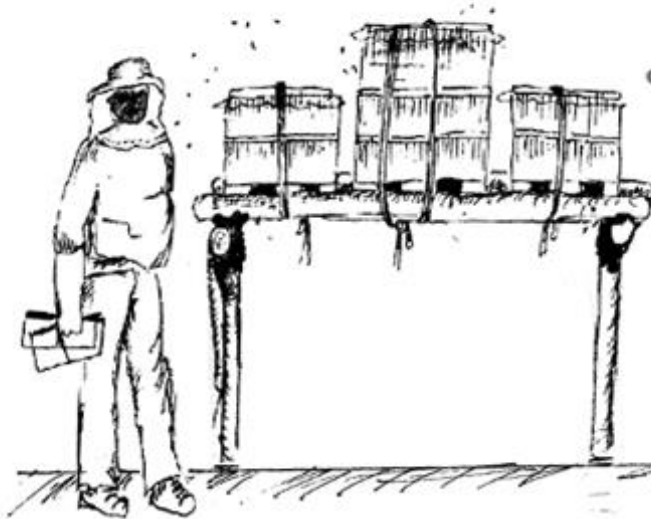


Put your hive onto the hive stand (which we will show you how to make on the next page). Tie the hive on with some wire or strapping.

Protect your bees from fires, ants, honey badgers and other tsotsis.







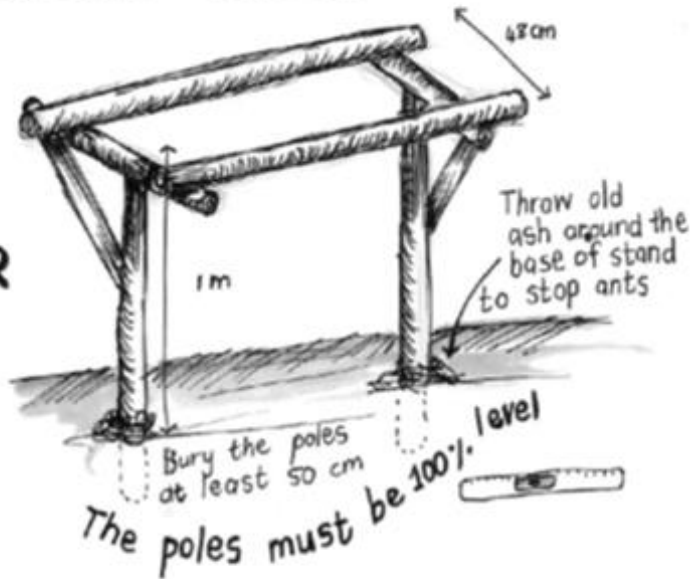
TIP: rub grease onto your hive stand legs to stop ants from going in  
ALSO clean the area around your hives so that when there are fires, they can't get to hives by burning grass

### How to make a hive stand:



Just use a 44 gallon drum

OR



When you catch bees in your hives, move them 2m per day to your hive stand.

Now you have bees that God has given you in your hive.



**Honey**  
**BUSINESS PLAN**



**PRODUCTION PLAN**

Make a veil out of an old hat, a t-shirt and some netting

Make a smoker out of an old tin

Make a hive tool out of an old screwdriver or flat bar

Make 5 hives and frames out of the material you bought

Make beekeeping gloves out of old jeans

5 Flat-packs (the materials you need to make your hives) will cost R2 500. Of course if you use old pallets or thatch grass, you will not have this expence. All your other safety clothes and tools, you can make from scrap, which will cost you nothing.

**HIVE MANAGEMENT**

Look after your bees

Remember to add a super at the beginning of the season

Honey supers

Brood supers

**CASH FLOW 1 - BOUGHT STUFF**

Date	Transaction	Out	In	Available cash
02 February 2017	Buy 5 Flat-packs @ R500 each	R2 500		-R2 500
02 February 2017	Buy a veil, gloves, smoker and a hive tool	R1 500		-R4 000
02 July 2017	Sell 50 kg honey @ R50 per kg		R2 500	<b>-R1 500</b>

**CASH FLOW 2 - MADE STUFF**

Date	Transaction	Out	In	Available cash
02 February 2017	Make 5 hives from pallets/wire and straw	R1 000		-R1 000
02 February 2017	Make a veil, gloves, smoker and a hive tool	R0		-R1 000
02 July 2017	Sell 50 kg honey @ R50 per kg		R2 500	<b>R1 500</b>



# How to make a veil, beekeeping gloves, smoker and hive tool for working with your bees

TO MAKE A VEIL AND BEEKEEPING GLOVES  
YOU WILL NEED:

- 1 a wide brimmed hat (like a cricket hat)
  - 2 some wire
  - 3 a long sleeve t-shirt
  - 4 some gauze or mosquito netting or fly screen
  - 5 Cotton thread
  - 6 some old jeans
- and tools you will need: <sup>1</sup> clothing scissors, <sup>2</sup> needle and <sup>3</sup> pliers



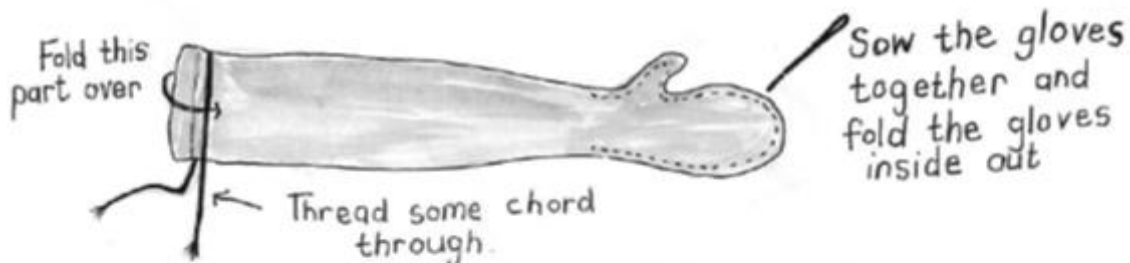
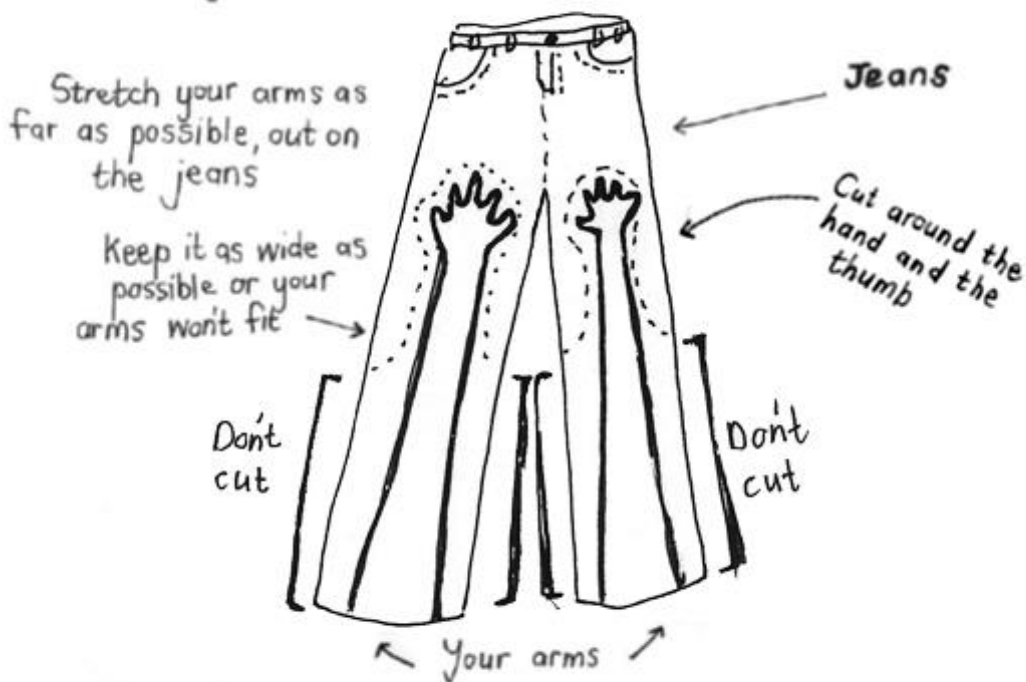
**TIP:** If the mosquito netting is white - then dye it so that it is dark/black so that you see better through the netting.

