



Vi Agroforestry

# Agroforestry through the eyes of children





## Preface

**Vi Agroforestry** is a Swedish development organization, fighting poverty and improving the environment through tree planting. We do this together with farmers and farmers' organisations in East Africa. The foundation of Vi Agroforestry's work is agroforestry – planting trees and crops or livestock on the farmland. It provides increased access to food, more income, and protection against the negative effects of climate change. Since its inception in 1983, the organization has helped to plant 100 million trees and improved the lives of 1.8 million people in countries of Rwanda, Kenya, Uganda, and Tanzania.

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2022

You can find some of the material in this book in the SALM training manual developed jointly by Vi Agroforestry on the homepage: <https://viagroforestry.org/>.



## Table of Contents

### CHAPTER 1: Agroforestry: the situation in my family and the World 5

This is my family.....	5
A global food crisis .....	6
Spot the differences.....	11

### CHAPTER 2: What is Agroforestry? 12

The beauty of agroforestry .....	13
Food and income security .....	13
Climate change is different from weather.....	14

### CHAPTER 3: Agroforestry and Climate Change 14

Why the Earth is warming?.....	15
--------------------------------	----

### Chapter 4: Let's learn about Sustainable Agriculture Land Management (SALM) 15

Climate change and mitigation .....	15
Consequences of climate change.....	15
Before SALM.....	17
After SALM .....	17
Benefits of agroforestry.....	18
Agroforestry practices.....	19
Here is what your friends and family can do: .....	19
We should not do this: .....	20
The trees are awesome! .....	20

## Chapter 5: Agroforestry in action 21

Short term trees .....	21
Long term trees.....	23
Fruit trees .....	23

## Chapter 6: How to plant a tree 24

Start your nursery .....	24
Benefits of on-farm nurseries .....	24
Location of tree nursery .....	25
Steps to plant a tree.....	29

## Chapter 7: How to do Agroforestry & Sustainable Agriculture Land Management (SALM) on your farm and in your community 30

Environmental clubs - Eco clubs.....	30
How to join the Environment club.....	30
Start your kitchen garden.....	31
Steps to start a kitchen garden .....	31
Other types of gardens.....	32

## Chapter 8: What to eat - healthy eating is fun 32

Your healthy plate .....	34
We need all this to grow and be healthy. ....	35

## Chapter 9: WASH - water, sanitation, and hygiene 36

## Chapter 10: Gender and Agroforestry 37

WORD SEARCH.....	38
CROSSWORD.....	39
ANSWERS .....	40
ANSWERS .....	41



## CHAPTER 1: Agroforestry: the situation in my family and the World

### This is my family

Hello, my name is Uwase. My family and I are farmers, which is the most common job in the world. We grow crops that we can eat and sell at the market for you to eat too. We need to increase our production so that everyone has food on their plate. Smallholder farmers together produce around half of the world's food.



## A global food crisis

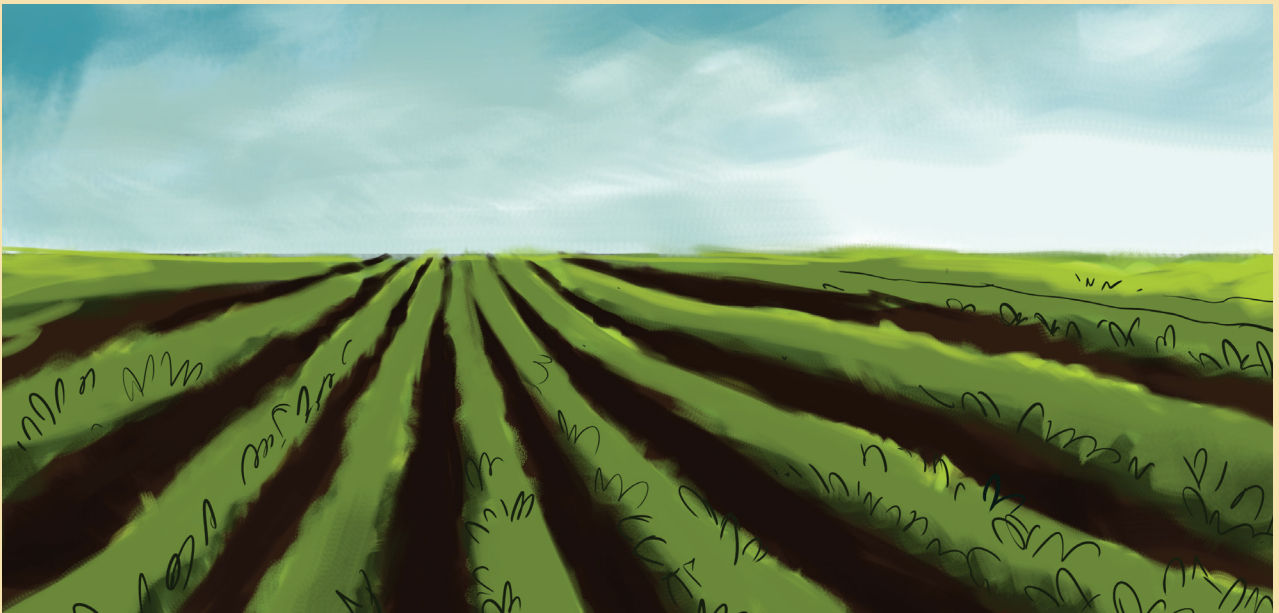
Farmers need healthy seeds, soil, trees, and rain to grow enough crops for everyone. Unfortunately, it is not the case in my village, because:



Many farmers in my district cut trees and clear forests to have more space to grow crops. It causes deforestation.



Farmers also use a lot of chemicals to fight crop disease. For example, they often use chemical pesticides.

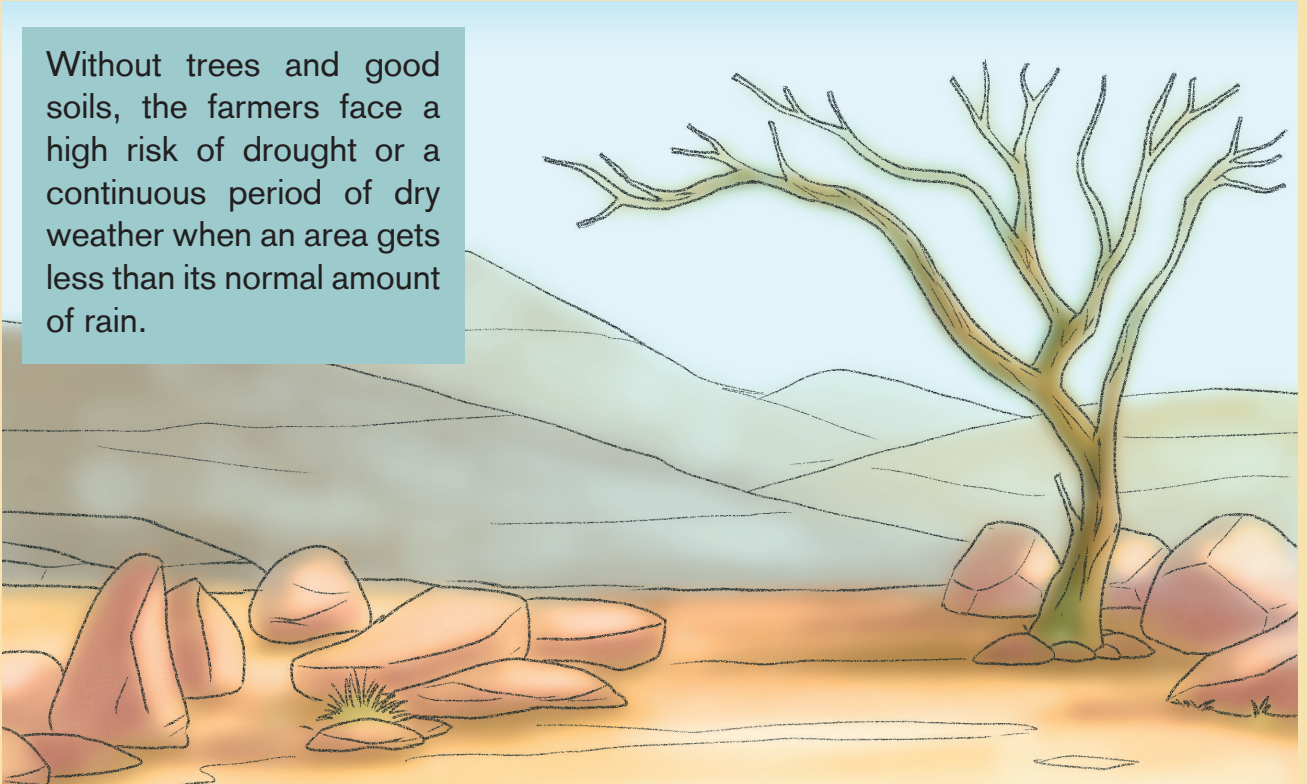


Big farms often use big lands to grow one type of crop. This is called intensive monoculture.



**There are consequences when farmers cut forests, grow one type of crop, and use lots of chemical pesticides.**

Without trees and good soils, the farmers face a high risk of drought or a continuous period of dry weather when an area gets less than its normal amount of rain.



The crop they grow become more vulnerable to drought, floods, and landslides.

Natural hazards weaken the soil. Then, the soil loses its good nutrients.

## Benefits of Agriculture



Agriculture provides food to people so they do not get hungry.



Agriculture provides means to make a living for farmers and communities.

