

A woman wearing a red long-sleeved top, a red headscarf, and a patterned skirt is reaching up to touch the leaves of a tree. She is looking upwards with a smile. The background is filled with green foliage and tree branches.

# Forest Garden Farmer Workbook

Year One



**TREES  
FOR THE  
FUTURE**



Forest Garden  
Training Center



# TREES FOR THE FUTURE

## Forest Garden Farmer Workbook YEAR ONE

Dear Farmer,

Welcome to the Forest Garden training program!

By joining this training program, you have taken the first step to growing a steady source of nutritious food and income. Over the next four years you will learn to grow a Forest Garden by protecting, diversifying, and optimizing your farm with trees and other crops.

The first year of this training program consists of six workshops delivered by facilitators trained by Trees for the Future. They will guide you and your farmer group, helping you attain the knowledge and skills you need to create your own Forest Garden. You will learn to grow and plant thousands of agroforestry trees, fruit trees, and timber trees; and you will learn to grow a variety of new crops.

Each year you will receive a new Farmer Workbook, each one will include activities and resources to use throughout the four-year training program. We hope you will keep it clean and safe and bring it to all the Trees for the Future workshops.

There are evaluation checklists for each of the four years of the program. We have provided these checklists for you to do a self-assessment and our technicians will use the same checklists when they visit your farm for annual assessments.

If you participate in the workshops, implement the techniques you learn on your own farm, and meet the evaluation criteria, you will earn a Forest Garden Certificate at the end of the program. Please do not hesitate to tell your facilitator, trainer, or extension agent how this resource has helped you or how it can be improved. We want you to be successful and wish you luck as you progress through the program.

Good luck,  
The team at Trees for the Future



## **This Workbook is Made up of Six Workshops:**

Workshop 1 – Forest Garden Planning

Workshop 2 – Forest Garden Design

Workshop 3 – Tree Nurseries

Workshop 4 – Outplanting

Workshop 5 – Permagardening

Workshop 6 – Compost





## Workshop 1: Forest Garden Planning

### Introduction

Forest Garden Planning will allow you to decide what you will grow in your Forest Garden. You will think about what your family needs and what market opportunities there may be and develop a plan of trees, vegetables and other plants that will help meet those needs.

### Take Home Activity Checklist:

Crop selection confirmation research and Top View Map Information

- ☐ Discuss and confirm your Forest Garden plans with your family
- ☐ Fill in lists of crops you would like to grow
- ☐ Sketch a Top View Map of the field you will convert to a Forest Garden





**Notes:**

## Calendars

### Planning Calendar:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Season												
Fruit Trees												
Vegetables (Nutrition)												
Vegetables (Market)												
Lean Season												

### Market Analysis Calendar

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Holidays & Festivals												
Product 1:												
Product 2:												
Product 3:												
Product 4:												
Product 5:												



## Family Conversations & Planning

### Fruit Trees for the Home and for Sale

Many Forest Garden farmers plant two or three types of trees in large numbers in their Forest Gardens. These trees will take up a lot of space, for a long time. It is important that you think carefully about this decision. Discuss the questions below with your family to get their approval. Talk to your neighbors, friends, and market vendors. Think about the fruits that your fellow group members prioritized in the planning workshop. Write the top choices for the priority trees you would like to plant in the box on the lines under “for market.”

- Which fruits/trees have the most potential for income?
- Do you know how to produce them, or will you need to learn?
- Does it require significant investment, labor, or production costs after planting? Will you be able to cover them?
- Are the market opportunities and prices stable?
- Are there specific varieties or types that fetch the highest prices? Which?
- What are the quality standards for this product? Can we meet them?

Next, look at all the fruit trees your group listed on the planning calendar. Remember it is good to have trees that produce fruit each month of the year. Discuss these with your family, and write the trees you want to plant on the lines below, under “for family.”

Planning fruit trees for the home and sale  
What trees will you plant for market and for your family?

For Market:





1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

For Family

4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_

## Vegetables for Family Nutrition

These are the most important food types to grow and include in your diet for nutrition:

<p>Dark Green Leafy Greens and other Vegetables</p> 	<p>Legumes</p> 
<p>Red and Purple Vegetables and Fruit</p> 	<p>Orange Vegetables and Fruit</p> 

Discuss nutrition together with your family and identify nutrients that may be lacking in your diets. Write the crops you would like to grow for nutrition in the table below:

- What are women in the house interested in growing to eat? What about men, and youth?
- What are the vegetable and fruit colors you normally eat? Which colors do you not have to eat very often?
- Do you have a variety of the important dark green, orange and dark yellow, red, and proteins (especially legumes and nuts) available all year?
- What can we grow to provide nutritious foods in the lean season?
- Where will we find the seeds of the things we would like to grow for our household?



### Planning Main Vegetables for Family Nutrition

What 5 vegetables and fruit will you grow for your family's nutrition this year?

13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_

### Vegetables for Market

In the Planning Workshop you discussed and prioritized market vegetables with your fellow group members. Refer to your planning calendar to list the vegetables you plan to grow as a group for market. Remember, your decision of market vegetables to plant can change from season to season, unlike the trees you will plant.

### Planning Main Vegetables for Market

What 5 vegetables and fruit will you grow for market this year?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

### Lean Season

Next, look at the 'Lean Season' line on the planning calendar with your family. Discuss the products you can grow during the lean season to ensure you have things to eat and sell. List what you would like to produce for the lean season below.

### Planning Lean Season Products

What products will you produce to ensure food and income during the lean season?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

### Market Crops

Finally, you discussed various market products with your group and assessed prices throughout the year. Recall these discussions with your family. Write the five products you and your family would like to prioritize. These products should include a mix of vegetables, fruit, and other timber and non-timber forest products.

### Planning Priority Market Products

What fruits, vegetables, and other products will you prioritize this year for market?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

### Preparation for Top View Mapping:

1. Draw the shape of your field with perimeter border.
2. Measure the distances of each side of the border by pacing and write them on the map.
3. Include the orientation (North) on the map.
4. Mark the highest and lowest points.

5. Include as possible the current locations of existing trees, structures or other important or immovable features.

### **Forest Garden Top View Map**





## Workshop 2: Forest Garden Design

### Introduction

In Forest Garden Design you will take the trees and vegetables you identified in Planning, and learn how to arrange them in your Forest Garden design, preparing your design for your outplanting when your trees are ready.

### Take home Activity Checklist: Forest Garden Design Review

- ☐ Go home and share this newly created design with your family members. See if they have any other thoughts or ideas or things to change. Update the design together so that it reflects what you all will do on the field as a household.
- ☐ You will bring back your design to each workshop.
- ☐ Thinking about what you want to grow, and what TREES will give you as part of the program, think about where you will source the rest of the seed. Where can you find it? Will you buy it or collect it?



## Notes

## Examples of Forest Garden Designs

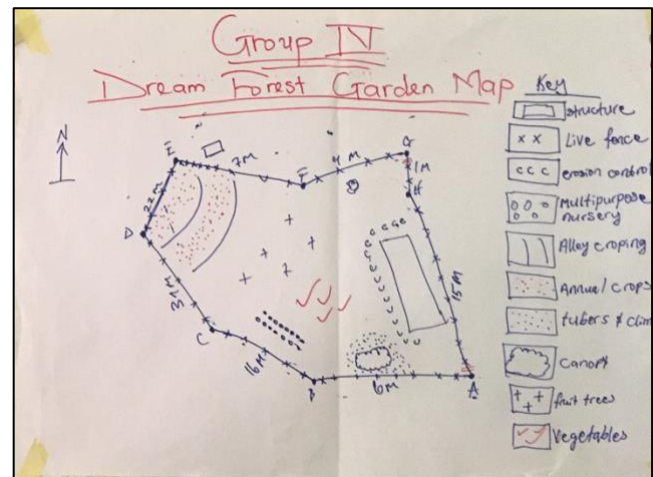


**Top View Base Maps (left)**

Base maps show you what is already on your field. They include things like: 1) Perimeter of the field and lengths, 2) Orientation (where is North and South?), 3) water access, entrance, or collection points, 4) any large existing trees or structures, 5) existence of slopes, and 6) other important elements in bordering properties.

## Forest Garden Designs (right)

Forest Garden Designs are what you envision your field will become. Your designs can be drawn on top of your top view base maps or separately. Your designs include the locations of where different elements of the Forest Garden will be after planting. They are an exciting thing to dream about and work towards.



## Species that will be used in the Design

### Species that will be used in Green Wall

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_



### Species that will be used in Alleys and/or Contours

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_



### Fruit Trees that will be planted

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_



Any other trees that will be planted (timber, indigenous, medicinal)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_



### List of Species that TREES will provide

Fill in the chart below with the list of seeds, seedlings, and other planting material that TREES will provide. This list will be given to you by TREES technicians.

Vegetables	Trees
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
6. _____	6. _____
	Other
1. _____	1. _____
2. _____	2. _____

## List of Species that You will provide

The planning chart below will help you think about what seeds you will purchase, save, or trade for this year. Refer to the lists you have created in the Planning section and Forest Garden Design section of this workbook, as well as the list of species TREES will provide. List the species you will need to obtain on your own, as well as how much you will need, where you will get them from, and when they are needed.

**Seed Collection and Purchasing Plan Chart**

Vegetable Seed Type	Amount Needed	Buy or Collect (from where?)	Season/Month Needed
Tree Seed Type	Amount Needed	Buy or Collect	Season/Month Needed
Other Type	Amount Needed	Buy or Collect	Season/Month Needed

## Steps of Forest Garden Design

Follow this guidance to help you create your Forest Garden design:

1. Design the Green Wall
  - ☐ On the border of your field
  - ☐ 2-3 lines of trees
    - Line 1: Species \_\_\_\_\_ Spacing \_\_\_\_\_
    - Line 2: Species \_\_\_\_\_ Spacing \_\_\_\_\_
    - Line 3: Species \_\_\_\_\_ Spacing \_\_\_\_\_
  
2. Design Alleys and Contours
  - ☐ Is your land sloping? (If not, you can use alleys; if so you will need contours)
  - ☐ How many alleys or contours will you use?
  - ☐ Where will they be located? (If alleys, be sure to orient them east to west)
  
3. Design Fruit Trees
  - ☐ Where will your fruit trees be in your Forest Garden?
  - ☐ How big is their canopy? Draw a dot in the center for where it will be planted, and a circle around it estimating the size of the mature tree, in relation to the scale of the map
  - ☐ How many fruit trees will you plant of each species?
  