“Commit your way to the Lord;  
trust in Him & He will act.”  
~ Psalms 37:5

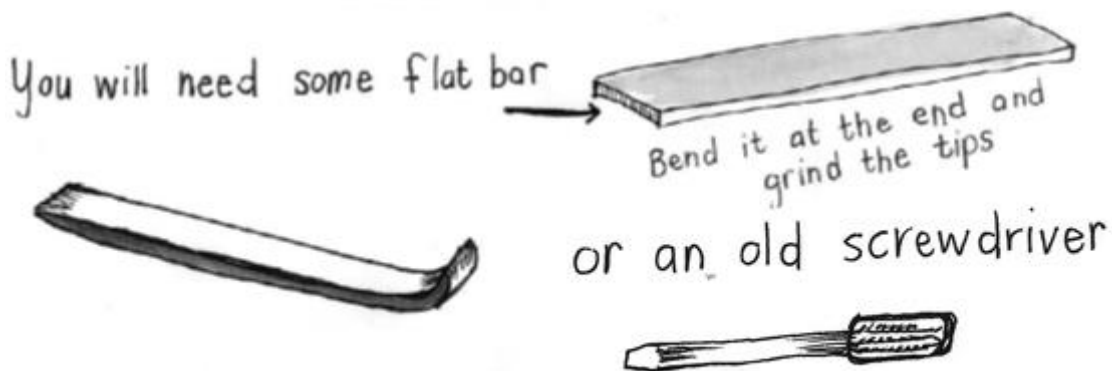


## To make beekeeping gloves:

Make the gloves as long as possible.



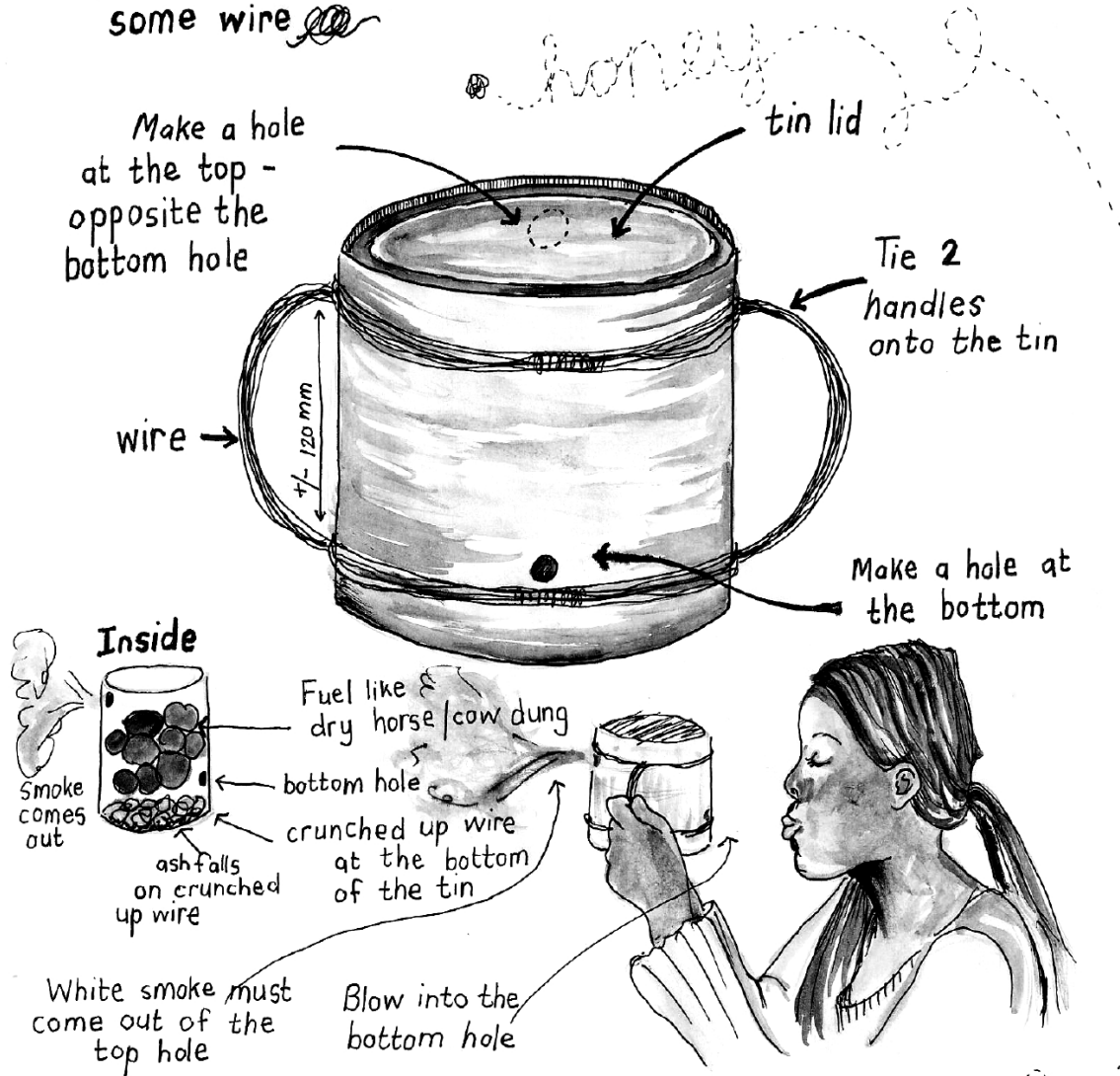
## To make a hive tool:





## To make a smoker:

You will need an old paint tin with a tin lid and some wire



### TO LIGHT THE SMOKER:

1. Start a fire in the smoker using thin grass/newspaper
2. add fuel like dry horse/donkey dung
3. blow to get the fire going
4. put the lid on tight
5. keep blowing to keep it going

### Did you know?

Smoke calms the bees because they cannot communicate when there is smoke around.

They also eat lots of honey when getting ready to leave - so don't over smoke them, otherwise they will leave.



