



The **AFRICAN ASSOCIATION FOR VERTICAL FARMING (AAVF)**

## VERTICAL KITCHEN GARDEN TRAINING

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# Course Outline

- Introduction to vertical burel system, construction and management.
- Gardening nutrition and organic foliar.
- Introduction to EM.1 and its importance in a garden.



# Course objectives

At the end of the training, each participant will be able to;

- **Make a vertical burel planter.**
- **Make a foliar nutrient for sustainable vertical kitchen management.**
- **Make effective microorganism [EM.1] solution to nourish the garden.**
- **Plan, start and manage a vertical kitchen garden.**



**A vertical Burel with nicely planted veggies**



# Vegetables grown in the system

## Example

1. Lettuces
2. Swiss chard
3. Collard greens
4. Carrots
5. Pappers
6. Kales

## Example

- ▶ Herbs e.g. basil, oregano, thyme etc.
- ▶ Tomatoes
- ▶ Egg plants
- ▶ And man more



Bucket of vegetables grown from vertical burel  
**Sweet and Fresh**





**Lettuces , herbs and other veggies growing nicely on Burell Garden**



# Procedure of making a Burel Garden

## Material

1. 100 litres sized Burel
2. Sew
3. Heat gun
4. 1.5 m 3' pvc pipe
5. 2 wheelbarrow of gravel
6. 4 wheelbarrow of top garden soil
7. Seedlings
8. Garden shovel
9. Water
10. Watering bucket
11. Laborer
12. Heat source





# Procedure

- ▶ Choose the right location with plenty of sun, ample space and close proximity to your hose or water source.
- ▶ Assemble all the materials and equipment on site.



# Procedure of making a burel

1. Take 100 litres sized food grade plastic burel.
2. Using reciprocating saw, cut the top off the burel. Easy to control and gives a perfect depth control.
3. Mark outlines for what will be your pouches
4. Start by marking a line four inches from the bottom with your marker or grease pencil. Make that mark four inches wide. Next, make another mark eight inches from the bottom, but offset it from the end of the initial mark.



# Lines marked and perforated





## Burel making procedure cont'

- ▶ 5. 100 litres sized barrel fits 50 planting holes.
- ▶ 6. Using heat gun machine/heat source , heat the marked holes and use 300ml coca cola bottle to shape the planting holes, alternatively, use 3 inches diameter wooden rod.
- ▶ 7. Repeat the same procedure until 50 holes are done.
- ▶ 8. Used drill bits saw to make holes at the bottom of the burel to allow drainage.



**Burel perforated with planting holes.**



## Cont'

- ▶ 9. Take a 3' pvc pipe and cut to fit the height of the barrel.
- ▶ 10. Perforate holes on the sides of the pipe.
- ▶ 11. Suspend the pipe in the middle of the barrel using binding wire.
- ▶ 12. Add the gravel and rich garden soil procedurally whereby gravel are placed on the sides to the pipe followed by garden soil.
- ▶ 14. Repeat the same procedure to the brim.
- ▶ 15. Using a watering bucket, moist the media. Do not flood.
- ▶ 16. Add some worms to enrich your soil.
- ▶ 17. Plant your desired vegetable intercropping with onions or herbs.





**Adding garden soil simultaneously in the burel**



# Barrel planted with herbs and veggies





# Management routine

1. Water on a daily basis.
2. Control pests and diseases.
3. Feed your garden.
4. Eat handsomely



# Effective Microorganism Em.1

## Definition

- ▶ Effective Microorganisms (EM) are mixed cultures of beneficial naturally-occurring organisms that can be applied as inoculants to increase the microbial diversity of soil ecosystem.
- ▶ Often consist of photosynthesing bacteria, lactic acid bacteria, yeasts, actinomycetes and fermenting fungi





# Procedure of making effective bacteria

## RECIPES

- 4 cups of white rice
- 4 cups of water
- 4 liters of milk
- 4 spoons of brown sugar
- 4 liters jar





# Procedure

- Step 1.
  - Put rice in a bowl and add fresh water.
  - Stir until water turns milky.
  - Keenly decant the water leaving the rice as sediment.
  - Cover the milky water with a paper and take to a nearest garden for 7 days. This is done to collect macro from air.
- ▶ Step 2.
  - Pour the liquid into 4 litres milk container, be careful not to mix with the sediments.
  - Cover the top with paper or cloth and allow it to ferment for 7 days.
  - A brown solid is formed at the top due to the fermentation.