4. Design Timber and other trees
  - ☐ Where will the timber trees be in your Forest Garden?
  - ☐ How many timber trees will you plant?
  
5. Design a Permagarden area
  - ☐ How big will your permagarden area be?
  - ☐ It should be where you can access it easily and frequently
  - ☐ It should be near a water point or water access where possible
  
6. Add water point area(s)
  - ☐ Where is your existing water point(s), if applicable
  - ☐ Will you have a water point in the future? If so, where?

7. Add tree nursery area
  - ☐ It should be where you can access it easily and frequently
  - ☐ It should be near a water point or water access where possible
  
8. Add compost areas (at least 2 piles)
  - ☐ It should be in a shady area
  - ☐ It should be where you can access it from all areas of the Forest Garden
  
9. Staple crops
  - ☐ Where will you plant staple crops, if needed?
  - ☐ How much space will you need?





## Workshop 3: Tree Nurseries

### Introduction

Tree nurseries are an important part of every Forest Garden farmer's work. You will learn to establish and maintain a tree nursery that will supply most of the trees you will plant in your Forest Garden.

### Take Home Activity Checklist: Start a Tree Nursery

- ☐ First visit—when the nursery is set up
  - ☐ Set up the nursery in a good location in relation to water access, maintenance, sun
  - ☐ Protect the nursery (shade, animals, children)
  - ☐ Use a good soil mixture
  - ☐ Properly fill and set up tree sacks
  - ☐ Properly dig bare root beds
  - ☐ Review Seed pretreatment and all upcoming tasks
- ☐ Second visit—3 to 4 weeks after seeding nurseries
  - ☐ Pretreated seed
  - ☐ Seeded the right amount per sack/space
  - ☐ Properly thinned seedlings
  - ☐ Seedlings are being adequately cared for (watered, shifted for air pruning)

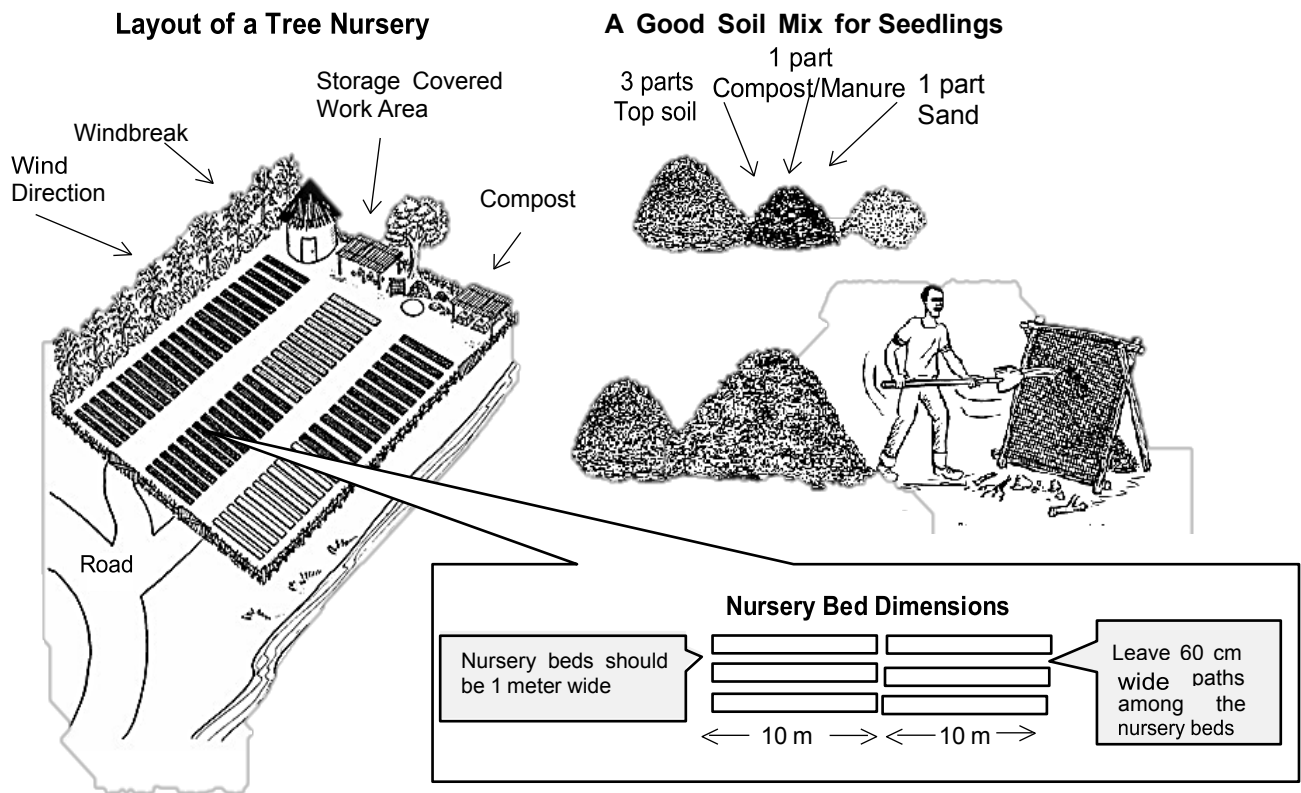


## Notes

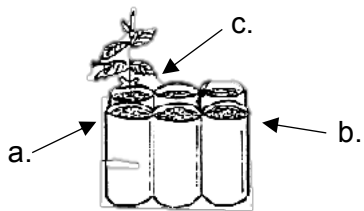
## Nursery Location

When setting up a nursery, be sure to identify a site with these characteristics:

1. Sufficient area
2. Suitable microclimate and soils
3. Water of adequate quantity and quality
4. Security from theft, vandalism, animals, children
5. Appropriate drainage—slight slope if needed
6. Wind protection

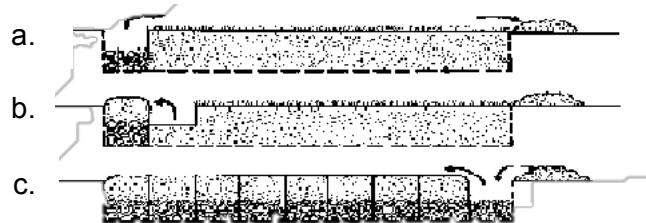


### For Tree Sacks



- a. Fill sacks 1 cm from the top
- b. Place sacks in straight rows leaving space for drainage
- c. Sow seeds in the center of the sacks

### Double Dig Bareroot Beds



- a. Dig and remove topsoil from nursery bed at depth of 30 cm, placing soil at far end. Then loosen subsoil
- b. Repeat the first step further down the bed BUT transfer soil to previous Area, mixing in compost and manure as you go
- c. Continue down bed (repeating step b). At the end, transfer soil from first section to last

## Setting up a Nursery



Steps for Setting up a Tree Sack Nursery bed:

1. Identify a good location
2. Prepare bed surfaces
3. Set up shading
4. Prepare soil mix (3 topsoil: 1 sand: 1 compost)
5. Screen the soil
6. Fill the sacks
7. Sow the seeds

Steps for Setting up a Bareroot Nursery\* bed:

1. Identify a good location
2. Double dig beds
3. Set up shading
4. Amend topsoil with compost
5. Pretreat the seeds
6. Sow the seeds

*\* Good for trees with a deep taproot; not good for a shallow, fibrous root system.*



## Tips for Managing the Nursery

- ☐ Use shade to protect seedlings from sun
- ☐ Keep the area fenced to protect from animals/intruders
- ☐ Water the seedlings daily
- ☐ Carefully thin seedlings to one seedling per sack (tree sacks)
- ☐ Thin seedlings to ~10cm apart when ~5cm high (bareroot)
- ☐ Weed the sacks/beds frequently
- ☐ Prune the terminal buds of trees that will be planted in a living fence/green wall at two months
- ☐ Begin hardening off your seedlings one month before outplanting



## Workshop 4: Outplanting

### Introduction

Outplanting is the time of planting your tree seedlings into your Forest Garden. It is a very important time, as how well you do outplanting will help determine how much trees will survive and how successful your Forest Garden will be.

#### Take Home Activity Checklist: Outplant Your Forest Garden Trees

- ☐ Constructed a Dead Fence to protect Green Wall.
- ☐ Successfully planted the Green Wall and Alleys/Contours.
- ☐ Successfully planted and protected some fruit trees.
- ☐ Weeded, mulched (fruit tree only), and watered the outplanted seedlings.
- ☐ Replaced dead seedlings.



## Notes



## Preparing Seedlings for Outplanting

### Hardening Off

One month before outplanting, prepare your seedlings for more sun and less water:

- Slowly reduce the amount of shading each week. After one month, the seedlings should be in full sun all day.
- Slowly reduce the amount of water. Water every other day, then every third day. By the time you are outplanting, the seedlings should be able to survive a week without water.

### When to Plant

- Plant your seedlings at the beginning of the rainy season, after about two weeks of three or more significant rains.

## Spacing

### Agroforestry Tree Spacing














Green Wall and Alley trees are generally planted close together. You may fill in the General spacing guidelines according to your Trainer's instructions.

	Tree species	Spacing between trees in a line	Spacing between rows of trees
Green Wall			
Alley			
Contour			

Don't forget a dead fence around your Forest Garden to protect your newly planted living fences, green walls, alleys and contours from livestock!

### Fruit Tree Spacing

Fruit trees often require farther spacing. You can use these guidelines to help with spacing for the following trees.