# How to make an A-frame chicken hok

Here we will teach you to make a chicken hok. You can use it for 1) meat chickens or 2) egg chickens. There are some differences so please read carefully.

## WHAT YOU WILL NEED:

- 2 poles (+/- 3m)
  - 1 pole (+/- 3,6m)
  - 6 poles (+/- 1,5m)
  - wire
  - nails
  - Corrugated iron
  - chicken mesh
  - 1 x 2l (empty) coke bottle
  - "U" shaped nails
  - +/- 3m thin roosting pole
  - 3m (+/-) long
  - 2m (+/-) wide also! a little bit to make the doors
- 

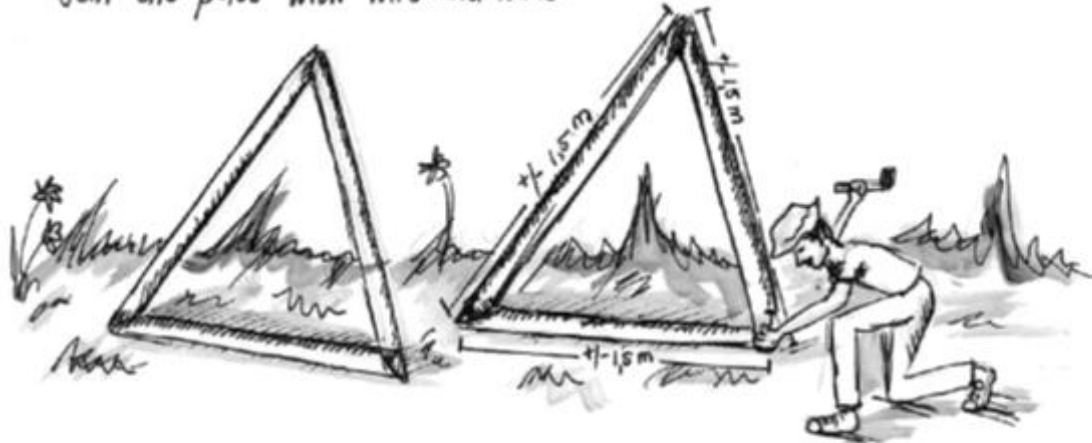
In addition for the chicken hok for egg-laying chickens you will also need:

- another 2 x (+/-) 3m poles
- 4 x coldrink/beer crates
- an extra 2 x (+/-) 0,75m poles
- Some straw, shavings or anything like it for the nests



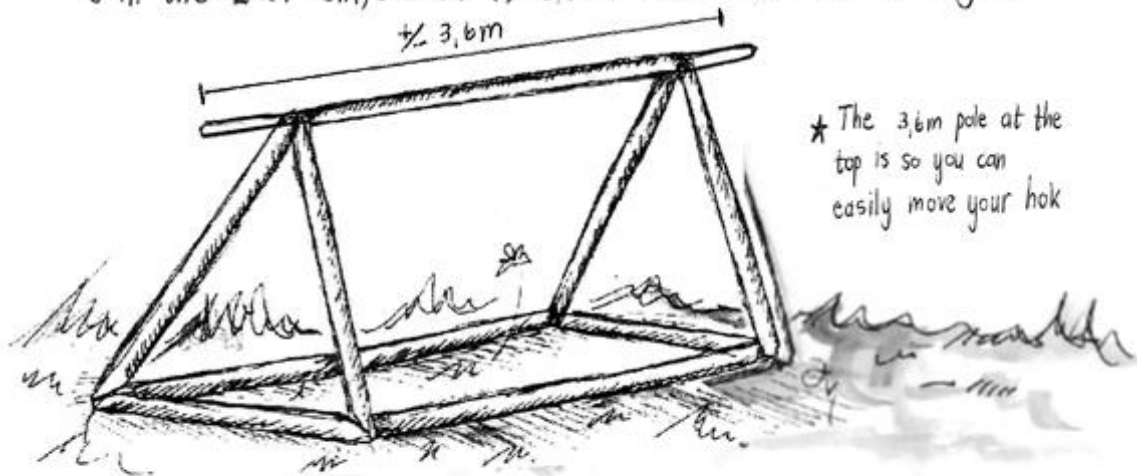
### STEP 1

Take the 6 poles (+/- 1,5m) and create 2 triangles.  
Join the poles with wire and nails.

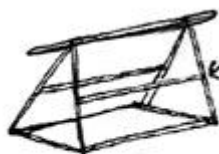


### STEP 2

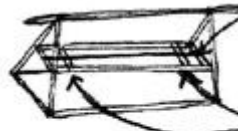
Join the 2x(+/- 3m) and 1 x (+/- 3,6m) poles with the triangles  
+/- 3,6m



★ IF YOU ARE GOING TO BUILD A CHICKEN HOK FOR EGG-LAYING CHICKENS, FOLLOW THE NEXT STEPS AS WELL :



Join the extra 2 +/- 3m poles to the sides of the A-frame.

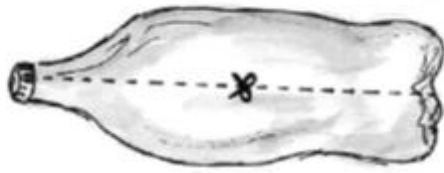


Add the roosting pole in the middle. (+/- 3m)

Add the other 2 +/- 0,75m poles (the crates will rest on them).



add the 2 +/- 0,75m poles to the 2 triangles



Cut the 2 litre bottle in half.

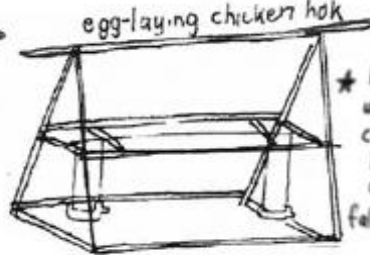
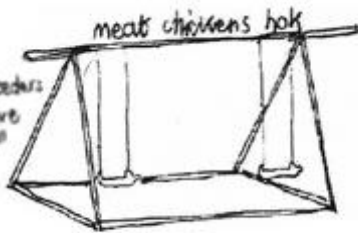
Then...



Cut both halves that they look like this

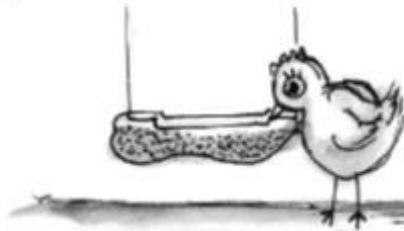
next...

★ Hang the feeders close to where the doors will be



★ Hang the feeders under where the crates (nests) will be so chicken droppings don't fall into the feeders

Hang the feeders (2l bottle halves) up with wire, rope, string or whatever...



★ VERY IMPORTANT!