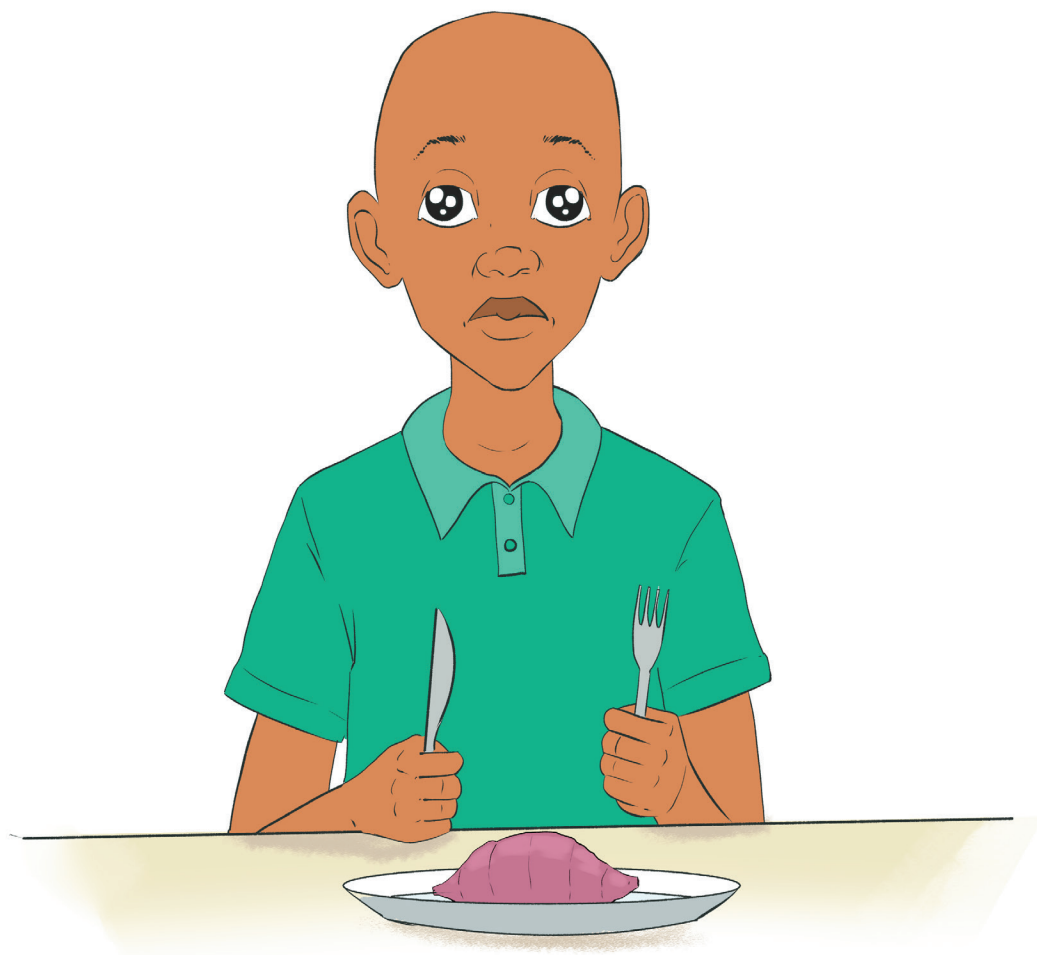


Farmers preserve nature and the environment when they practice good agriculture.

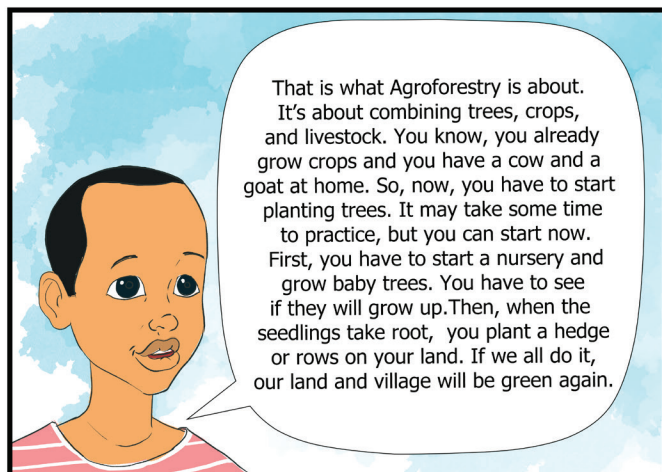
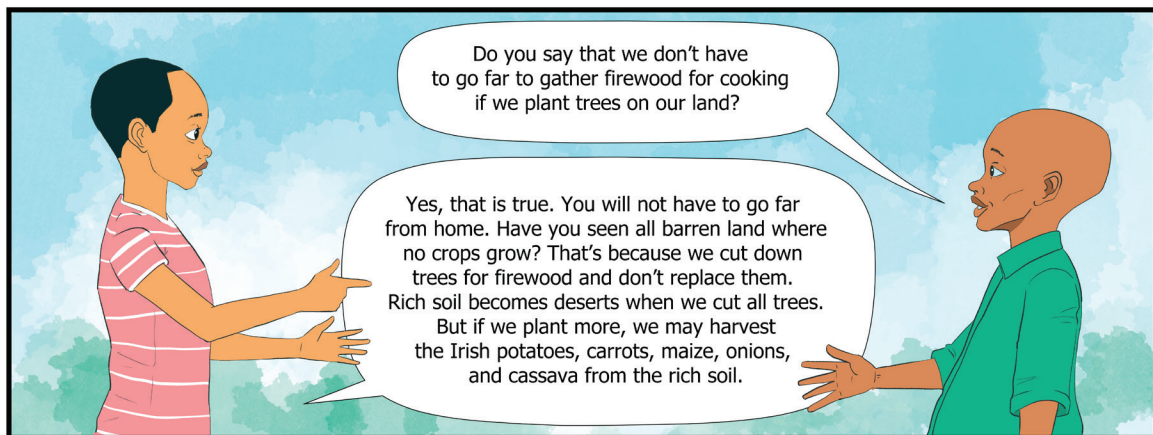
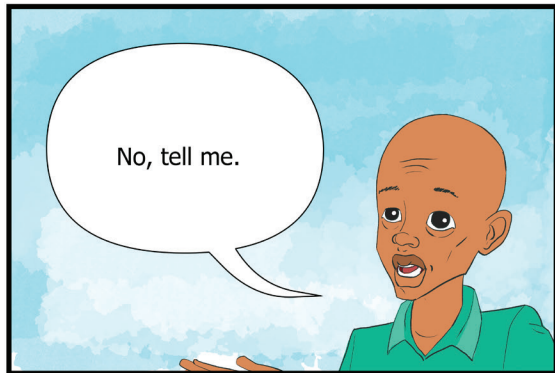


## My friend Manzi doesn't have enough food at home

My friend Manzi and his family do not have enough food. Although his parents grow crops, they do not produce enough for them. They do not have enough to sell at the market because they do not produce enough to feed them. As a result, Manzi does not grow well, suffers from malnutrition, and is often sick. His parents cannot sell food at the market, and they do not have money to buy notebooks and books for school. Last year, heavy rain destroyed the crops that his parents were growing.



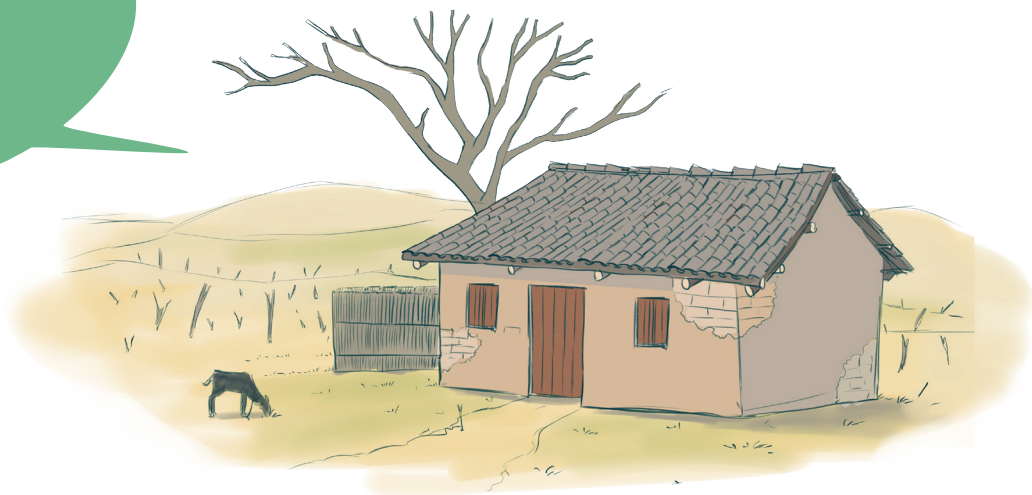
I met Manzi on our way to school. He asked me where we get the variety of food we eat at home. I explained to him how agroforestry supports families to gain income and eat good food.



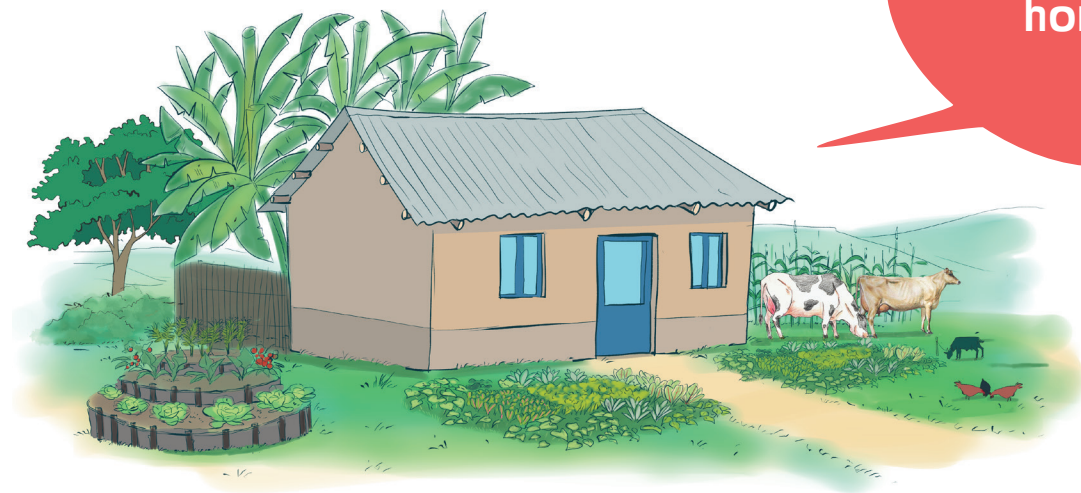


## Spot the differences

Manzi's  
home



Uwase's  
home



## CHAPTER 2: What is Agroforestry?

**Agroforestry is a when you grow trees, crops, and livestock on the same piece of land.** It makes sure that trees, crops, and animals can all live happily in the same place and benefit each other. It helps many families to use small pieces of land in a good way.