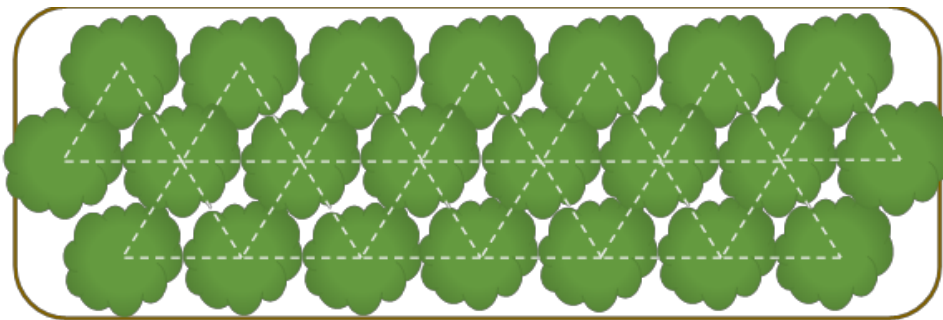
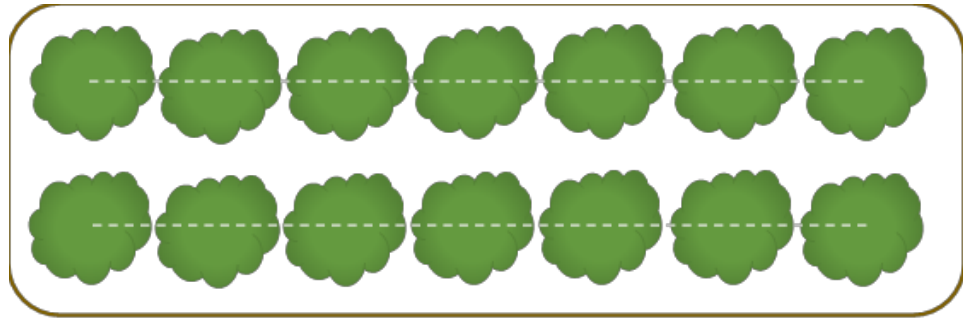
Small trees/plants 2-3 m (6-10')	Small trees/shrubs 3-5 m (10-15')	Large trees 6-9 m (25-30')
<p>Pomegranate</p> 	<p>Apple</p> 	<p>Mango</p> 
<p>Tree tomato</p> 	<p>Guava</p> 	<p>Macadamia</p> 
<p>Papaya</p> 	<p>Banana</p> 	<p>Cashew</p> 
	<p>Soursop</p> 	<p>Avocado</p> 
	<p>Lime, Orange</p> 	
	<p>Sweetsop</p> 	



## Triangular Spacing

Using Triangular Spacing can help use space better and fit more trees in an area.

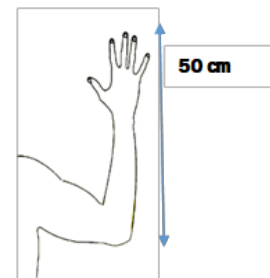
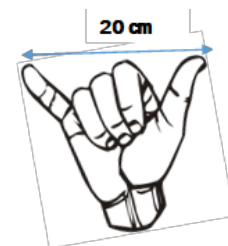
Trees planted using traditional row spacing, as seen on the right, hold fewer trees. This area can fit 14 trees.



Trees planted using triangular spacing, as seen on the left, hold more trees. We can fit 22 trees in the same area.

## Use your Body to Help with Spacing

You may not always have a measuring tool available when measuring spacing for planting. If not, it may be helpful to use these parts of the body as measurements.



## Outplanting

### Tree Sack Outplanting

1. Prepare planting holes ahead of time, correctly spaced for the species/use, slightly larger than the size of the planting sacks.
2. Water seedlings thoroughly before transplanting.
3. Carefully remove and transport trees in sacks to planting location. Only remove what you will plant that day.
4. Remove sack from around the seedling and gently loosen the soil around the roots
5. Place the seedling in the hole. Fill in or remove more soil as needed to ensure the soil level is the same height as the root collar (the soil level around the seedling).
6. If taproots are too long to stick straight down in prepared planting hole, dig deeper or prune the roots with a clean, sharp knife.
7. For high value trees, mix top soil from hole with fully decomposed compost or manure.
8. Then fill in and firmly compact the soil around the seedling (don't compact too tightly!)

### Bare Root Outplanting

1. Prepare wide, deep planting holes ahead of time, correctly spaced for the species/use.
2. Remove seedlings very carefully after deeply watering the bed the night before
3. Wrap seedling roots in banana leaves or rice sacks after coating them with mud slurry; be sure to keep them moist until planting
4. Only remove those you can plant the same day
5. If taproots are too long to stick straight down in prepared planting hole, dig deeper or prune the roots with a clean, sharp knife.
6. Place the seedling in the hole, ensuring the taproots point straight down. Firmly pack the topsoil around the root system, up to the root collar (don't compact too tightly!)
7. Cleanly prune the leaves and branchlets on the stem, leaving only a few at the top of the seedling. This will encourage root establishment before more stem and leaf growth.

### Outplanting Bare Root Seedlings

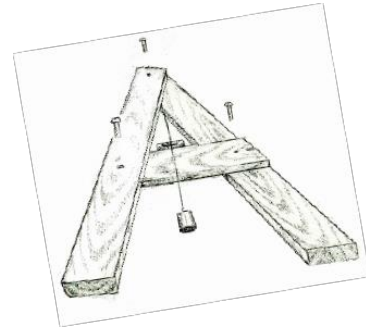


## Using an A-Frame

### Building an A-Frame

Materials Needed to Construct an A-frame:

- Two 1.5 to 2 meter sticks or poles about 3 to 5 cm in diameter (can be wood, bamboo, plastic, or any other light-weight, sturdy material)
- One 1 to 1.5 meter stick of the same material
- Three nails, or 2 meters of twine/string for binding the wood together
- One 1.5 meter piece of twine/string for the level
- One round rock or weight, about 5 cm in diameter

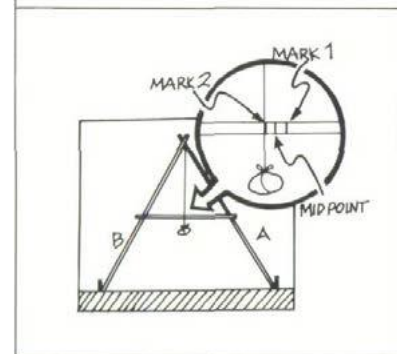
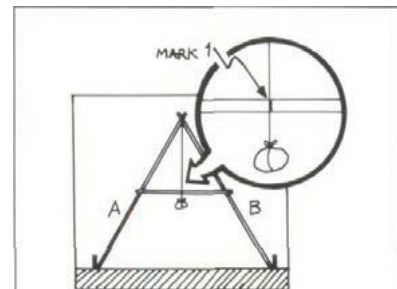


### Making the A-frame

1. Join the three poles securely to form an 'A'.
2. Tie a string from the top of the A-frame.
3. Tie a rock to the bottom of the string, allowing it to hang ~25cm or more below the horizontal pole.

### Find the 'Level' Line

1. Place the A-frame on nearly level ground
2. Mark the spots where the legs (A and B) touch the ground.
3. Mark the crossbar where the weighted string passes it ("mark 1").
4. Turn the A-frame so that leg A is exactly where leg B was, and leg B is exactly where leg A was
5. Mark the crossbar where the string falls now ("mark 2").
6. If the two marks are the same, they are the midpoint.
7. If they are in different places, the midpoint is exactly halfway between the two.



### Check the 'Level' Line

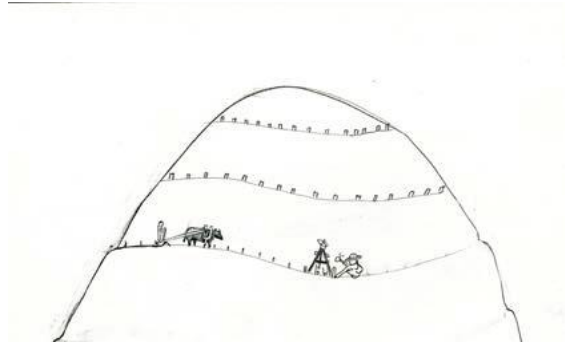
1. Check that your level line is accurate by holding one leg on the ground and moving the other leg until the string hangs at the midpoint
2. Mark the positions of legs A and B with stakes in the ground.
3. Reverse legs A and B

4. If the string hangs at the midpoint again, the A-frame is level and the midpoint is accurate. Mark the midpoint clearly on the A-frame.

## Using the A-Frame

### Find and Mark the Contours:

1. Start at the top of a hill in your land
2. Placing leg A of the A-frame on the ground where you want to establish the first row. Mark the leg with a marking stake (a piece of wood).
3. Adjust the other leg until the string hangs across the center 'level' line, showing that it is level. Place a stake at leg B.
4. Next, pivot leg A around, keeping leg firmly in place at that second mark. Readjust leg until the string shows it is level and mark the third point.
5. Continue this same process across the hillside or slope.
6. Follow the same steps to delineate the next line down, which should be parallel to the one you just completed. The vertical drop between contour rows (not the distance between rows) should be about 2 meters. The steeper the slope, the closer the contours will be.
7. Continue this process down to the bottom of the hill.



### Prepare the Contour Trenches (berms and swales):

1. Using your markers as a guide, dig a ditch about 50cm wide and 50 cm deep along the contour to create a swale.
2. Place the soil from the ditch on the uphill slope to form a berm
3. Pack the soil firmly.

### Stabilize the Berms:

1. Sow pretreated seeds or plant trees and grasses along the berms. Their roots will stabilize the berms and slow and trap runoff.
2. Be sure to keep animals from grazing the berms and eating the trees/grasses.
3. Before the next rainy season, remove the soil that washed into your swales the previous year. Place it back on the berm above.
4. Fill in gaps in your vegetation with more trees and grasses.

## Caring for Outplanted Seedlings

Be sure to:

1. Protect your seedlings
2. Water your seedlings
3. Weed your seedlings
4. Prune terminal buds of living fence trees
5. Replace dead seedlings



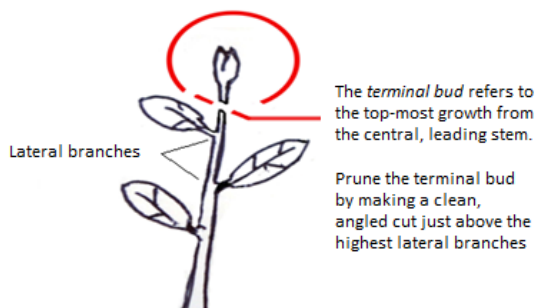
### Protect Important Trees:

Though you have a Dead Fence to protect your Forest Garden, you should still protect individual high value trees, like grafted fruit or timber trees. Here are some ways you may protect trees.