## Procedure cont'

- ▶ Step 3.
- ▶ 1. Remove the curd, it can be mixed with garlic for tasty treat for your animal.
- ▶ 2. Add four tea spoons of brown sugar in to the EM.1 and stir.
- ▶ 3. Store up to a year in a cool and dry place.
- ▶ 4. Formulate 20ml of water in 20 liters and spray on your garden.

ENJOY YOUR GARDEN NOURISHING



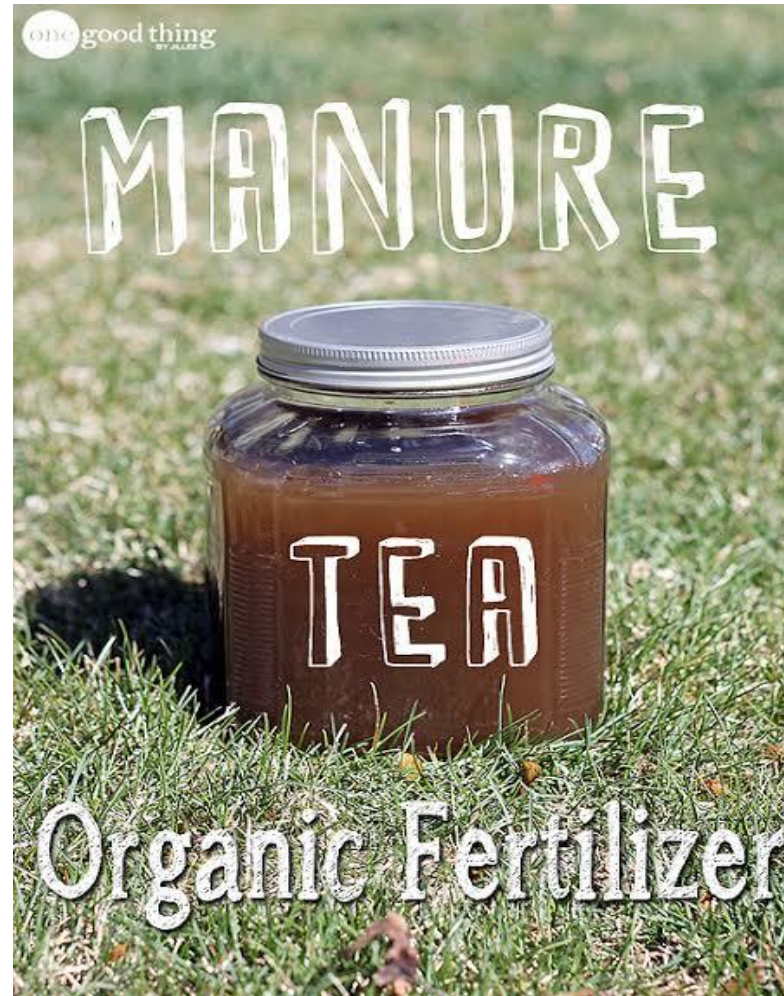
# FOLIAR TEA MANURE

- ▶ Manure tea is the product of the manure of livestock and plants residues being steeped in a bag submerged in water. This tea is used for the fertilization of crops. This is an organic alternative to chemical fertilizers and is a more sustainable practice of fertilization.
- ▶ It provides plants with healthy nutrients they requires to flourish.
- ▶ It is cheap and easy to make.



# Rich organic tea

- ▶ Plant tea manure





# Procedure

## Materials

- 500g of bananas leaves/stalks
- 500g of animal fresh drops
- Coffee husks
- 500g Ash
- 20 litter bucket
- a strong
- Porous paper(sack)
- Panga



## Procedure cont'

1. Chop the bananas stalks into small pieces
2. Put the mixture of banana, potash, coffee husk and animal manure in a sack.
3. Fill the bucket with water
4. Tie the sack with a rope and suspend on a bucket full of water.
5. cover with a lid and put in a shade for 10-15 days.
6. A well ripped tea manure have a strong pungent smell.
7. Remove the suspended manure on a sack and have your rich tea manure ready.
8. Apply at aration of 1:10





# Plants treated with plant tea







# Thank You for your attention.

- ▶ For further information and offers with your booking requests, please do not hesitate to contact us.

Sincerely,

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President

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