Trees allow birds, insects, and other animals to help plants produce fruits through pollination. As a result, trees provide food and fruits such as papaya and avocados.

Trees purify the air we breathe in that contains oxygen.

Why do farmers need to plant trees?

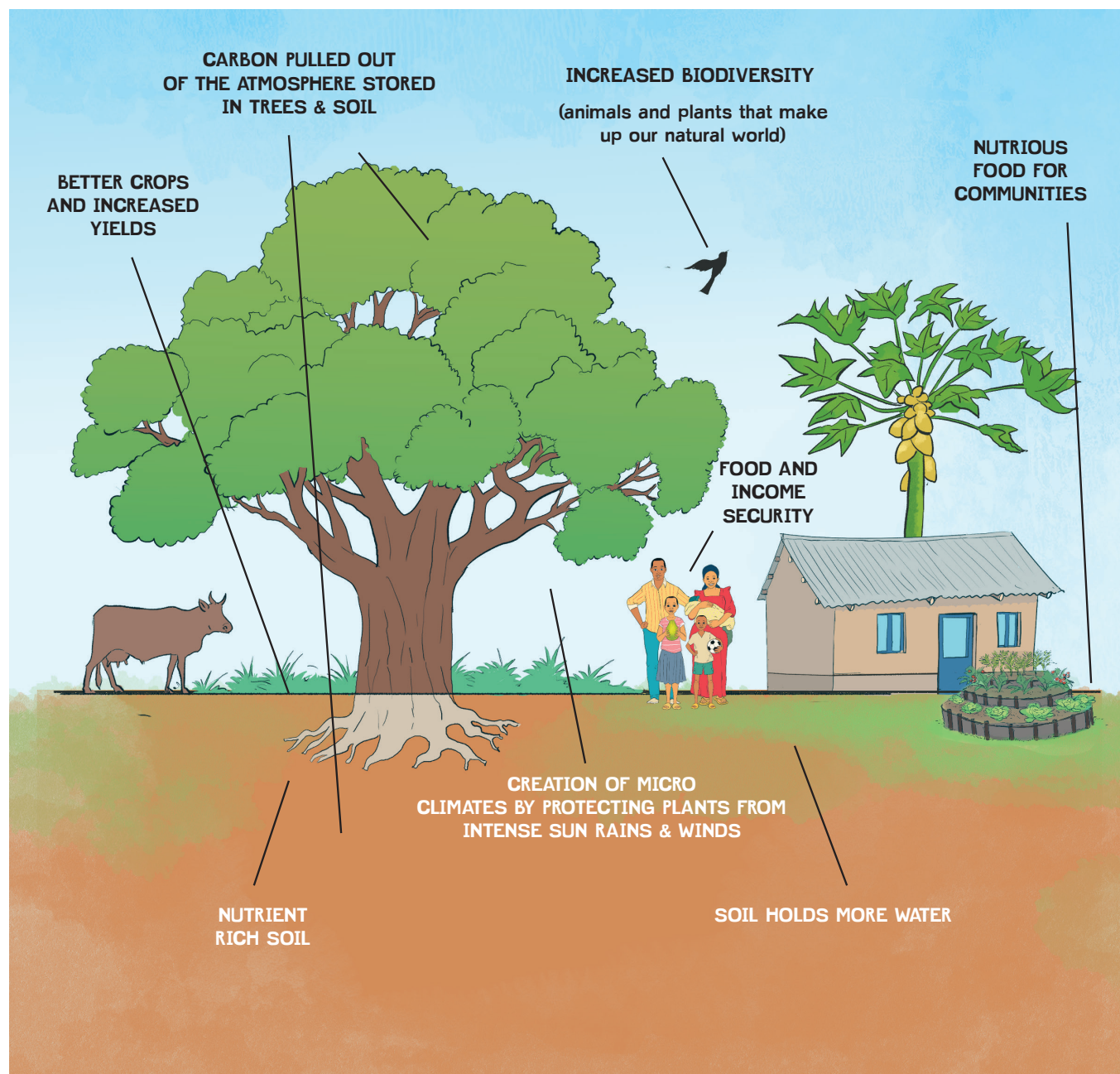
Trees retain water in the soil. They also prevent erosion.

Trees protect wildlife habitats such as natural parks and marshes where elephants and giraffes live.

## The trees are good. Here is how they benefit farmers.

Farmers who plant trees also benefit a lot and protect their lands and the environment.

## The beauty of Agroforestry





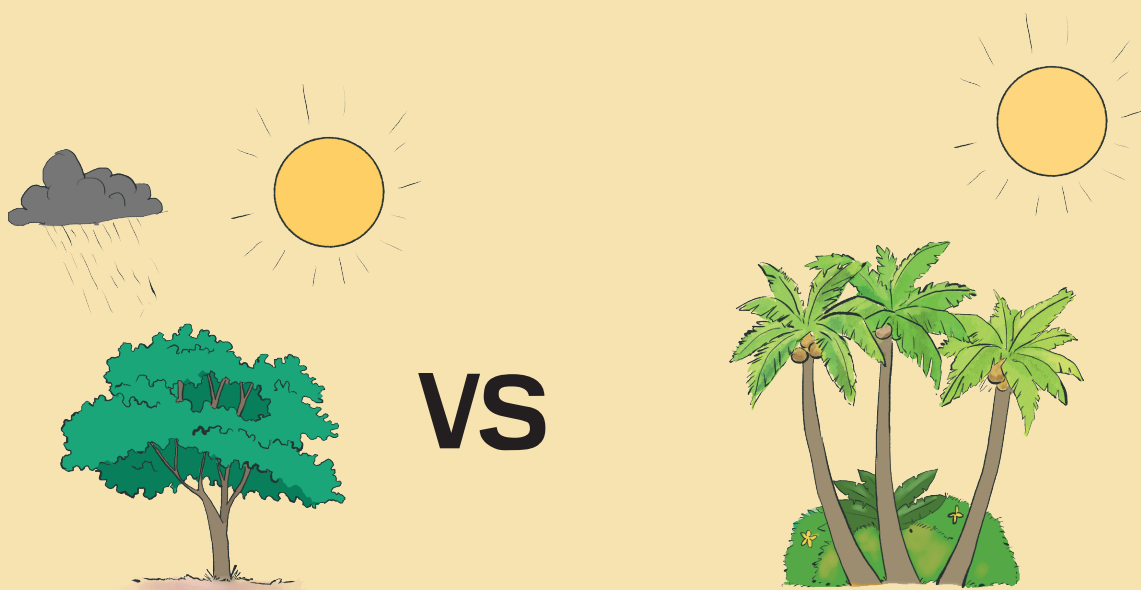
## CHAPTER 3: Agroforestry and Climate Change

Agroforestry improves productivity and reduces the effects of climate change.

### What is climate change?

Have you ever heard about climate change on the radio or the TV news? Why is it important to talk about climate change? Climate change is one of the factors that affect agricultural production.

### Climate change is different from weather

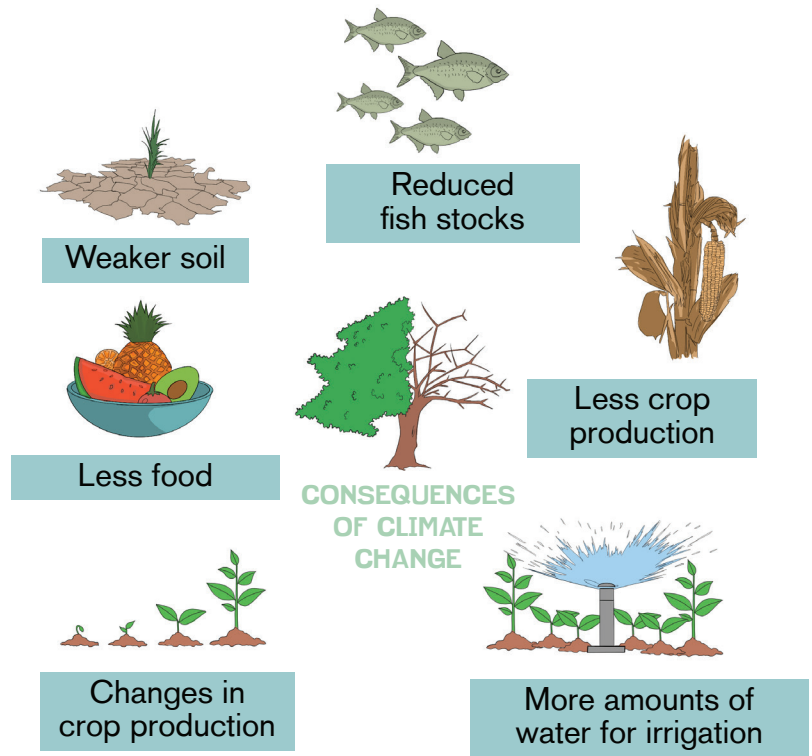


We say it is the weather when it rains for a week because the changes are temporary. However, we also know it is just weather when the quick changes affect a small area, such as one district in Rwanda.