### Water High-Value Seedlings:

High-value seedlings like fruit and timber trees should be watered if possible, unless there is adequate rain. It is better to water a lot at one time rather than a little bit over many days. Digging a cuvette and mulching around the seedlings will help conserve water.



### Prune Living Fence Trees:

The Terminal Bud of thorny living fence trees should be regularly pruned, every few months, starting when trees are in the nursery. This will help the tree form more lateral (side) branches and making a more secure fence.





## Workshop 5: Permagardening

### Introduction

The Permagarden is where you will grow a lot of your market and home vegetables. It is a way of gardening that takes care of and designs for soil fertility, water management and pest management. You will learn how to establish and manage your Permagarden to get good harvests of lots of nutritious vegetables.

### Take Home Activity Checklist: Establish your Permagarden

- ☐ Within 2 weeks
  - ☐ Establish a vegetable nursery bed
  - ☐ Correctly sow seeds.
  - ☐ Establish 3 permagarden beds (double dug, sunken or raised depending on region).
  - ☐ Establish basic garden earthworks (swales and berms) around their permagarden.
- ☐ Within 8 weeks
  - ☐ Created and applied one natural solution according to what is identified in the field
  - ☐ Successfully transplanted their anchor crops from the nursery
  - ☐ Direct seeded anchor crops
  - ☐ Sown or transplanted plants for the purpose of feeding the soil
  - ☐ Established companion plant groupings for IPM and secondary/tertiary production in each bed, for example:
    - ☐ Using one or more techniques to attract beneficial insects (flowers for pollinators; planting crops that tower high--sunflower, papaya--for praying mantis, birds and lizards; others?)
    - ☐ Planting one or more companion plants to repel insects (onions, desmodium, garlic, lemongrass, marigolds, other pungent herbs)
    - ☐ Planting one or more companion crops for secondary or tertiary production
  - ☐ Planted borders around their permagarden area



## Notes

## Making a Meal

Draw a non-nutritious meal in the box below:

Draw a nutritious meal in the box below:

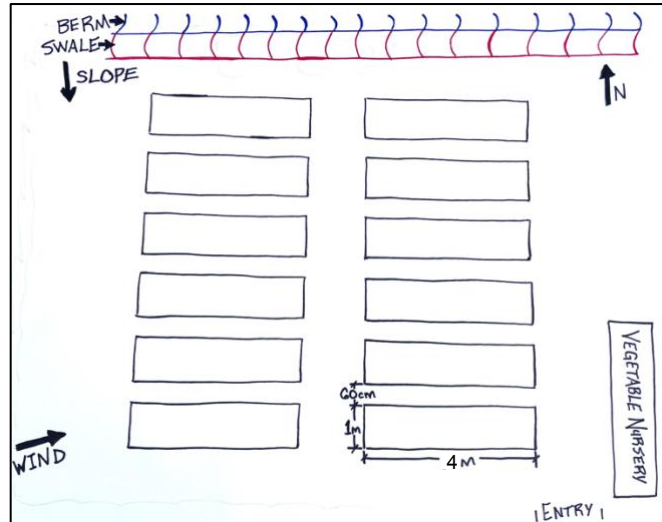
Eating a variety of colorful fruits and vegetables (especially dark green, orange/dark yellow, red) along with protein (legumes or animal-source foods) provide the important nutrients your family needs to be healthy.



## Designing your Permagarden

### Step 1: Location and Layout

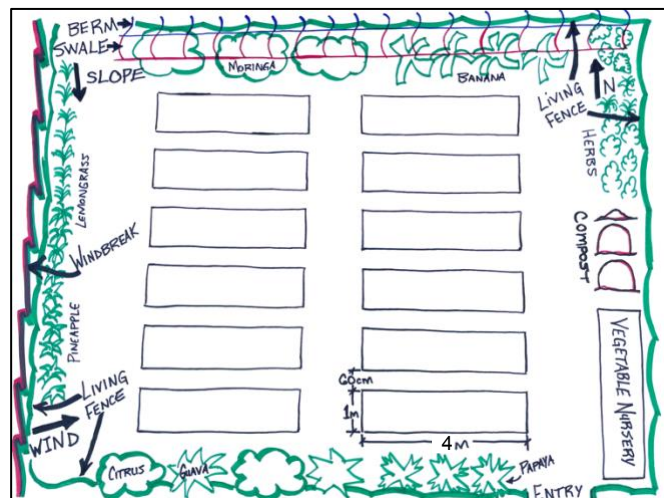
- Permagarden site should be easy to access, near a water point where possible, and receive at least 4 hours of direct sun each day.
- Use berms/swales to redirect rain water under ground or around/under raised beds (or into sunken beds in dry areas)
- A good size permagarden is 10 meters x 10 meters. A good bed size is 4m x 4m. Leave at least 60cm of space between beds for access.
- Situate beds east to west or along contours if sloped
- Leave room for a vegetable nursery bed, compost piles and general work space.



Step 1: Draw bed layout and earthworks

### Step 2: Borders and Alleys

- Plant living fences and windbreaks to protect your permagarden and to segment and protect your market gardens, tree crops, field crops and any other areas of your Forest Garden.
- Plant grasses, bushes, shrubs and trees along borders and alleys to maximize production, fertilize your crops, reduce erosion, and manage pests



Step 2: Draw Borders and Alleys (where relevant)

### Step 3: Food for the Family

- For each section (bed, alley, contour, or segment), identify an anchor crop that you will grow for your family (for nutrition or for market).
- Recall the vegetables you selected after the planning workshop. Anchor crops should be nutritious (dark in color, or a legume) or have good market/profit potential.

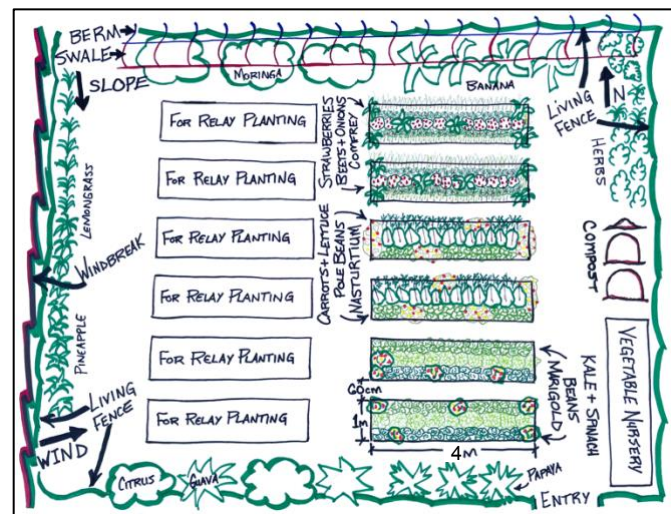
### Step 4: Food for the Soil

- Select nitrogen fixing plants or plants with a very long taproot (diggers and miners) to fertilize and improve soil structure. Use cover crops when you're not planting sections to prevent soil exposure.

### Step 5: Finding Companions

Diversify your beds and sections with companion plants that compliment and protect your anchor crops. Avoid planting antagonist plants together (see the Vegetable Planting Chart in the Planting the Permagarden section. Try to add several plants for the following purposes:

- They grow well as secondary products to your anchors, to provide nutritious or marketable products
- Their roots or crowns occupy different layers of space below or above ground, or they require different types of nutrients. These companions reduce competition for nutrients, sunlight, and water.
- Short plants that like shade and grow well under taller plants; tall plants for vines and climbers to climb up.
- Strong-smelling plants that deter pests
- Plants with pollen or nectars that attract insects or birds that eat pests
- 'Trap' plants that pests prefer to your anchor or secondary crops



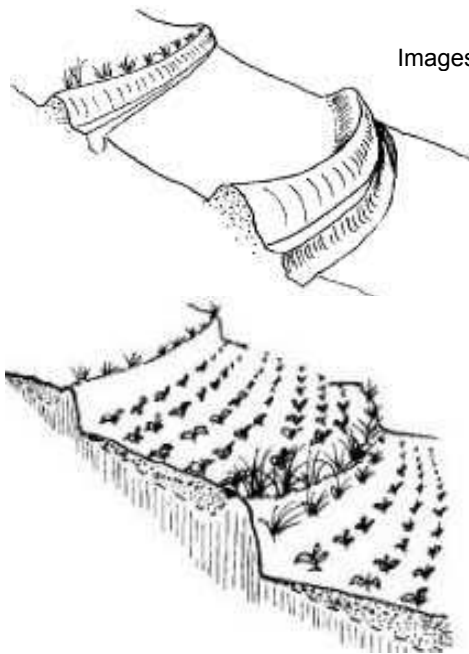
Steps 3-5: Design and draw beds with anchors, food for soil, and companions (this can be done separately where preferred)

## Establishing the permagarden

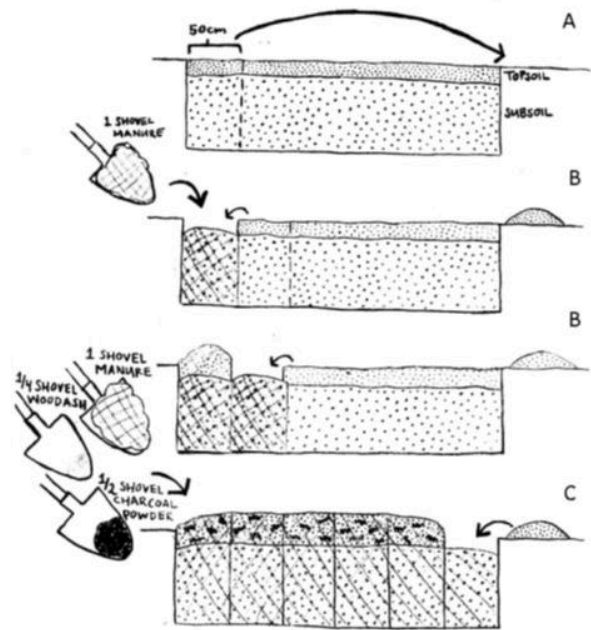
### Permagarden Bed and Alley Design

*Use the boxes below to design your beds, alleys, contours or sections of your Forest Garden, following Steps 2 (where needed), 3, 4, and 5 of the Permagarden design process.*