The feeders should not be too high from the floor or the chickens won't be able to eat and drink

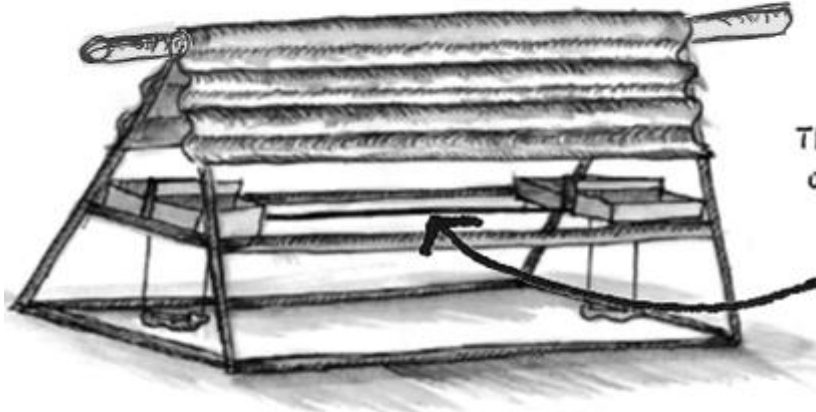
(so they'll die and you don't want that!)

“ Whatever you do, work heartily, as for the Lord and not for men, knowing that from the Lord you will receive the inheritance as your reward. You are serving the Lord Christ ~ Colossians 3: 23-24





For **STEP 4**, this is what the chicken hok for the egg-laying chickens will look like



This is the roosting pole on which they roost on

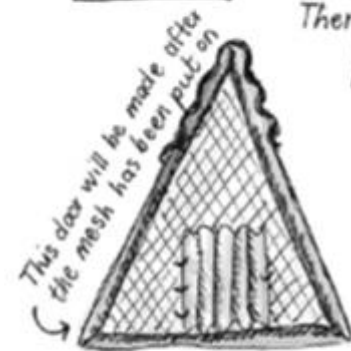


“Whoever works his land will have plenty of bread, but he who follows worthless pursuits lack sense.”

~ Proverbs 12:11

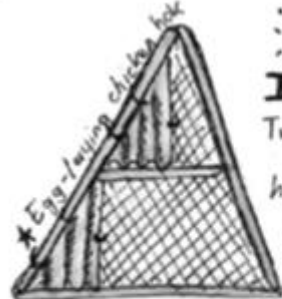
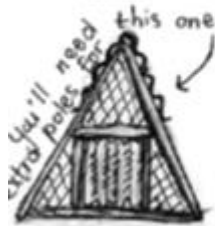
**STEP 5**

There are many ways of making doors, so you decide how you want it or even create your own door.



★ **JUST REMEMBER**

For the egg-laying chicken hok, there has to be a door on each side at the top and at least one at the bottom of any side.

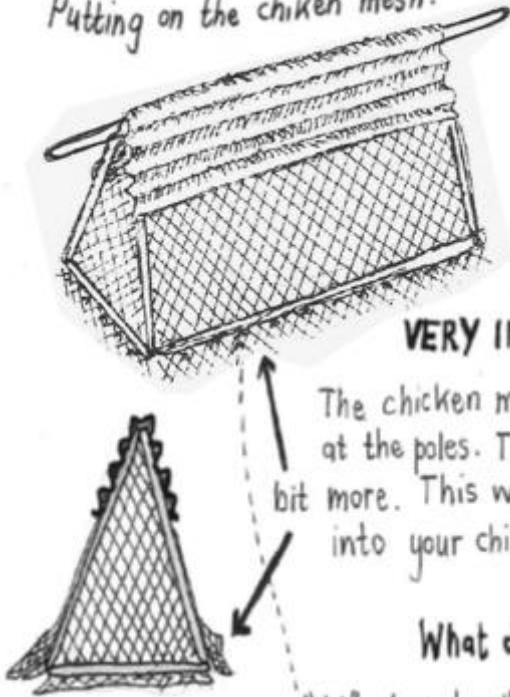



💡 **IDEA!**  
Twist nails for the hinges of your doors  
CT

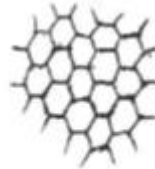


**STEP 6**

Putting on the chicken mesh:



★ Even though the chicken mesh in the picture looks like this: , chicken mesh actually looks like this:





**DID YOU KNOW?** Chicken mesh has Calcium in it, which is good for the chickens and lets the hens lay more eggs.



**VERY IMPORTANT**

The chicken mesh shouldn't stop at the poles. They should stick out a bit more. This way predators can't crawl into your chicken hok and eat them.

What do you use for putting the mesh on?

"U"-shaped nails  and Wire  to hold the mesh against the ground

“The Lord will open to you his good, the heavens, to give the rain to your land in its season and to bless all the work of your hands. And you shall lend to many nations, but you shall not borrow.”

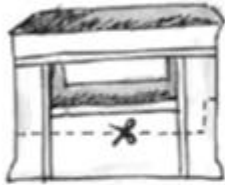
~ Deuteronomy 28:12



# FOR THE EGG PRODUCTION HOK:

## STEP FOR MAKING NESTS AND ADDING THEM TO THE HOK

★ only for egg-laying chicken hok





Cut all four of the crates like this.

Why do the crates have to look like this?

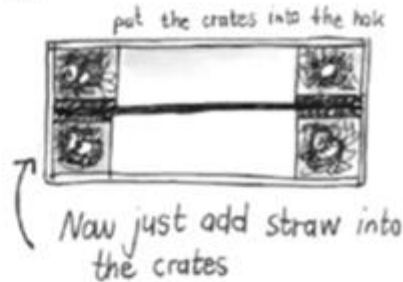
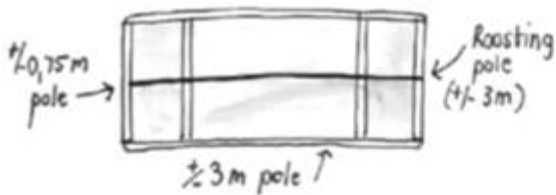


**TIP** Heat up the blade that you are going to use to cut the crates - this will make it easier to cut through



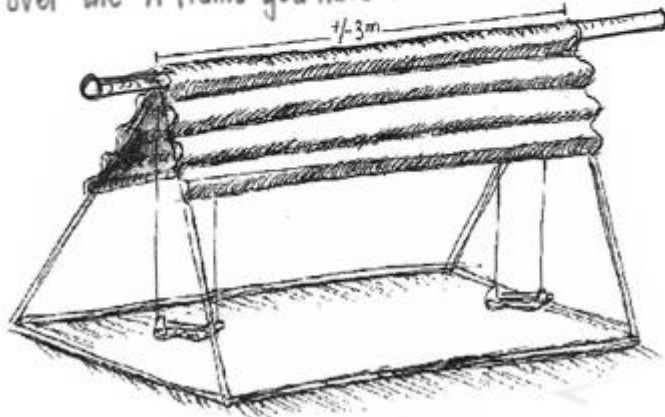
If the crates are cut and placed like this:  the chickens will want to lie in the middle and won't give you any eggs (because chickens are stupid like that) 

### TOP VIEW



### STEP 4

You can now put the roof on by bending the 1/3m long corrugated iron over the A-frame you have built so far.





## IT IS VERY IMPORTANT TO MOVE YOUR HOK ONCE A WEEK

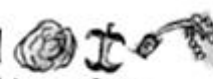

### WHY?

1. The chickens need fresh grass to hunt insects.
2. After a week there will no longer be grass and that is when you need to give the soil a chance to grow new grass.
3. Chicken droppings work great as fertilizer, in other words: your grass will grow faster and longer after you have moved the chicken hok.