We talk about climate change when the changes affect a longer period over many years. We also talk about climate change when those changes affect an entire region, such as East Africa.

## Why the Earth is warming?

Some of the gases in Earth's atmosphere trap heat from the Sun — like the glass roof and walls of a greenhouse. These greenhouse gases keep Earth warm enough to live on. But human activities, such as destroying forests, create extra greenhouse gases. It traps even more of the Sun's heat, leading to a warmer Earth. Source: NASA



## Chapter 4: Let's learn about Sustainable Agriculture Land Management (SALM)

### Climate change and mitigation

Farmers worldwide have been struggling with the impacts of changing climatic conditions on their animals and plants. Therefore, it is vital for farmers and all of us to find ways to reduce the harmful effects of changing climates and improve their farming practices through Sustainable Agriculture Land Management (SALM) activities.

- **Climate change adaptation** involves activities to manage the social, environmental, and economic impacts of climate change.
- **Climate change mitigation** involves activities implemented to reduce the emission of greenhouse gases.

## Let's learn about Sustainable Agriculture Land Management (SALM)

The benefits of trees on the impacts of climate change are essential.

**Sustainable Agriculture Land Management (SALM)** is a way for farmers to adapt to climate change and achieve resilience.

Managing Agroforestry has three primary attributes:

- **Productivity** or maintaining or increase production.
- **Sustainability** or meeting the needs of the present generation without compromising those of future ones; and
- **Adoptability** or being culturally acceptable and environmentally.

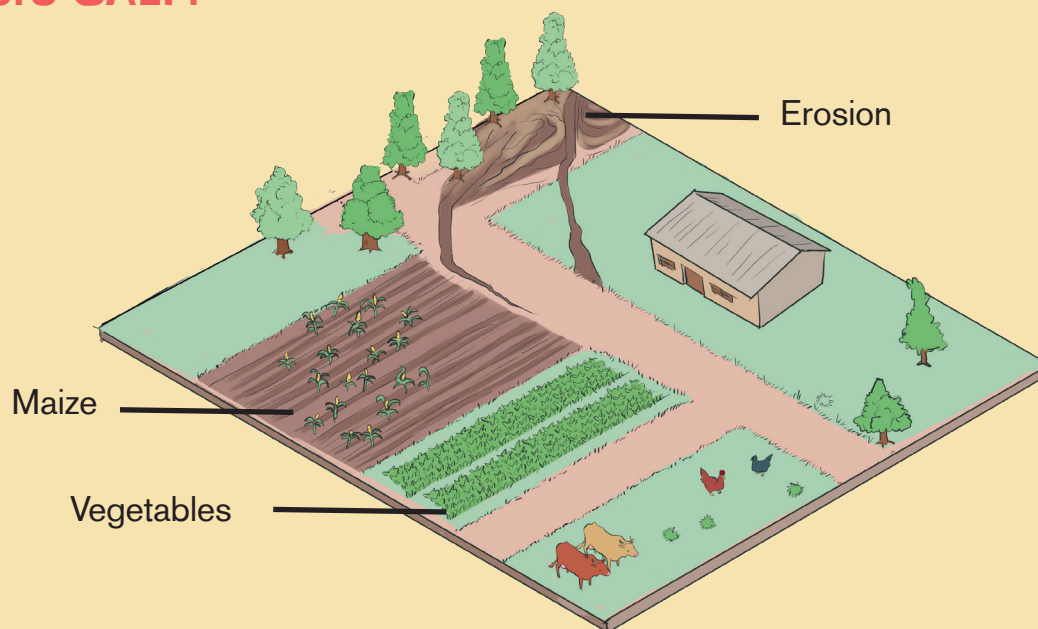
Farmers have been doing agriculture for hundreds and hundreds of years. However, in East Africa, there is not enough land to have large farms because of the growing population.

Agroforestry is one of the solutions because it can be adopted on small pieces of land and still produce big harvests.

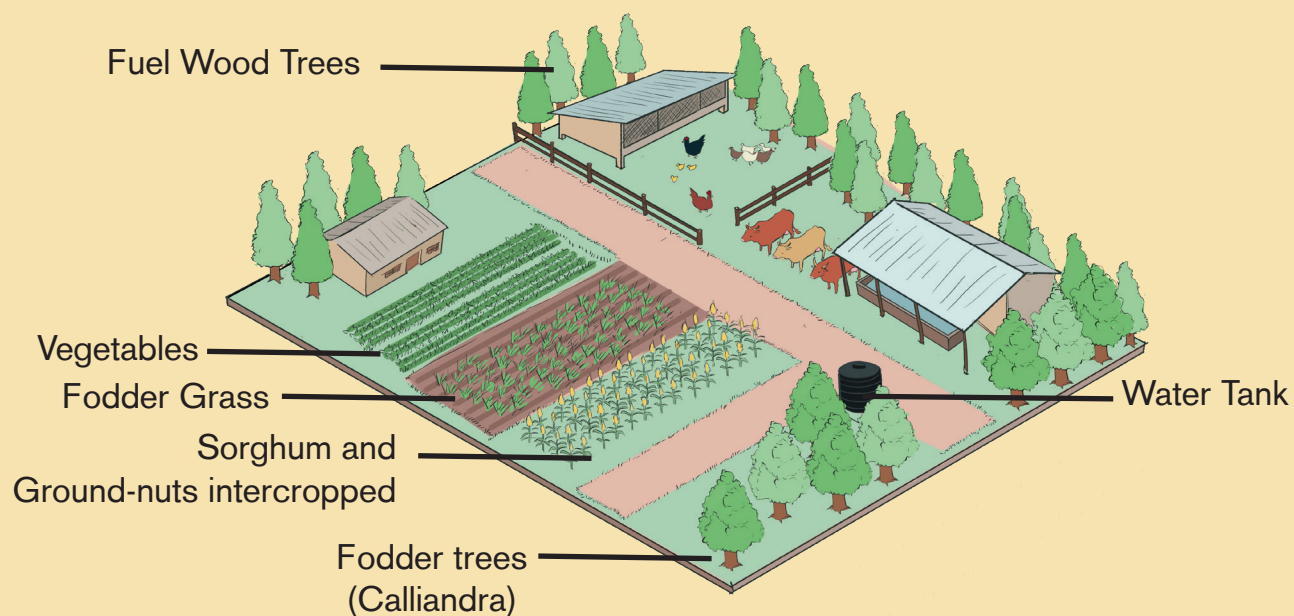




## Before SALM

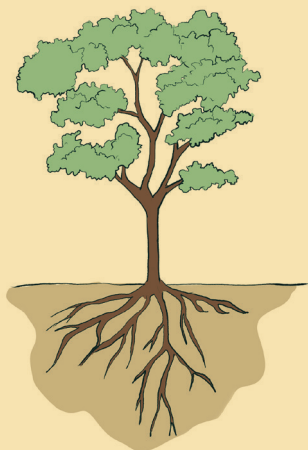


## After SALM



## Benefits of agroforestry

Farmers can adapt to climate change by planting suitable trees on their lands and achieving more durability in different climate zones.



**Soil Fertility**



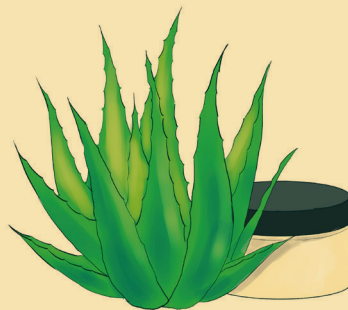
**Income**



**Cultural**



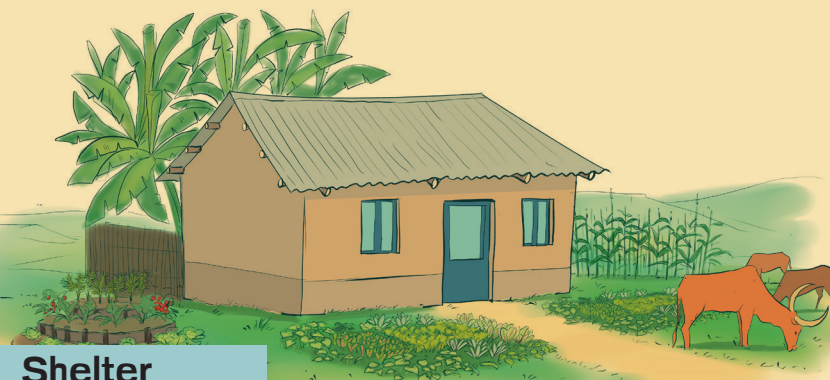
**Food and Nutrition**



**Medicine**



**Firewood energy**



**Shelter**

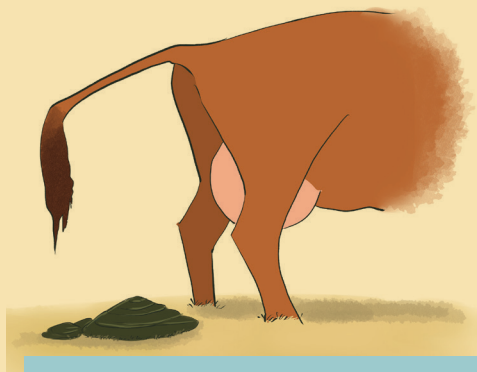
## Agroforestry practices

More and more people are being born every day. So it makes our lands smaller. There are many hills and mountains like in Rwanda, making it hard for farmers to plant crops. Therefore it is our responsibility to learn how to use land better.

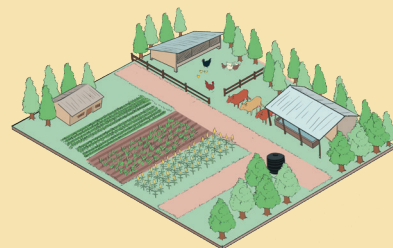
### Here is what your friends and family can do:



Planting different types of crops. It is good for a balanced diet.