## Establishing the Permagarden



Images from IIRR



### Use berms and swales on sloped land

1. Plant the berms with trees and grasses
2. Plant contours with diverse crops
3. Over time the contours will form terraces

### Double Digging

Double Dig and amend your permagarden beds



### Vegetable Nursery

Vegetable nurseries beds do not need to be double dug, but they should be deeply tilled, amended with compost, and protected from direct sun

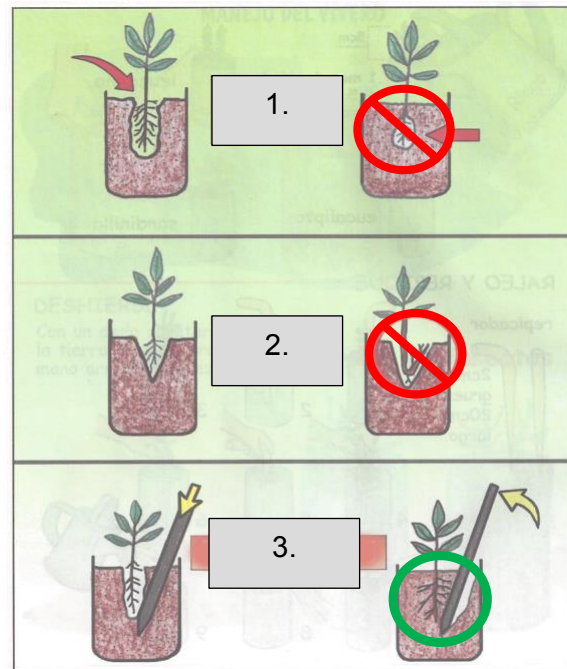


## Planting the Permagarden

### Transplanting

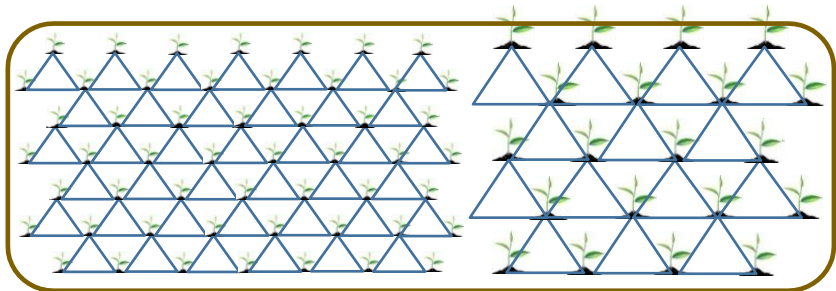
When transplanting plants from your vegetable nursery into beds, alleys, etc., dig holes slightly larger than the root system of the plant.

1. Place the plant in the hole. The soil level should be slightly above the upper-most roots. Press soil firmly around the roots. Not too tight, but do not leave big air pockets around the roots either.
2. Be sure the roots face straight down. The taproots should not curve back up, forming a 'J' root.
3. Use a stick to gently push soil around the roots, then use your hands to firmly press the soil down.



### Triangular Spacing

Use triangular spacing when not using the broadcast method. This helps you grow more food in less space.



Use the same permagarden design and planting principles whether you are planting in beds, alleys, contours, or segments.



## Vegetable Planting Chart

Vegetable	Direct Seed or Nursery	Germination Time	Spacing when Planting	Time to Maturity	Companions	Antagonists
Amaranth	Nursery	4-10 days	30cm	1 month	eggplant, cucumber, corn, potatoes, peas, beans	celery, tomato
Bell pepper (sweet)	Nursery	7-21 days	45cm	60-90 days	basil, onions, tomato, spinach	beans, cabbage, kale
Bitter Tomato	Nursery	8-10 days	45cm	12 weeks	carrot, beans, marigold	cabbage, broccoli, kale (brassicas)
Broccoli	Direct Seed or Nursery	7-10 days	45-60cm	80-90 days	basil, bush beans, cucumber, garlic, marigold, mint, onion, potato, radish, rosemary, dill sage, thyme	mustard, oregano, strawberry, tomato
Butternut Squash	Direct Seed	10 days	4 per hill / 2-3m apart	3 months	Flowering plants (pollination)	sweet potato
Cabbage	Nursery	7-10 days	60cm by 60cm	1.5 -4 months	Beets, bush beans, celery, mint, onion, potato, oregano, rosemary, sage, dill	pole and runner beans, peppers, strawberry, tomato
Carrot	Nursery	14-21 days	30cm between rows; 5cm in rows	3-4 months	Pea, lettuce, onion, tomato, beans, rosemary, broccoli, cauliflower	potatoes, dill
Cauliflower	Direct Seed or Nursery	7-10days	60cm by 60cm	50-100 days	basil, bush beans, cucumber, garlic, marigold, mint, onion, potato, radish, rosemary, dill sage, thyme	mustard, oregano, strawberry, tomato

Chilli Pepper (hot)	Nursery	7-10 days	45-90cm	90-150 days	basil, onions, tomato, spinach	Beans, cabbage, kale
Collard	Nursery	4-7 days	30cm by 45cm	55 to 75 days	Beets, carrots, marigold, radish, turnip	
Corriander	Nursery	14-21 days	broadcasted or drills	40-45 days	Leafy vegetables, legumes, tomato	
Courgette (Zucchini)	Direct Seed	7-10 days	90cm by 90cm	2-2.5 months	Flowering plants (pollination)	Sweet potato
Cow peas	Direct Seed	7-10 days	5cm by 8cm(for Seed}	80-90 days	Maize, sorghum, melons	
Eggplant (Aubergine)	Nursery	7-12 days	45cm	70-80 days	Bean, peppers, tomato	fennel
Giant night shade	Nursery	7-14 days	20cm	30 days	tomato	
Green Beans	Direct Seed	3-4 days	60 by 30cm	3 months	beets, cabbage, cauliflower, kale, cucumber, celery, swiss chard, spinach, maize, eggplant, peas, tomato	onion, leeks, garlic, peppers
Green Peas	Direct Seed	3-5 days	10 by 60cm	8-12 weeks	beans, cabbage, celery, corn, cucumber, lettuce, potato sage	onion, leeks, garlic
Kale	Nursery	7-10days	60 by 40cm	30-45 days	Beets, carrots, marigold, radish, turnip	
Leeks	Nursery	10 -14 days	15cm by 3cm	120-150 days	Beets, cabbage, carrots, lettuce, rosemary, strawberry, tomato, onion, garlic	beans, peas

Leaf Lettuce	Nursery	7-10days	30cm by 25cm	45 - 90 days	mint, beans, beets, carrots, maize, marigold, onion, peas, radish, strawberries	parsley
Okra	Direct Seed	2-12 days	15 by 45cm	50-65days	brassicas like kale, brocolli, cauliflower, chard	vine crops like sweet potato or squash
Bulb Onion	Nursery	7-10 days	30-38cm	14 weeks	Beet, strawberry, tomatoe, lettuce, leek, cabbage, eggplant	Pea, bean
Onions	Nursery	drills 2.5cm deep and 30cm apart	15cm by 10cm	3-4 months	beets, cabbage, carrots, lettuce, rosemary, strawberry, tomato, leek, garlic	Beans, peas
Potato	Direct Seed	15-21 days	75cm-rows 30cm between tubers	3 months	beans, cabbag, corn, eggplant	celery, cucumber, pumpkin, rosemary, strawberries, tomato
Pumpkin/Squash	Direct Seed	10 days	2.4m-3m-rows and 1.2-1.8 for plants	90-120 days	beans, maize, radish	potato
Spider Plant	Direct Seed	6-8 days	broadcasted	21-30 days		
Spinach	Nursery	5- 7days	30 by 10cm	45 days	Beans, lettuce, peas, strawberries	Potato
Sweet Potato	Direct Seed	7 days	30-45 cm	8-10 months	beets, okra, dill, thyme	squash, zucchini, watermelon
Tomato	Nursery	6-8 days	100 by 60cm	60 -100 days	Beans, basil, carrots, spinach, broccoli, cauliflower, celery, marigold,	Kohlrabi, fennel, potato, cabbage



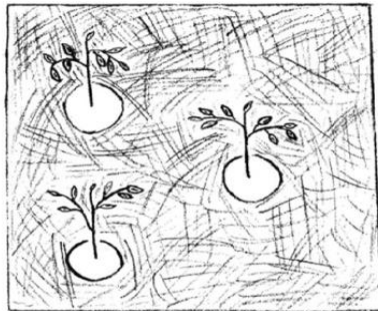
					peppers, watermelon	
Watermelon	Direct Seed	4- 12 days	2m by 2m	70 -85 days	Flowering plants (pollination)	sweet potato

## Permagarden Maintenance and Care

### Maintain and Care for your Permagarden by:

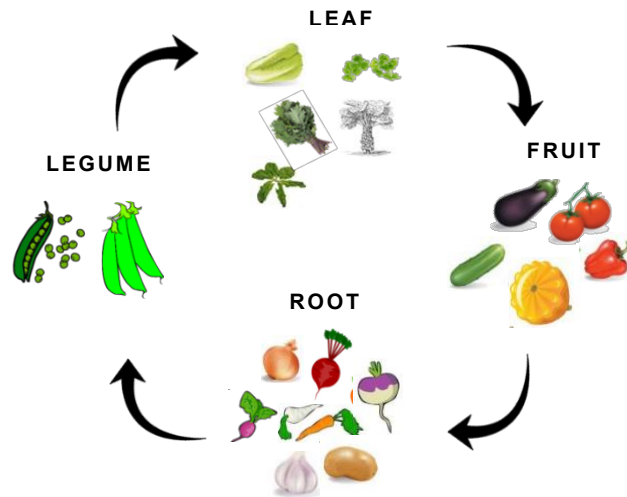
- Spreading 3cm of mulch on the exposed soil, leaving 3cm or space around the seedlings.
- Watering and weeding your permagardens as needed.
- Rotating your crops as possible, from Leaf > Fruit > Root > Legume
- Practicing Relay Planting of crops that mature at different times, to stagger and extend production as much as possible.