Move the chicken hok the width of your chicken hok every week.

### CHICKENS FOR EGG-LAYING

- ⇒ You will need to buy 20 hens (must be 6 months old) and 1 rooster  
★ local chickens are the best!
- ⇒ When you have bought your chickens, you have to keep them in your A-frame chicken hok for 2 weeks without letting them out.  
★ Always feed them inside the hok.
- ⇒ Feed them with epol farm mix layer feed and mielie meel   
You can also feed them (just for extra) with leftover vegetables or fruit.
- ⇒ They should always have Fresh water. 
- ⇒ Do you want more chickens? Leave 1 hen to sit on 20 of the eggs.  
Only keep the hens. If you get roosters, sell them.
- ⇒ If the hens are 2-years old, sell them for meat.
- ⇒ Replace the rooster if he is no longer mating with the ladies.

(the next page has more information) ⇒



- ⇒ Fetch the eggs every 3rd day. If you leave the eggs for a while it will encourage the hens to lay eggs again.
- ⇒ Feed your children at least one egg before you sell or give the eggs to adults.

**💡 DID YOU KNOW?**

Children 0-5 years old develop the most in this time. It is **very important** that they get protein (eggs, meat), vegetables (green and raw) and carbohydrates (pap, rice) for **best development**.

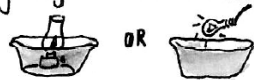
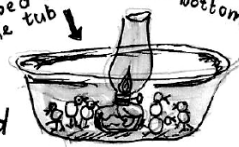


“Go to the ant, O sluggard; consider her ways, and be wise. Without having any chief, officer, or ruler, she prepares her bread in summer and gathers her food in harvest.” ~ Proverbs 6:6-8

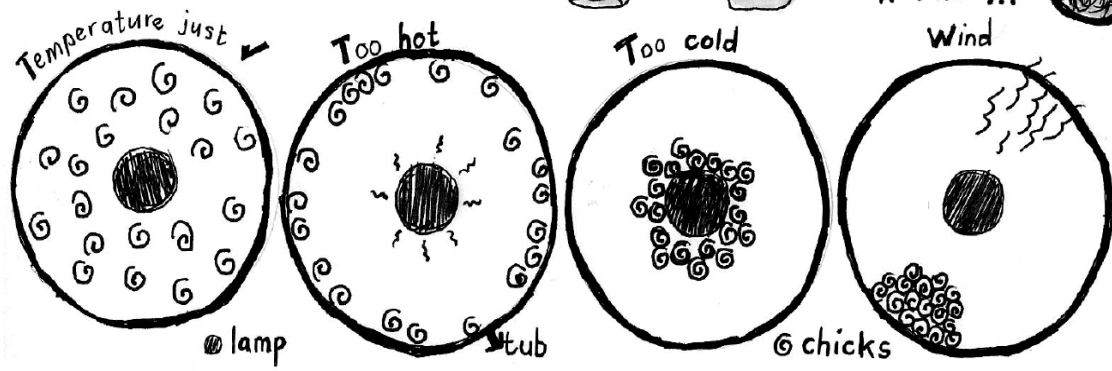
**CHICKENS FOR MEAT**

- ⇒ Make sure your chicks are not too hot or cold
- ⇒ Put them in a place where there is not too much wind
- ⇒ When you get your chicks 1 day old, keep them in a tub (big).
- ⇒ Put a paraffin lamp or a hanging light bulb in the middle of the tub to keep the chicks warm.

Put wood shavings, dry sawdust or chopped straw at the bottom of the tub





**DON'T CAUSE A FIRE!!!**





## Feeding for chicks

- ⇒ Plan the amount of food you need before you get the chicks.
- ⇒ Keep the food in a dry place and away from rats 
- ⇒ Have a bowl for food and water. ★ Put little rocks in the bowl of water so the chicks don't drown. 
- ⇒ Always feed them in the hok.

### What to feed when:

#### 1) Meat chickens

10 kg	Week 1-3	Starter mash	← kept inside with lantern or lamp
20 kg	Week 4-5	Grower mash	★ this is for 10 chicks only
10 kg	Week 6-7	Finisher mash	→ into the chicken hok

#### 2) egg chickens

- only feed them when they are laying
- give them 1 cup per day for 10 laying hens as well as: old pap, vegetables, etc.
- remember to feed and give the hens water in their hok
- Keep the hens in the hok for 2 weeks if they start laying all over the place.

## NOW YOU CAN SELL YOUR CHICKENS!

- Sell them alive.  **IDEA!** To add value: sell them cooked as chicken dust 

## ??? What does free range chickens mean?

A bird that lives outside, has fresh food to eat, gets sunshine and room to exercise.

But most importantly, it has not been given any chemicals (for example, antibiotics or hormones).


Free range chickens are a lot healthier for people than chickens that are not free range.

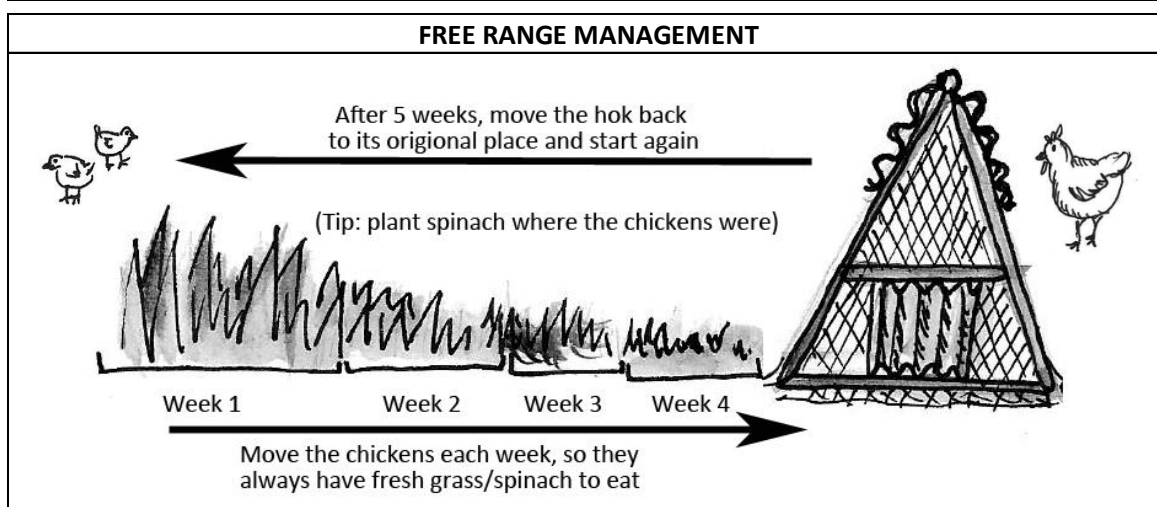


## Free-range Chicken Eggs



### BUSINESS PLAN

PRODUCTION PLAN	
<b>Step one:</b>	build your chicken hok like the one in the AHB subsistence manual.
<b>Step two:</b>	Buy good quality 6 month old Zulu hens that have started to lay. Note: Do not waste layer mash on growing chickens (under 6 months), roosters or old hens.
<b>Step three:</b>	Keep the hens closed in the hok for 2 weeks before letting them out. Note: Feed them well with Layer mash and other food while they are locked in. 
<b>Step 4:</b>	Feed your hens Layer mash, and give them clean water to drink every day, inside the hok. Note: If your hens start to lay in other places, lock them in the hok for 2 weeks.