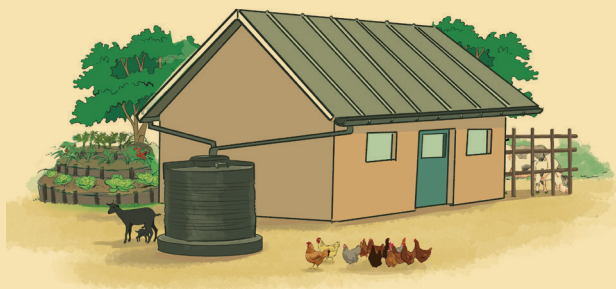
Use composted manure. Composted manure is food for the land and the crops.



Use Agroforestry. It is how we learn to plant crops and trees in small spaces.



Terracing. Farmers break their land to look like stairs, help hilly areas be protected from heavy rains, and take the crops away.



Water harvesting. Farmers collect water and store it in dry seasons. They can collect rainwater.





### We should not do this:

1. Burn crop residues. It makes the land weaker for even future crops.
2. Do not let cows and goats feed on crops.
3. Misuse land because then the soil can be taken away by heavy rainwater, and there are risks for weeds, pests, and diseases to attack crops.
4. Should not use harmful chemicals to avoid pollution.

### The trees are awesome!

Animals in Agroforestry are also vital because they provide manure to the trees and crops. In Agroforestry, crops, trees, and animals benefit from each other.



# Chapter 5: Agroforestry in action

## Short term trees

### Papaya



- Fast-growing tree
- Fruiting within 5 months
- Lives for 4-5 years
- Available during the whole year
- The green fruit is used as a vegetable for cooking
- Very popular breakfast fruit



## Calliandra



- fast-growing
- adding nutrients to the soil
- continuous food for animals
- leaves are highly nutritious: 3 kg of fresh Calliandra leaves gives the same protein as 1 kg dairy meal
- flowers provide good bee-forage
- if grown tall, Calliandra supplies firewood and seeds



## Long term trees

Those are the trees that grow for many years. Many of them are trees planted to produce timber, poles, fruits, etc.

## Fruit trees

In my village, I can see fruit trees including avocado tree, mango tree, tomato tree, papaya tree and guava tree.

They produce fruits to eat. Also, farmers can sell the fruits in local markets.

Fruit trees can be grown in homestead gardens, fruit orchards, or dispersed in croplands.

**Grevillea** grows for many years to produce good timber.



- Tea and coffee plantation shade

## Mango Tree



- produces fruits many years

## Chapter 6: How to plant a tree

### Start your nursery

A tree nursery is where we take care of tree seedlings and grow them to be the size we want. Then, we can use the plants or sell them to other farmers. Nurseries offer easy access to new tree seedlings at a low cost.

### Benefits of on-farm nurseries

You can grow the trees you want and many seedlings.

- You can earn more income by selling them.
- It will be easier and cheaper for your family to manage seedlings.



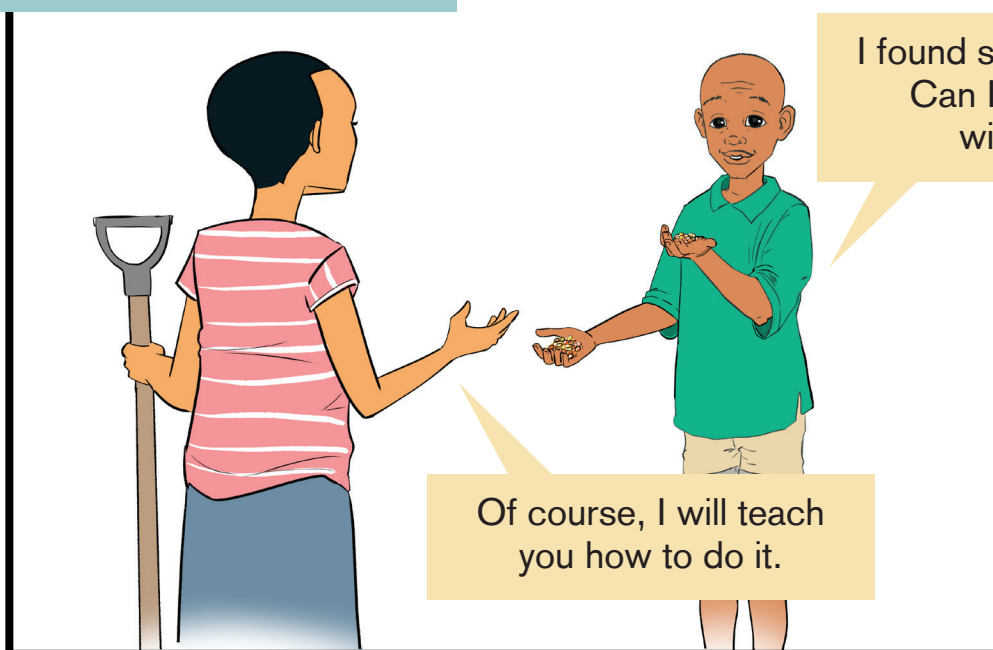
## Location of tree nursery

Ask your parents, caregivers, or teachers to talk to your local agronomist to help grow the seedlings you will use in your nursery.

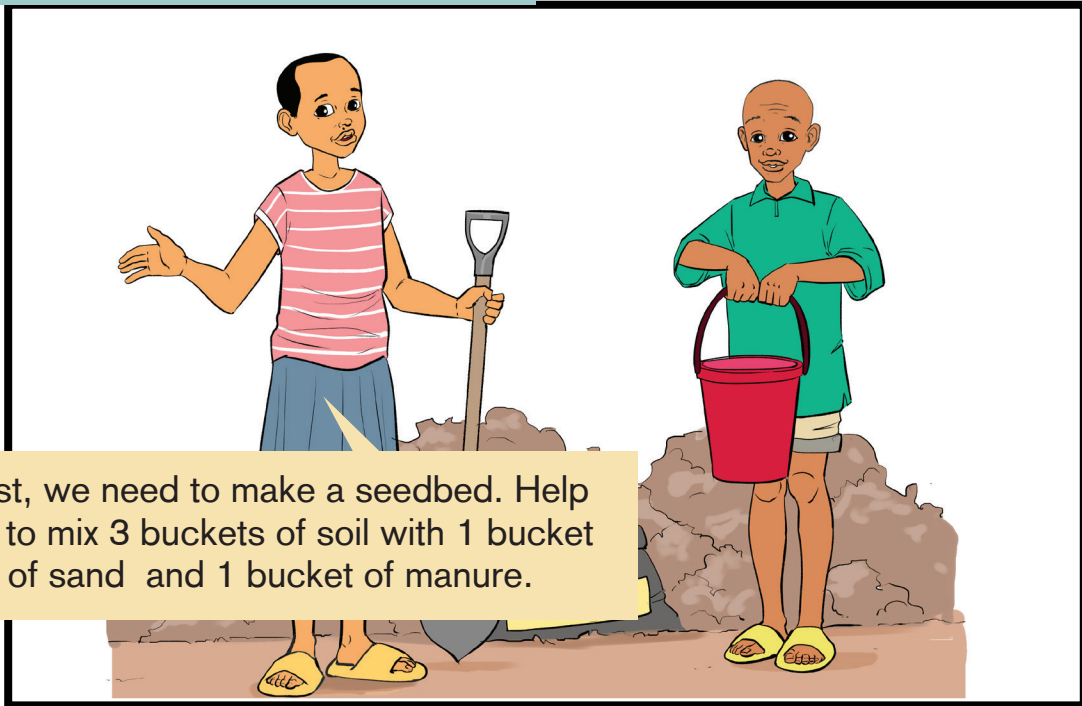
### ONE DAY



### AT A TREE NURSERY



## MAKING A SEEDBED



First, we need to make a seedbed. Help me to mix 3 buckets of soil with 1 bucket of sand and 1 bucket of manure.

## COLLECTING MANURE



Can the cow dung really help our seedlings to grow?

Yes, seedlings love animal manure, you will see!



## TIME TO PLANT

Let's cover with a thin layer of soil.

Don't forget to leave some space between your seedlings so we can easily uproot them for planting the field.



## AT THE TREE NURSERY

Sleep well and grow tiny seedlings.

We should cover it with some dry grass.



## THE NEXT 4 WEEKS

It is important to give our seedlings water every morning and evening.



## WEEDING



It is important to weed the seedlings regularly when separating them and plants in small bags.

Look at my seedling. It is beautiful!



...and mine is so big.



## Steps to plant a tree



Choose a suitable tree species for the area. Select healthy seedlings.



Choose the way you want to plant your seedlings.



Prepare the holes.



Prepare the soil and manure.



Plant the seedling.



Take care of the growing planted tree.

## Chapter 7: How to do Agroforestry & Sustainable Agriculture Land Management (SALM) on your farm and in your community

### Environmental clubs - Eco clubs

At school, we have an environmental club. We also call it an eco-club. We get together as a group of students that care about the environment.

### How to join the Environment club

Environment clubs are learning platforms. Our teacher explains the importance of being a member of our school environmental club. Then, willing students join the club. They elect a club leader and make an action plan for the club activities during the year.

The club has many activities such as:

- establish school kitchen garden
- plant and nurture trees
- organize waste management activities in schools





# Start your kitchen garden

## Steps to start a kitchen garden



### 1. Check your sunlight and soil.

- Place your garden in an area of your yard that receives sunlight all-day.
- Use compost if your soil is not good.



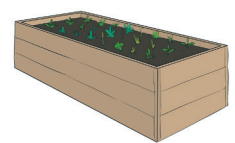
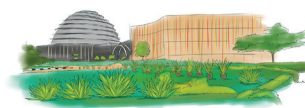
### 2. Decide what kind of vegetables you want to plant.