#### Mulch – Top View

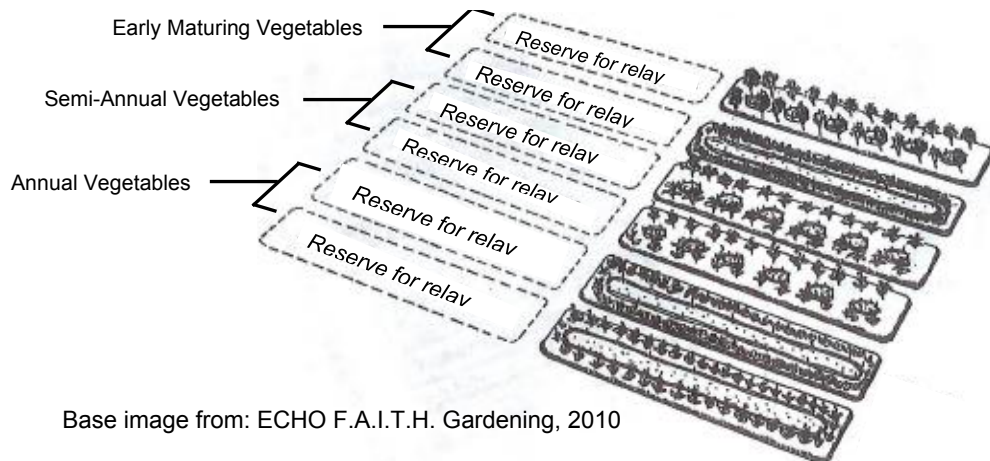


Mulch your beds to a depth of 3cm, leaving 3cm of space around the seedlings' stems

#### Crop Rotation



#### Relay Planting



Base image from: ECHO F.A.I.T.H. Gardening, 2010

## Integrated Pest Management

Write down natural pesticide recipes that you learn here:

Recipe Name:

Pest Name:

Ingredients

Directions

Application Instructions

Recipe Name:

Pest Name:

Ingredients

Directions

Application Instructions



## Workshop 6: Compost

### Introduction

Compost is an important natural fertilizer in the Forest Garden. It can be made by you and all Forest Garden farmers are encouraged to have multiple compost piles or pits throughout their Forest Garden to provide compost to permagarden beds and high value trees. You will learn how to make, maintain and use compost.

### Take Home Activity Checklist: Establish Compost

- ☐ Located in a good location (Shaded, access to water, near a potential prime application area (permagarden, orchard, etc))
- ☐ Correct dimensions (2m square for pit; 1m-1.5m high for pile)
- ☐ Made up of the correct materials
- ☐ Correctly layered in good proportions/ratios (4 part brown, 1 part green, additional white/grey as available (no more than 1 part))
- ☐ Actively managed (Watered, aerated/turned, heat maintained while decomposing, materials being added to it)



## Notes

## Identifying Soil Types

There are three main simple types of soil: sand, silt/loam, and clay. It can be helpful to know your soil type. Here is a simple way to test the soil texture of your Forest Garden.

### Simple Soil Test:

- Grab a handful of soil, make a fist with it, and stick it in a bucket of water until it is thoroughly wet, holding it tight. Remove it from the water
- Try to form a ball with the wet soil in your hand
- If there is little resistance and the soil does not stick together at all, it is mostly sand. Nutrients and water are prone to leaching quickly through sand. Add organic matter, compost, or dried manure.
- If it forms a ball in your hand, try rolling the ball between your hands to form a snake. If it starts to fall apart as it gets longer, it is some form of loam (short snake = sandy loam; long snake = clayey loam)
- If you can touch the ends of the snake together without it falling apart, you have clayey soil. They may be prone to waterlogging, and plant roots may have difficulty accessing nutrients, air, and water. Add organic matter, compost, or dried manure. The good news is that applying compost will improve any type of soil.

## Compost Piles and Pits

Adding plenty of compost will improve any type of soil.

A **compost pit** is good for **dry areas**, to conserve moisture



A **compost pile** is good for more **humid areas** to allow for drainage



## Compost Materials and Layering

The key to compost is having the right materials in the right proportions. It is good to gather a large amount of each of these and have them ready for when you will layer your compost. Both Compost Piles and Pits use the same materials and layering technique.

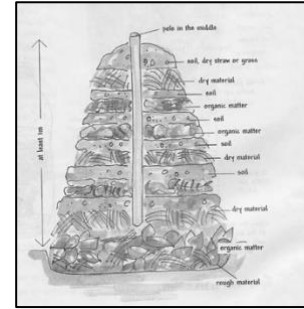
### Materials Needed for Each Layer of Compost

Material	Example	Ratio	Example
Brown	Dry leaves, straw, branches. Large Pieces may need to be chopped up.	2 large sacks	
Green	Green leaves; green grass. Large Pieces may need to be chopped up.	1 large sack	
Grey	charcoal, ash, eggshells	1 shovel	
Activator	Manure, Finished Compost, Forest Soil. This will help microbes enter the compost to help decompose.	1 shovel	
Water		1 large bucket	



## Layering

Once you have gathered the materials, you will layer these materials one at a time, either in a pile or pit. You will repeat the layers until the pit is full or the pile is the right height.



## Steps in Layering Compost

1. Add 2 parts **brown** material



2. Add 1 part **green** material



3. Spread 1 shovel **grey** material & 1 shovel activator



4. Add 1 large bucket of **water**



THEN REPEAT



5. When pile is ~1 meter high/deep, stick a stick in it and cover it in banana leaves or plastic



6. Dig a trench to divert water around your pile if needed

## Maintaining Compost

Check the compost weekly to be sure it is working. If layered correctly with the right materials, compost will decompose naturally without much labor. Remove the stick in the compost and feel it to see if it is decomposing. IF the:

- Stick is **HOT**--it is decomposing and working correctly.
- Stick is **COLD**--it is not working correctly. It may need mixing or turning to reactivate, and more attention paid to the material ratio.
- Stick is **DRY**—add water.

Turn compost piles every two weeks to give them air and water, then cover them again.

Once compost is fully decomposed, it will no longer be hot. It should dark, soft, and moist, and smell like fresh soil without any bad odor.



inches

centimeters

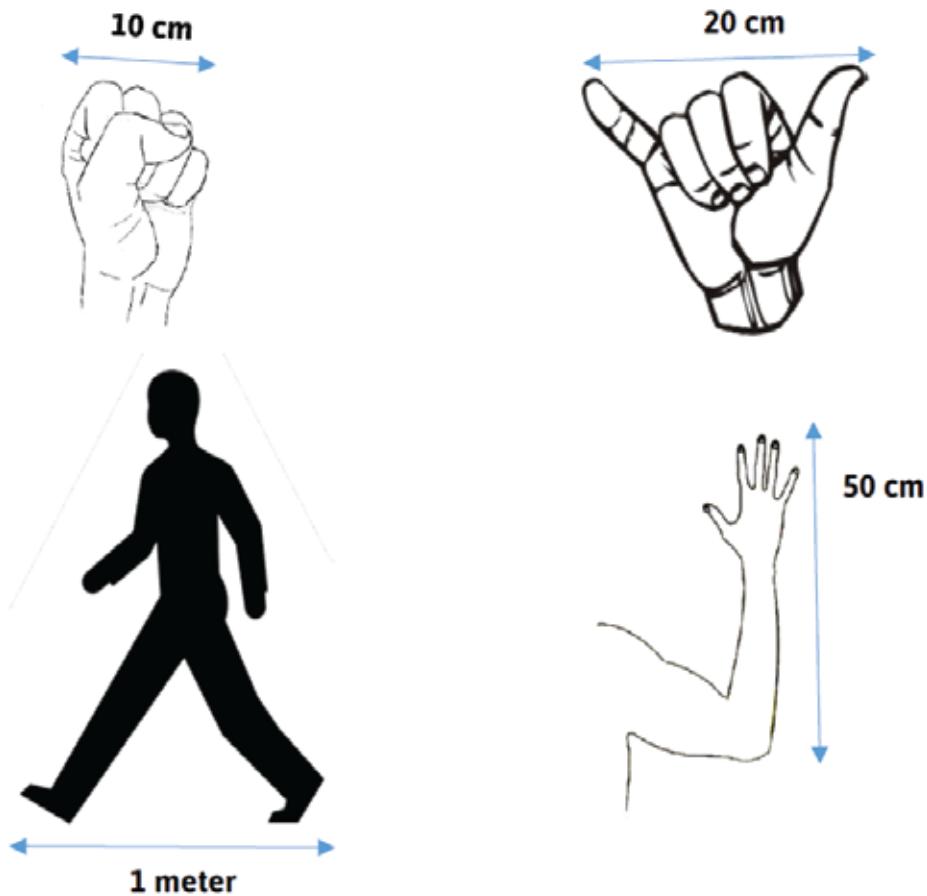


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[training.trees.org](http://training.trees.org)





# Forest Garden Farmer Workbook

Year Two



**TREES  
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# TREES FOR THE FUTURE

## Forest Garden Farmer Workbook YEAR TWO

Dear Farmer,

Congratulations! You are now in the second year of the Forest Garden training program, which consists of five workshops. These workshops will be delivered by Trees for the Future trainers who will guide you in attaining the knowledge and skills you need to continue building and maintaining your own Forest Garden.

This Farmer Workbook includes activities and resources you will use throughout the year. There are evaluation checklists in each section that you and your Lead Farmer can use to assess your progress. We hope you will keep the workbook clean and safe and bring it to all the Trees for the Future workshops.

Please do not hesitate to tell your facilitator, trainer, or extension agent how this resource has helped you or how it can be improved. We want you to be successful and wish you luck as you progress through the program.