CASH FLOW				
Date	Transaction	Out	In	Available cash
02-Feb	Buy 10 six month old Zulu hens @ R120 each	R1 200		-R1 200
02-Feb	Buy 40 kg Layer mash @ R5 per kg	R200		-R1 400
02-Mar	Sell 200 x eggs @ R1,5 each		R300	-R1 100
30-Mar	Sell 200 x eggs @ R1,5 each		R300	-R800
27-Apr	Sell 200 x eggs @ R1,5 each		R300	-R500
25-May	Sell 200 x eggs @ R1,5 each		R300	-R200
22-Jun	Sell 200 x eggs @ R1,5 each		R300	R100
20-Jul	Sell 200 x eggs @ R1,5 each		R300	R400
20-Jul	Buy 40 kg Layer mash @ R5 per kg	R200		R200
17-Aug	Sell 200 x eggs @ R1,5 each		R300	R500
14-Sep	Sell 200 x eggs @ R1,5 each		R300	R800
12-Oct	Sell 200 x eggs @ R1,5 each		R300	R1 100
09-Nov	Sell 200 x eggs @ R1,5 each		R300	R1 400
07-Dec	Sell 200 x eggs @ R1,5 each		R300	R1 700
04-Jan	Sell 200 x eggs @ R1,5 each		R300	R2 000
01-Feb	Buy 40 kg Layer mash @ R5 per kg	R200		<b>R2 100</b>



## Free-range Chicken Meat

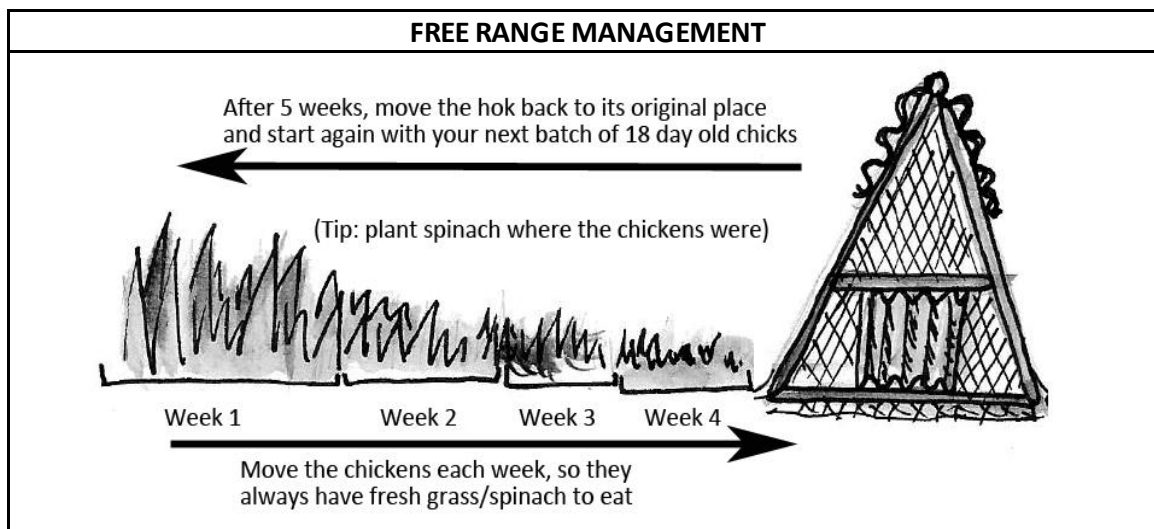
### BUSINESS PLAN



PRODUCTION PLAN				
Number of chicks	Starter mash	Grower mash	Finisher mash	Total
10	10 kg	20 kg	10 kg	40 kg
Cost of food	R50	R100	R50	R200
Weeks	weeks 0 - 3	weeks 4 - 5	weeks 6 - 7	7 weeks

 Brooder	 Chicken Hok
-------------	-----------------



CASH FLOW				
Date	Transaction	Out	In	Available cash
02-Jan	Buy 10 day-old chicks @ R7 each	R70	R0	-R70
02-Jan	Buy 10 kg Starter mash @ R5 per kg	R50	R0	-R120
02-Jan	Buy 20 kg Grower mash @ R5 per kg	R100	R0	-R220
02-Jan	Buy 10 kg Finisher mash @ R5 per kg	R50	R0	-R270
17-Mar	Sell 10 x 45 day chickens @ R100	R0	R1 000	<b>R730</b>



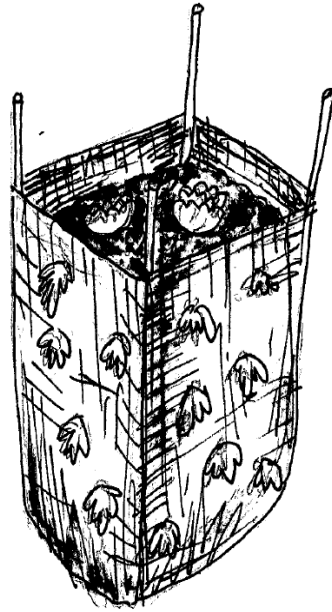


# How to make a tower garden

## What is a tower garden?

They are small upright gardens that can be watered by water that has already been used (like water used for washing dishes clothes). ↩ Great way of saving water! 😊

The garden is grown in a big sack (nylon gunny bags) with holes in it. Some vegetables are planted in the holes and other in the top soil.




## What you will need:

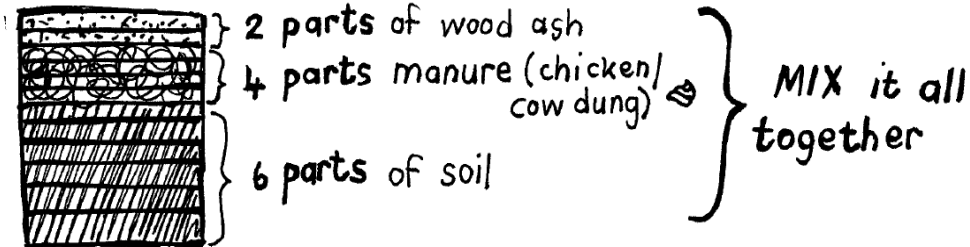
- 4 poles or straight branches
- A sack (like used for mealie meal) \* will last only one season
- OR black plastic sheet (but it breaks quickly because of the ☀)
- OR The best option: green shade netting (lasts a lot longer)
- Nylon string OR fishing line OR wire
- Soil mix (will show on the next pages how to make it)
- 10 l bucket OR big coffee tin
- stones to put in the bucket/tin

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## Step 2:

Make your soil mix (this mix will make sure your vegetables grow well). 