- Decide what kind of vegetables you want to plant, for example, carrots, amaranthus, beetroots, and other green vegetables.



### 3. Start your seeds inside if you live in an area with cold weather.

- If it is very cold where you live.
- You need to plan on starting your seeds inside or they won't bloom in time to enjoy.



### 4. Decide what kind of garden you will have.

## Other types of gardens

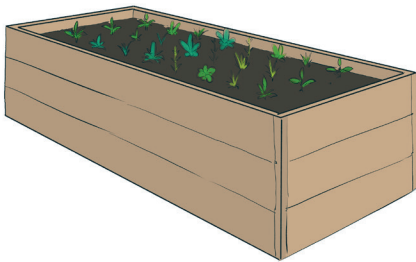
You can choose from different types of gardens: traditional, raised bed, container, or residential greenhouse.



Raised bed garden



Green house garden



Container garden



Traditional garden

You can find the tools at a local garden shop. In addition, you can ask your sector agronomist where you can buy the tools you need.

## Grow! Grow! Grow!

You now have all the steps you need to start your first garden! Now get out there and plant! It is not too late in the season to start some plants. Just keep in mind your early start for next year!

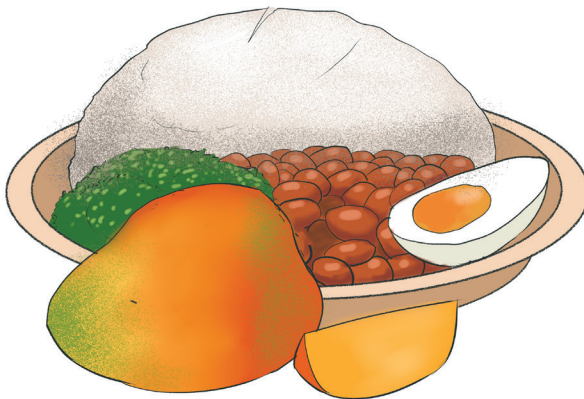
## Chapter 8: What to eat - healthy eating is fun

Food is divided into groups with similar nutrition benefits. Therefore, it is essential to make sure your plate has at least one item from each group to stay strong and healthy.

The different food groups help us in unique ways;

- Some give us **energy** like *ubugari*<sup>1</sup>, *ibitoki*<sup>2</sup>, and cassava.
- Some give us **proteins** like eggs, beans, and chicken.
- Some give us **fat** like ghee<sup>3</sup>.
- Some give us **vitamins** and minerals like papaya and mangoes.

It is important to look at your plate and see if you get all the nutrients you need from the different food items.



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1. *Ubugari* is a Rwandan traditional sorghum-based dough-like food staple

2. *Ibitoki* means green bananas in Kinyarwanda.

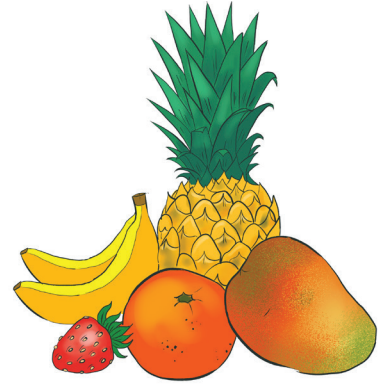
3. Ghee is “*amavuta y’inka*” in Kinyarwanda. Ghee is a variation of clarified butter that is often used as a food topping and cosmetics.

## Your healthy plate

A healthy plate should always have:

### Fruits

These are good for different vitamins such as Vitamin C, which gives our bodies strength and energy. Eat plenty of fruit of all colors.

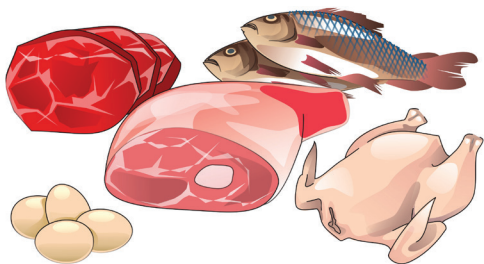
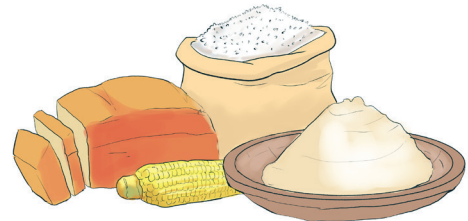


### Vegetables

Vegetables help our organs work properly. They are good for our lungs, liver, kidneys, and heart. We should eat potatoes, cassava, carrots, and other root crops to stay healthy.

### Whole grains

Bread and cereals give us energy, Vitamin B, and iron. Iron helps our lungs and blood to have enough oxygen. Eat a variety of whole grains, such as whole-wheat bread.



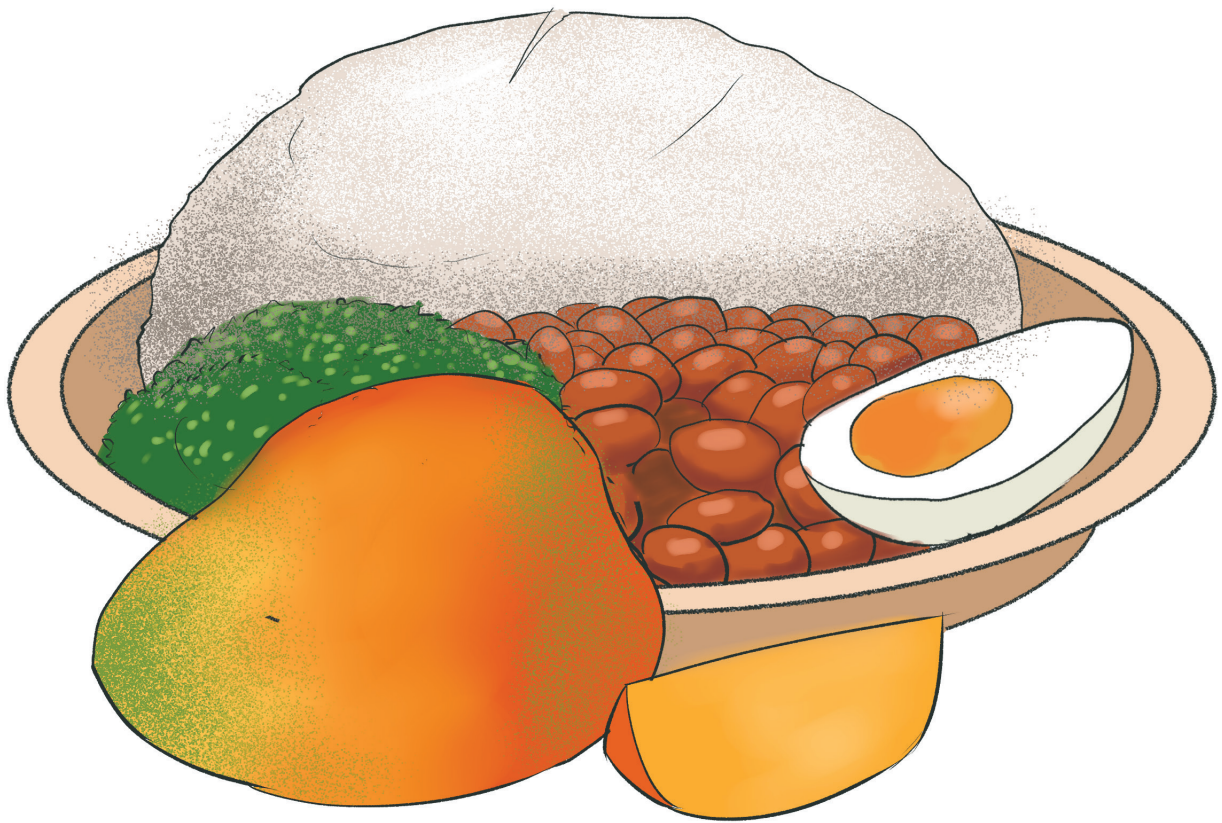
### Healthy proteins

When we are growing, proteins are essential. They help us grow taller and bigger. They make our brain work properly. Choose egg, fish, poultry, beans, and nuts. Milk and cheese are also good protein sources.



## We need all this to grow and be healthy.

Sometimes people are on a special diet, but you still must ensure that you get all your nutrients. For example, some people cannot eat certain foods because of allergies, diseases, faith, or other reasons. When this is the case, they need to look for other foods that have the components that will keep them healthy.



## Chapter 9: WASH - water, sanitation, and hygiene

- Wash your hands as you move between tasks, especially when sharing garden tools.
- Wash your hands before eating a meal or snack that you may have brought; then wash your hands after eating too!
- Wash your hands before returning to gardening if you use the toilet.
- Wash your hands and tools as you end your time in the garden.
- Always drink clean water.



## Chapter 10: Gender and Agroforestry

Women and men must participate equally in Agroforestry training workshops. Women and men work together to select seedlings to plant. They should share responsibilities equally in farming, planting trees, harvesting, and selling extra produce to the market.

Girls and boys have equal rights to participate as well. Girls and boys also have equal rights to eat a balanced diet and share household chores and support Agroforestry activities at home.