Good luck,  
The team at Trees for the Future

### **This workbook is made up of five workshops:**

Workshop 7 – Forest Garden Review, Optimization, and Planning Workshop 8 – Seed Saving  
Workshop 9 – Pruning and Harvesting  
Workshop 10 – Water Management and Conservation Workshop 11 – Integrated Pest Management

## **Workshop 7:**

### **Forest Garden Review, Optimization, and Planning**

#### **Activity Checklist: Optimizing your Forest Garden**

- ☐ Updated top view map of Forest Garden
- ☐ Created side view map of Forest Garden
- ☐ Plan for your nursery production
- ☐ Plan for seed sourcing for the year's seeds and perennials
- ☐ Plan for crop rotation in your permagarden

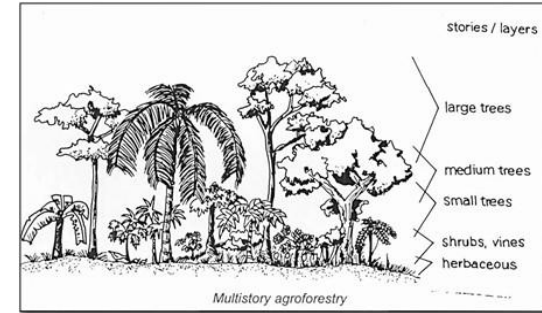


**Notes:**



### Side View Map

Side view maps are a way to look at your Forest Garden and see gaps in the vertical space. Plant a diverse variety of trees, shrubs, and plants to fill in those gaps using layers that optimize the space. Use the space below to draw a side view map of part of your Forest Garden.



From: [www.worldagroforestry.org](http://www.worldagroforestry.org)



## Updates to Seasonal Calendar

### Calendar 1: Foundation and 12 Months of Fruit

Months												
Seasons												
Holidays												
Food Availability												
12 Months of Fruit												

### Calendar 2: Seasonal Market Calendar, Prices

Months												
Product 1:												
Product 2:												
Product 3:												
Product 4:												
Product 5:												

## Planning

It's helpful to set goals for yourself and your Forest Garden. This can help you set priorities and improve things. You may use this space to list your goals for this year in your Forest Garden.

### List of this Year's Goals

- Goal 1:
- Goal 2:
- Goal 3:



## Nursery Planning

This tree nursery planning chart will help you plan the number of trees you will plant for each species, what is needed for raising it in the nurseries, and when it needs to be seeded in the nursery.

### Tree Nursery Planning Chart

Tree species by area	Number needed for planting	Small tree sack, large tree sack, bare root, or direct seed	Seeding date
Green Wall			
Alleys			
Other Areas			

## Seed Planning

You will have a workshop this year where you learn about and start saving tree and vegetable seed. These seed planning charts will note what Trees for the Future will provide and help you think about what seeds you will purchase or save this year.

Trees for the Future will Provide (fill in)

Tree Seeds/Seedlings	Vegetable Seeds



## Seed Collection and Purchasing Plan Chart

Tree Seed Type	Amount Needed	Buy or Collect (from where?)	Season/Month Needed
Vegetable seed type	Amount Needed	Buy or Collect	Season/Month Needed

## Permagarden Crop Rotation Planning

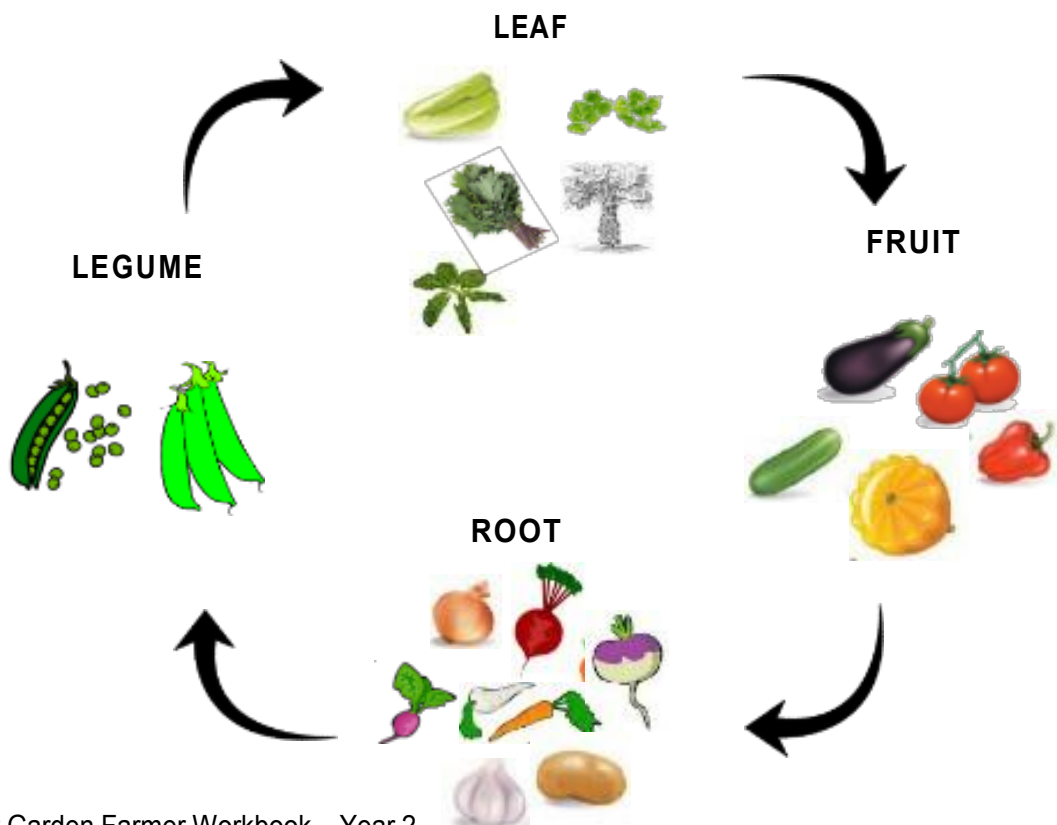
Crop rotation is an important part of keeping the soil healthy and pests away. How will you rotate beds based on what you grew last year, to help plan what you will grow this year? A simple way to remember your rotations are to use:

**LEAF > FRUIT > ROOT > LEGUME**

1. Write in the type of crop (leaf, fruit, root, or legume) you planted in the last season in 3 beds or 3 areas in the first line.
2. Choose a different crop type to plant in those beds this season and write them in the 'Season 2' line. This will be what you plant this year.
3. Choose a crop from the next type to plant in each bed in seasons 3 and 4
4. After season 4, rotate back to the type planted in season 1.

Crop Rotation Chart

	Bed 1	Bed 2	Bed 3
Season 1 (last season)			
Season 2 (this season)			
Season 3 (next season)			
Season 4 (following season)			



## Workshop 8: Seed Saving

### Activity Checklist: Establish your Seedbank

#### General

- ☐ Set up a personal home seed bank, following best practices:
  - ☐ Use of appropriate, air-tight seed saving containers
  - ☐ Correctly labelled containers including species, location of harvest, date
  - ☐ Properly processed (cleaned, sorted and dried) seed for storage

#### Tree

- ☐ Identified tree seed sources for 3 agroforestry species
- ☐ Started saving 3 agroforestry tree seeds

#### Vegetable

- ☐ Properly marked potential mother plants from which to harvest seeds



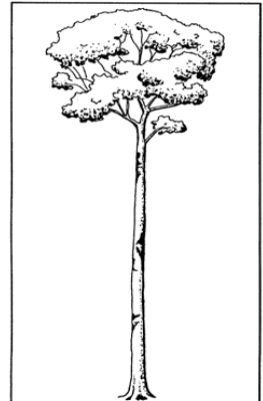
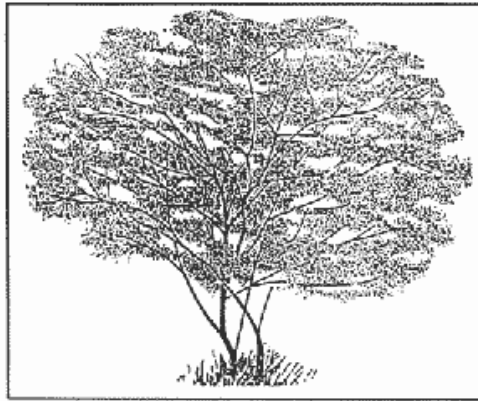
**Notes:**



## Collecting Seeds

### Characteristics of a good seed source tree

- Healthy and vigorous with no disease
- Mature, not too young
- Has the qualities you want (e.g. tall and straight for timber, good production for fruit)



### When collecting tree seeds, follow these steps:

1. Collect seeds when they are mature, right before emerging from pods.
2. Place a tarp or blanket on the ground.
3. Collect seeds by hitting with a stick, shaking the tree, or climbing to remove pods, flowers or fruits.
4. Collect seeds from all over the tree the crown of the tree, rather than just the low- hanging seeds.
5. Avoid collecting seeds that have already been on the ground, as they are prone to insect damage.



## Seed Processing

### Steps for Processing Dry Seeds



- Allow seed pods/capsules to dry in an open, dry place for a few days, while keeping protected.
- Seeds may fall out of pods when shaken or may require putting them in a sack to hit/loosen with a stick. Seeds with harder pods or shells may require breaking with a heavy tool or stone. Be careful not to damage them or they will not germinate.
- Winnow then clean seed to let the husks and debris blow away and leave the seed.
- Sort seeds for uniform size and remove damaged or discolored seed.

### Steps for Processing Wet Seeds



- Generally used for fruits and berries.
- Harvest mature and ripe fruit from selected plant/tree.
- Remove as much flesh/pulp as possible from the seed.
- If flesh still remains on the seed, submerge seed in water long enough for flesh stuck to seed to soften.
- Separate pulp from seed with hands or against a wire seed, being careful not to damage the seed.
- Rinse with clean water.
- Sow immediately or soon after for recalcitrant seed, keeping seed moist (e.g. in moist sawdust) until sowing.
- Dry and store if seed can be stored

## Seed Storage



A good storage location is dry, cool, dark, protected from rodents and other pests, and has good air flow.

Good storage containers are air-tight and labeled with important information.