Fill your sack/netting with 4 poles with your soil mix

**BUT**

Don't fill it completely because you still have to put your bucket/coffee tin with stones in.

## Step 3:



Now put your bucket tin with holes inside

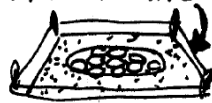
**NEXT**

pack flat, smallish stones evenly,

so the water can spread to everywhere

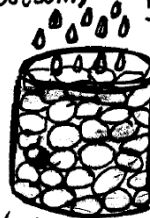
**NOW**

you fill the tower with the rest of the soil mix around the bucket/tin

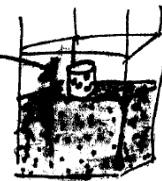


bucket/tin is level with the soil

YOU WILL THROW THE WATER IN HERE ONCE IT IS IN THE SOIL



How the water will spread.



IN THE MIDDLE

“The Lord will command the blessing on you in your barns and all that you undertake. And he will bless you in the land that the Lord your God is giving you.”

~ Deuteronomy 28:8



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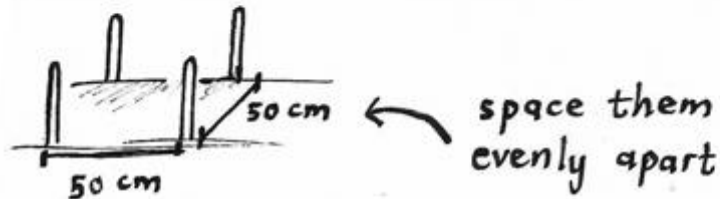
“ Are not 5 sparrows sold for 2 pennies? and not one of them is forgotten before God. Why, even the hairs of your head are all numbered. Fear not, you are of more value than many sparrows. ”

~ Luke 12:6-7

### Step 1:

If you are using a sack, put the 4 poles in the sack and stretch it like a square  ← from above 

If you are you going to use shade netting, put the poles in the ground first.

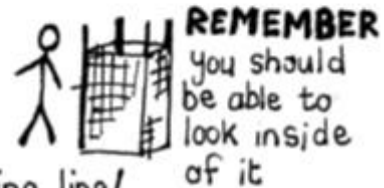


### **THEN**

Put the netting around the poles. You can decide for yourself how much you need.

### **THEN**

Tie the ends with nylon string / fishing line / wire to form a cylinder (very tightly).



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## Step 4

Make holes in the sides of the sack/shade netting

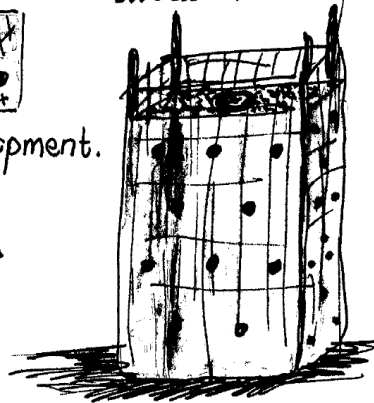
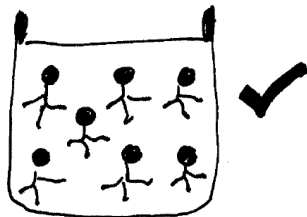
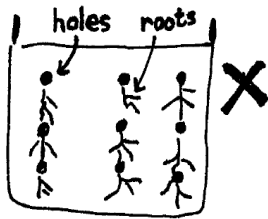


Do **not** make the holes above each other, but diagonally from each other.



What it should look like:




This is to leave space for root development.



### NOW

you can plant your vegetable seedlings in the holes and on top of the tower.





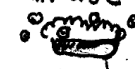
Leafy  crops are the best choice to plant in the holes; made in the sides of the tower  









You can plant tomatoes and onions on top of the tower.


## Watering

It is easy to water your tower garden because you can use used water.

 **Used water** is like: water that was used for cooking  or washing 

 It doesn't matter if the water is soapy   Helps against 1 bug   
Just give them 2 buckets  of clean water once a week.

 **How much:** Just enough to keep the soil moist.

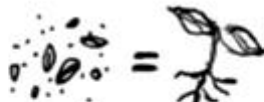
 If there is a puddle at the bottom of the you are giving it too much water.



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# How to make a seedling shelf

What is a seedling garden? 

It is a garden where young plants grow from a seed

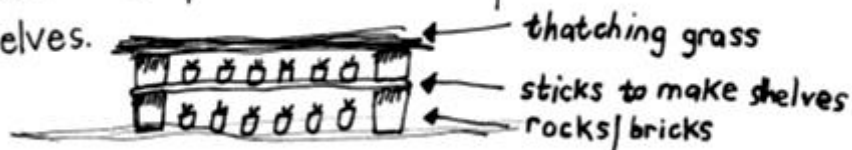
What you will need:

- some vegetable seeds 
- empty can / small bottles 
- dry grass (like thatching grass) 
- some sticks 
- soil mix 
- bricks or something similar 

## Step 1:

Make a rack.

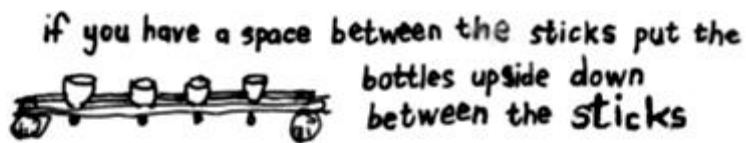
Take some sticks and put them on bricks/rocks to make shelves.



You can use these too



like this:



“Whatever you do, work heartily, as for the the Lord and not for men.”

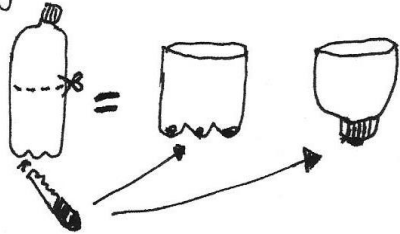
- Colossians 3:23





## Step 2

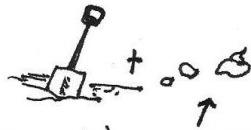
Cut your small bottles/cans in half



NOW make holes at the bottom for the water to drain out

## Step 3

Make some soil mix



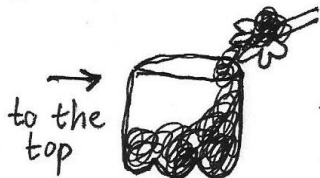
Take some soil and mix it with manure (chicken, goat, cattle)



Mix it well together

## Step 4

Put the soil mix in your cups/cans you have cut.



NOW wet it with water so all the soil is moist



## Step 5

Make a hole with your finger in the soil.



put your seed in the hole and cover it with soil

“Whoever is slack in his work is a brother to him who destroys.”

- Proverbs 13:9

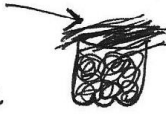
**SABAT**<sup>®</sup>  
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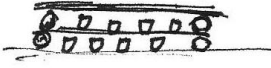
## Steps 6

Put some dry grass over it

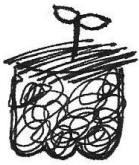
thatching grass



WHY? It keeps the  
• soil moist and  
cool.