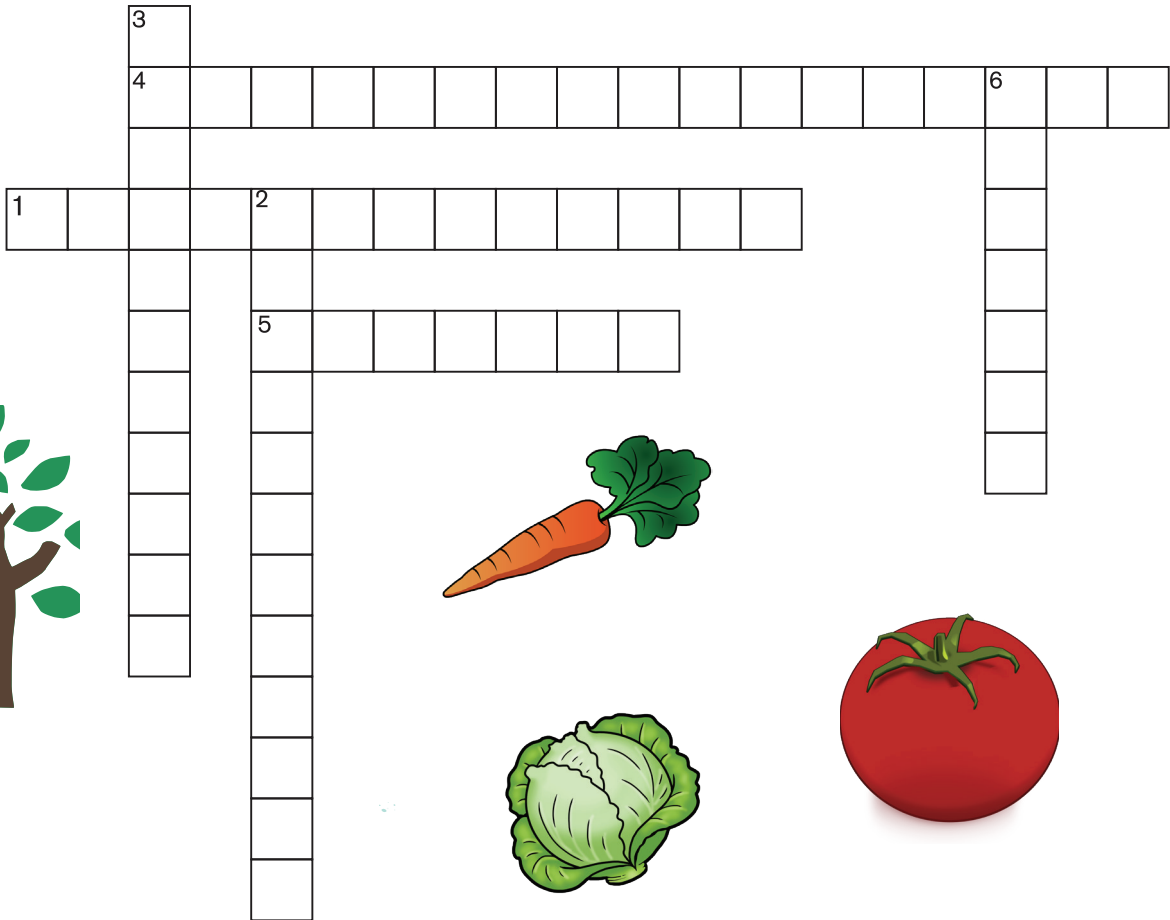
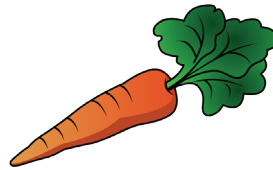
# WORD SEARCH



S	P	F	R	U	I	T	W	F	N	N	F
L	P	P	F	A	R	M	P	O	O	A	O
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M	O	R	P	O	W	E	V	E	T	A	D
I	P	E	X	R	O	S	S	S	E	N	E
N	L	E	F	L	R	T	T	T	R	A	R
A	E	M	A	N	G	O	E	S	G	B	E
V	E	G	M	M	A	N	U	R	E	A	O
H	E	N	O	D	W	O	C	S	L	B	P
S	Q	D	A	I	L	Y	S	S	I	I	L
Y	X	F	A	M	I	L	Y	E	O	A	E
V	E	G	E	T	A	B	L	E	S	B	R

Tree, Soil, Fruit, Mangoes, Vegetables, People, Family, Grow, Fodder,  
Animals, Hen, Cow, Farm, Forest, Banana, Manure

# CROSSWORD



## ACROSS

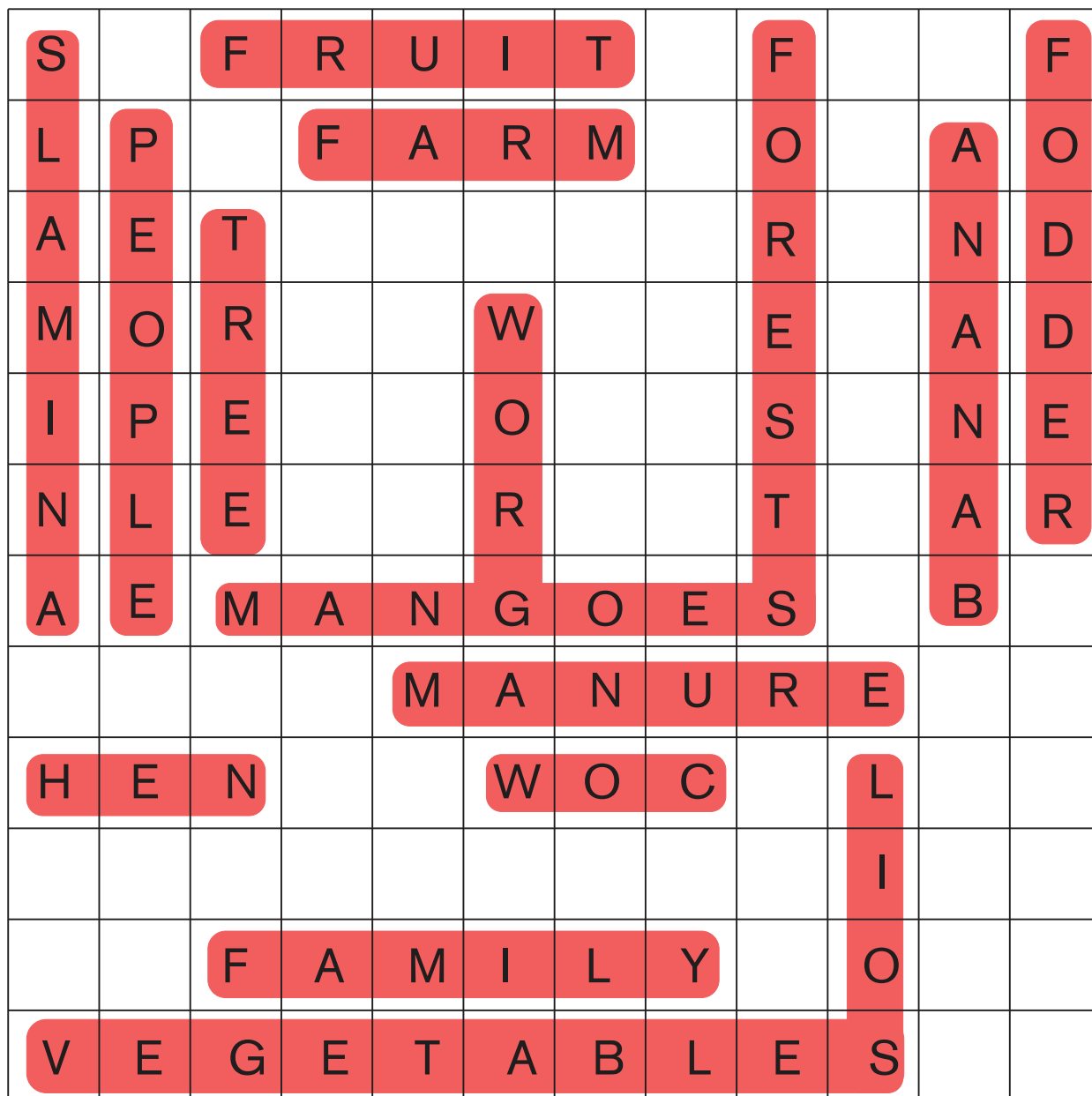
1. Is a long-term change in the expected patterns of average weather of the whole Earth over a period of time.
4. What is the name given to a small plot, 1-2 m wide and 5-10 m long, located within or near the homestead.
5. What word is given when we convert waste into reusable material.

## DOWN

2. A word that means that trees are interacting with crops and animals in different ways
3. A surroundings or conditions in which a person, animal, or plant lives or operates
6. A period of dry weather, especially a long one that is injurious to crops.