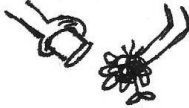
→ now you can put it on your rack 

## Step 7



When your seedling is ready to be planted  
in the tower garden:



» THEN: tip it upside down on your hand  
(with all the soil)



★ don't crush  
the seedling

**(NOW)** you can plant it in your Tower garden

## ★ Remember

- Plant different vegetables (+/- 5 of each)
- To make sure you always have vegetables,  
plant new seedlings every 2 weeks  
into your tower garden.
- The seedlings' soil has to be wet   
all of the time 

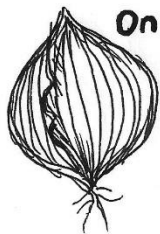
Enjoy your vegetables! More tasty than Woolworths  
vegetables 😊

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# What vegetables to plant together

It is better to plant these vegetables together because they help each other, like keeping away bugs.



**Onion**

Plant on top of the tower garden



**Mielie**

Plant on top of the tower garden



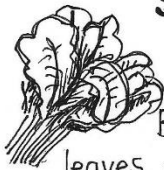
**Cabbage**

Plant on the top or the sides of the tower garden. Cabbage prefers lots of sun.



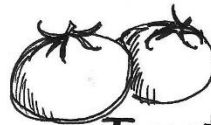
**Pole beans**

Plant on the top of your tower garden and train the stems up the pole. It likes mulch (type of material that is spread or laid over the surface of the soil as covering). Keep and dry some beans for planting again.



**Spinach**

Plant on the top and the side of the tower garden. Begin harvesting single leaves when they're 12-15 cm long. If you harvest plants regularly, they'll continue to produce new growth at the center.

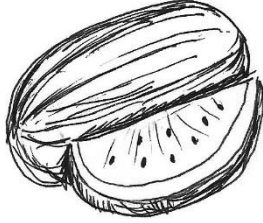


**Tomato**

Plant on the top or the side of the tower garden. Tie the plants to the poles. Check your plants daily for bugs and cut worms.

There are ways to prevent cut worms. One way is to put a collar around the base of the plant. This needs to be done when the plant is very young and small. You can make the collar out of toilet paper rolls. Cut the toilet rolls in half. Make a cut up the side and open it up and place it around the plant stem, pressing it into the soil to keep it stable.





## Watermelon

Plant at the bottom of the tower garden.



## Catnip

Plant on the top and the side of the tower garden.

Great for repelling repels

Aphids. Medicinally, the plant has been used as a tea to treat intestinal cramps, for indigestion, to cause sweating, to induce menstruation, as a sedative, and to increase appetite.



## Sage

Plant on the top and the side of the tower garden. It is great for repelling Cabbage Moths. It is great herb for cooking pork, beef and chicken.



## Borage

Plant on the top and the side of the tower garden. It is great for keeping away Hornworm. Borage flower and leaves are used for fever, cough and depression. It is also used to increase urine flow, to prevent inflammation of the lungs, as a sedative, and to promote sweating. Borage is also used to increase breast milk production and to treat bronchitis and colds. In food, Borage is eaten in salads and soups.

“ I will give thanks to the Lord  
with my whole heart; I will  
recount all of your wonderfull deeds ”

~ Psalm 9:1



# How to plant a fruit tree

## Step 1:

Dig a hole that is big enough for the whole root system

## Step 2:

Tie the tree to a pole using wide soft material, like strips of old stockings

## Step 3:

Put the tree on a heap on soil or gravel, and spread the roots out evenly in the hole

## Tip:

If the soil is heavy loosen it up around the whole so the tree roots can find soft soil to grow into

## Step 4:

If it is good soil, you can use it to fill the hole. If it is not good soil, mix it with compost or good soil - then you can fill the hole.

\* Put the pole in while planting the tree. This will support the tree while it is still very young.

## Step 5:

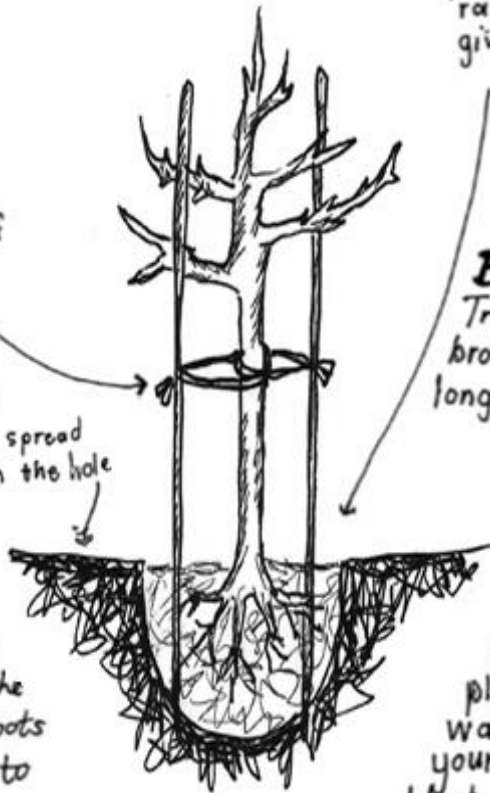
Leave a shallow dip to catch the rain or water given to it.

## Tip:

Do not let that too much is touching the tree trunk

## Before planting:

Trim (gently cut off) broken, dead or very long roots



When you are finished with planting the tree, water it and stamp your feet on the soil that is in the hole.



With some patience & love you will be able to enjoy delicious fruit!



DATE	DETAIL	MONEY IN	MONEY OUT	BALANCE
Balance from previous month				R
		R	R	R
		R	R	R
		R	R	R
		R	R	R
		R	R	R
		R	R	R
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		R	R	R
		R	R	R
		R	R	R
		R	R	R
		R	R	R
		R	R	R
Balance at the end of the month				R

DATE	DETAIL	MONEY IN	MONEY OUT	BALANCE
Balance from previous month				R
		R	R	R
		R	R	R
		R	R	R
		R	R	R
		R	R	R
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Balance at the end of the month				R

## Endorsements

Our communities are surrounded by nature. They live in areas with flora that is perfect for honeybee farming. Unfortunately, our youth go looking for employment in cities, while there are opportunities on their doorstep. The project by African Honey Bee and the material presented by them, not only opens our community's eyes to the opportunities, but also helps people learn to read. I highly recommend these booklets.

### **Sipho Ngema**

KwaMbonambi Education Circuit Manager (2017)

Sappi is committed to supporting neighbouring communities to maximise their livelihoods from mobilising all assets, natural, physical and otherwise towards enriching the quality of life they yield. Through our relationship with African Honey Bee and our combined activities, Sappi is excited to see the opportunities that arise from managing, harvesting and sustaining honey bees. The contribution to livelihoods of participating community members cannot be over-emphasised. Any opportunity for income generation leads to major saving as well as increasing what comes into the family's income basket. As we share important lessons from the Asset Based Community Development (ABCD) approach with communities living close to Sappi plantations, the embracing of the AHB related activities demonstrate a commitment to living out the promises of the approach. We endorse this African Honey Bee book as it supports this thinking and approach to community development.

### **Blessing Karumbidza**

Stakeholder Relations Manager, Sappi Forests (2017)