# ANSWERS

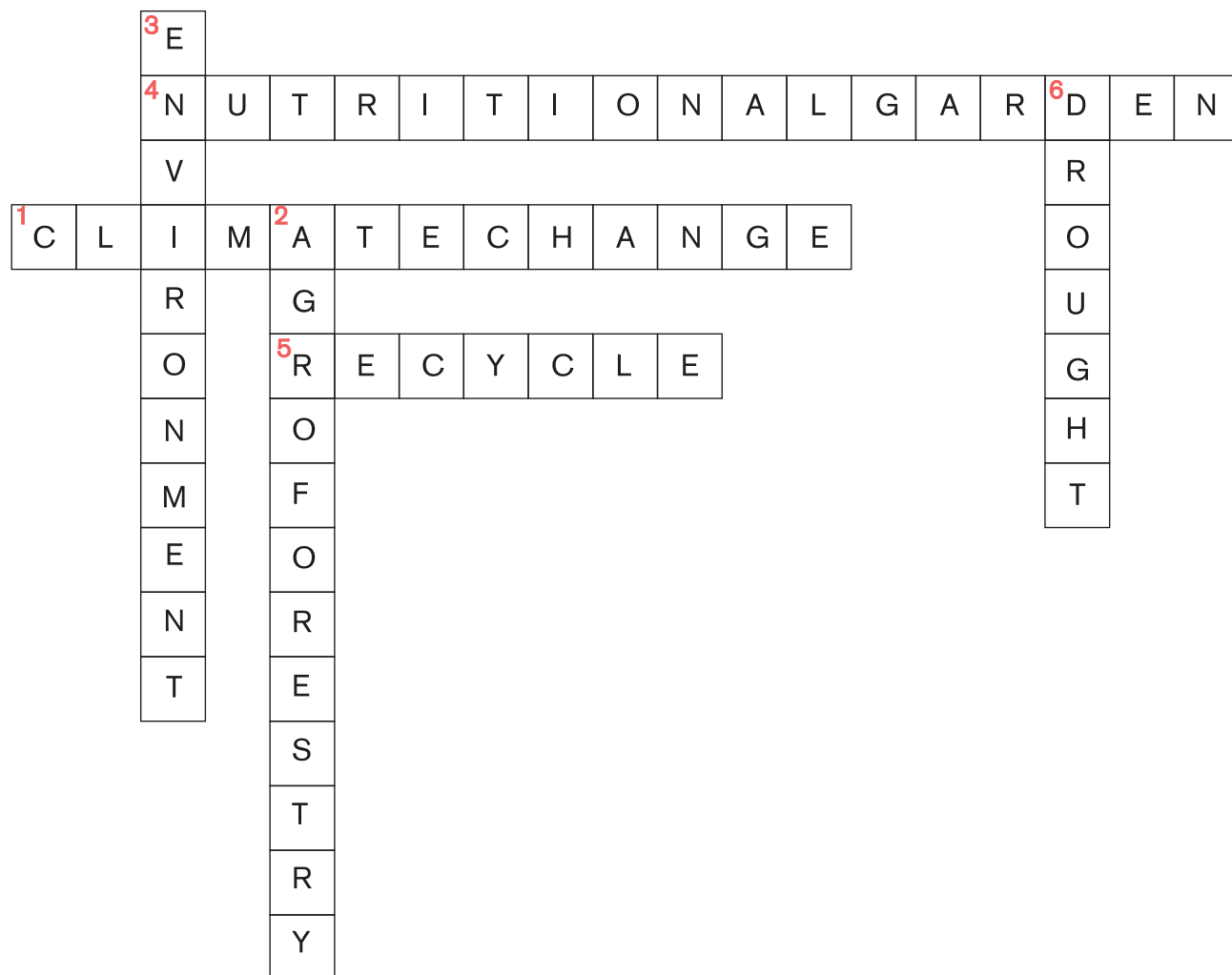
Page 38

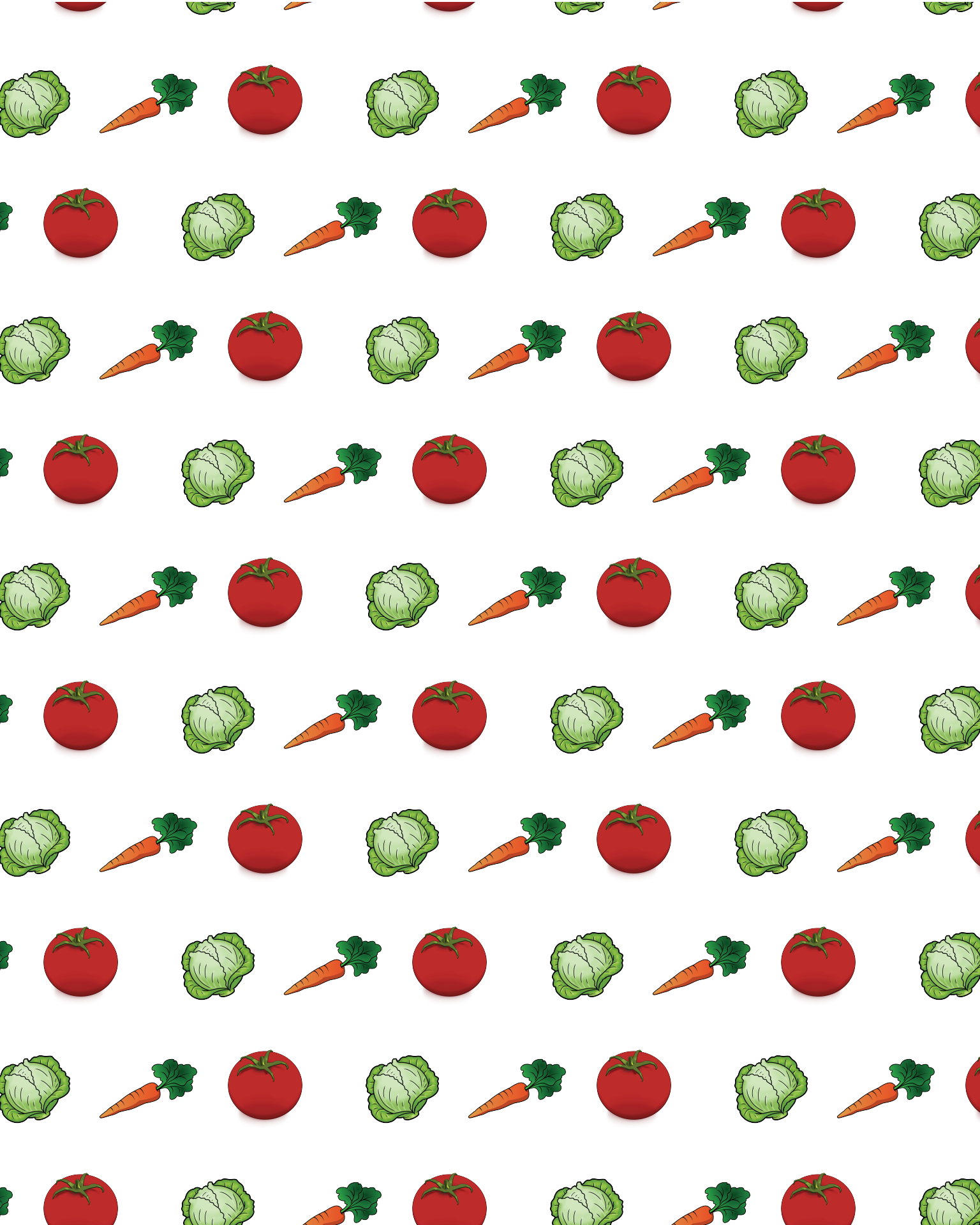


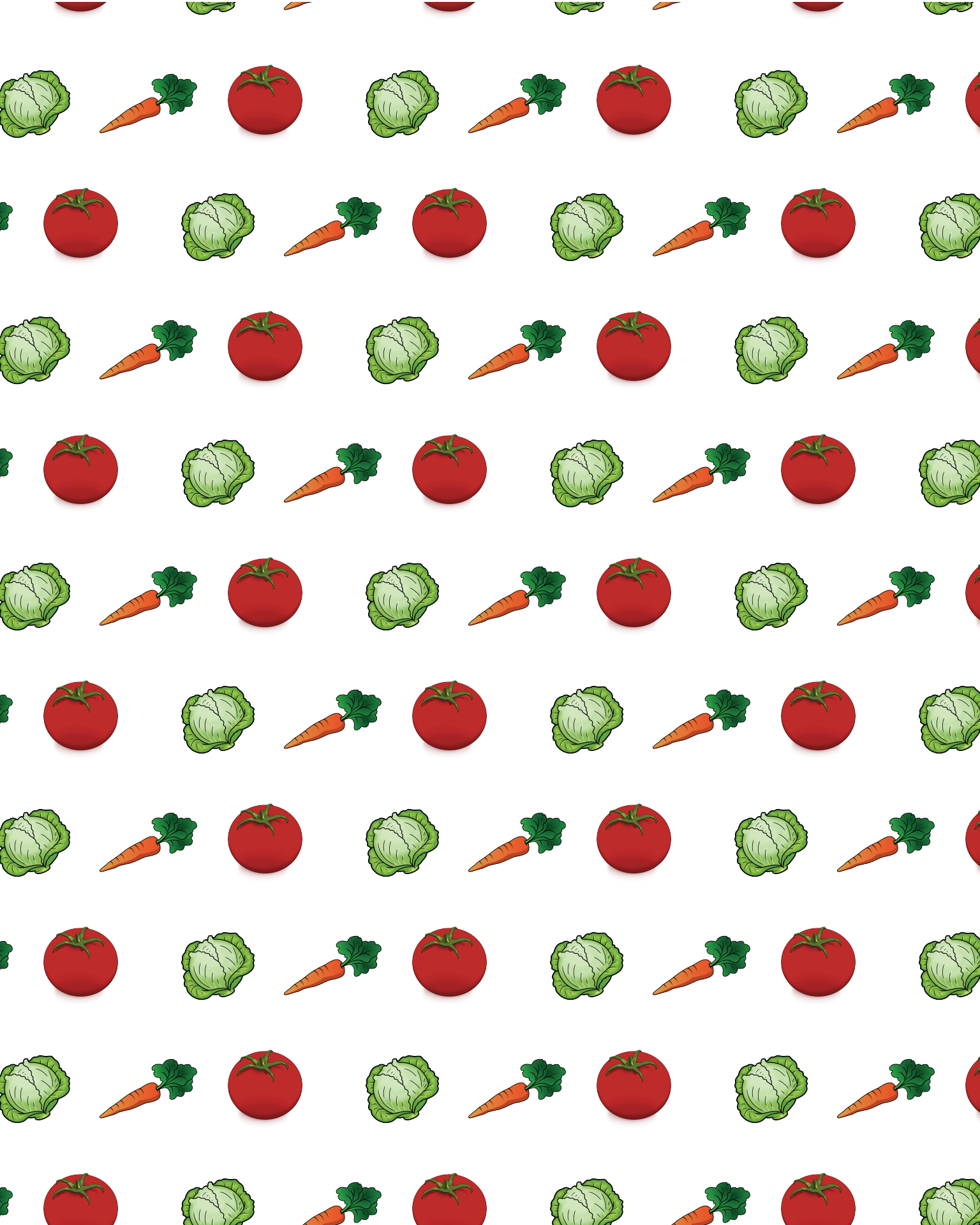


# ANSWERS

## Page 39











Vi Agroforestry