## Labels

It is important to label seed that you have collected so you know the species, when, and from where it was collected. Include the information in the template here:

### Example Seed Label

Seed Name: Calliandra

Collector Name: Peter Lukwago

Date of Collection: June 12, 2021

Collection Location: Mosque Ikinu Kiambu

Germination rate (if tested): 85%

Weight (if scale is available): 250g

## Workshop 9: Pruning and Harvesting

### Activity Checklist: Prune your Forest Garden Trees

- ☐ Unhealthy branches in the Forest Garden are pruned
- ☐ Green Wall tree branches and terminal buds are pruned (except for windbreak line)
- ☐ Branches are woven back into the Green Wall to reinforce it.
- ☐ Pruned slow growing trees in the nursery for form and health.
- ☐ Pruned young fruit trees for better form
- ☐ Pruned timber trees for better form removing low branching
- ☐ Alleys and contours are correctly pruned/coppiced with clean cuts and little signs of breakage or tearing.
- ☐ Green manure is applied to the field



**Notes:**



## Pruning Considerations and Sanitation

### Considerations when pruning Agroforestry Trees:

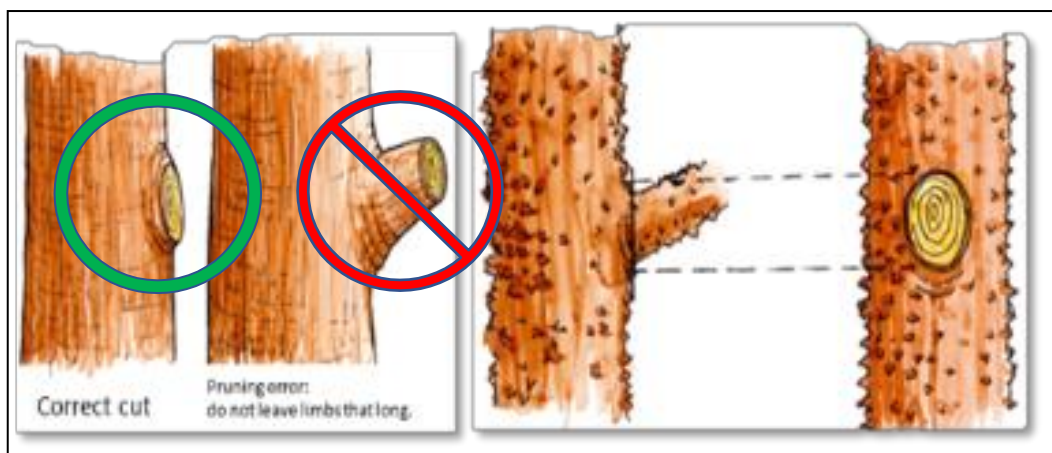
- Use a sharp pruning tool to avoid damage to the tree
- Clean the tool with alcohol before use to prevent spread of disease
- Make clean cuts, sawing or cutting completely through the branch
- Do not rip or tear the branch off as it can damage the bark and tree
- Make the cut at an angle or straight down so water does not collect on top



Basic pruning tools



Always clean tools before and after cutting trees to prevent disease



Prune tree branches near the trunk

## Pruning Agroforestry Trees

Prune agroforestry trees in the dry season to manage growth and provide shade for crops in the upcoming growing season.

Cutting the tree just above the ground will create lots of stems (coppicing, left picture)

Cut the branches at head height or higher, to maintain one trunk (pollarding, right picture)



Using cut leaves and branches from agroforestry trees for:

- Filling in gaps in living fence – longer branches that were pruned can be woven into the living fence/green wall to fill in gaps, especially those low in the fence where lateral branches do not reach
- Green Manure – leaves, branchlets, and small branches can be stripped off and turned into or placed on top of the soil as a mulch and green fertilizer (also called chop and drop).
- Feeding Livestock – if from appropriate species, leaves and branchlets can be stripped and fed to livestock.

## Pruning Fruit Trees

Prune fruit trees to:

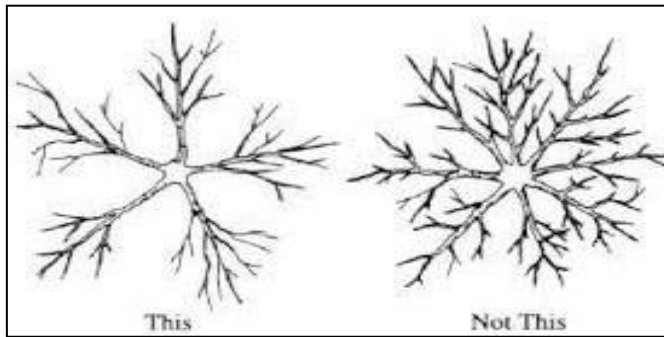
- Promote healthy, vigorous growth – regular pruning strengthens trees by focusing growth on the root system and the branches you want to grow.
- Encourage production – by improving health and encouraging bud growth, pruning increases the quantity and quality of fruit and nut production.
- Prevent and control disease – by improving tree health, trees are less susceptible to disease. Identifying and pruning diseased branches early can also prevent disease from spreading to the rest of the tree.

General Guidelines for Pruning Fruit Trees:

- Remove dead, damaged, and diseased branches.
- Decrease the density of branches to promote air circulation, healthier growth, and productivity.
- Train the branches to grow how you want them to grow.



After the fruit tree is shaped, remove any new branches growing from the trunk to avoid crowding.



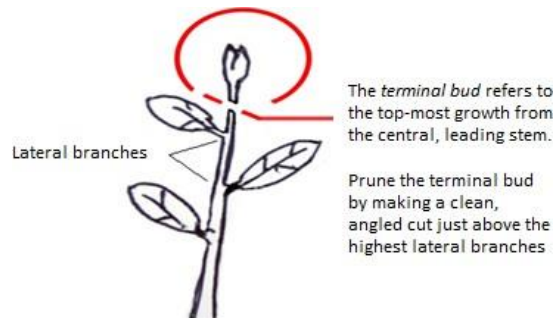
Prune secondary branches shooting from too close to the trunk (30 cm).

For grafted trees at any age branches sprouting from beneath the graft location should be removed.

## Pruning the Green Wall

Prune the terminal buds of green wall/living fence trees in the nursery to encourage lateral growth.

As green wall trees grow, weave the branches between the trees next to them to form a solid barrier, especially lower to the ground where smaller animals might enter. Prune the tops of the trees at head height and use the branches to fill in gaps or as green manure or livestock feed.



## Workshop 10: Water Management and Conservation

### Activity Checklist: Establish Water Conservation Techniques

- ☐ Mulched all vegetable beds and fruit trees
- ☐ Established and/or adapted cuvettes and half-moon (boomerang) berms around fruit trees.
- ☐ Established vegetative strips in erosion-prone areas.
- ☐ Optional, based on need: Built an advanced water conservation technique (diversion swales, check dams, pond or roof harvesting).



**Notes:**

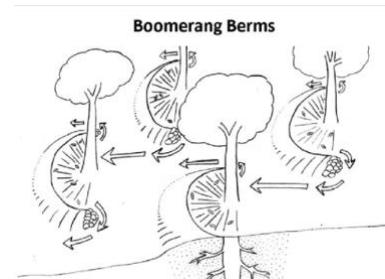
## Water Management and Soil Conservation Practices

Mulching (right) improves water retention by minimizing evaporation. It also improves soil fertility and structure, and reduces erosion and weeds.



Cuvettes (left, also seen above) are basins around trees to conserve and concentrate water around the tree's roots. They reduce disease and pests by preventing water and debris from collecting around the trunk. The first cuvette is dug around young trees, one meter from the trunk. A second cuvette should be made as the tree grows, creating a large circle one meter (one big step) out from the first cuvette.

Half-moon (boomerang) berms are used instead of cuvettes on sloped land, to capture and redirect water and nutrients down around the crown of trees.



Use berms and swales across contour lines to slow and redirect the movement of runoff into your cultivated areas or underground.



Vegetative Strips of closely spaced trees, shrubs, and/or grasses should be planted along contours or the outer edges of terraces to stabilize the soil, slow water, and capture topsoil from runoff.

Prevent the loss of precious water from your Forest Garden by redirecting it from building roofs, roads, pathways, or gullies using earthworks, and storing it in water ponds or cisterns.



## Workshop 11: Integrated Pest Management

### Activity Checklist: IPM in your Forest Garden

- ☐ Scouted the field to be aware of insect presence, and can share what they have been seeing, including location, what plants are affected, prevalence of any type of pest or disease.
- ☐ Created and applied at least one new natural pesticide according to what pests are identified in the field
- ☐ Cleaned the field of debris. Anything diseased or that might spread disease is removed.
- ☐ Use of companion planting and rotation to deter pests and attract pest predators



**Notes:**



## Basics of Integrated Pest Management

Integrated Pest Management (IPM) starts with preventing the colonization and spread of pests in your forest garden. Do this by using good agriculture practices, regular scouting and physical control, and good sanitation. Natural pesticides can be used where needed to control pests but should not be the only line of defense.

Prevent pests and disease through:	
<b>Agricultural Practices</b> <ul style="list-style-type: none"> <li>• Focused on improving soil fertility and providing adequate water to plants so they are strong and resistant</li> <li>• Planted vegetative borders</li> <li>• Correct use of intercropping</li> <li>• Correct use of crop rotation</li> <li>• Added companion plants to deter pests and attract beneficial insects/pest predators plants</li> </ul>	<b>Sanitation</b> <ul style="list-style-type: none"> <li>• Clean tools and wash hands when moving between cultivated areas.</li> <li>• Remove and burn plant materials that are infected with pests and disease.</li> </ul>
Control or treat pests and disease when present through:	
<b>Physical Control</b> <ul style="list-style-type: none"> <li>• Scouting Forest Garden regularly to identify/diagnose problems while they are still manageable</li> <li>• Hand pick insects and eggs from plants.</li> <li>• Set up traps to catch insects and assist with scouting</li> </ul>	<b>Chemical Control</b> <ul style="list-style-type: none"> <li>• Make and use natural pesticides</li> </ul>

## Natural Pesticide Recipes

Write down the natural pesticide recipes that you learn in the workshop here:

Recipe Name:	Pest Name:
Ingredients	
Directions	
Application Instructions	

Recipe Name:	Pest Name:
Ingredients	
Directions	
Application Instructions	

inches



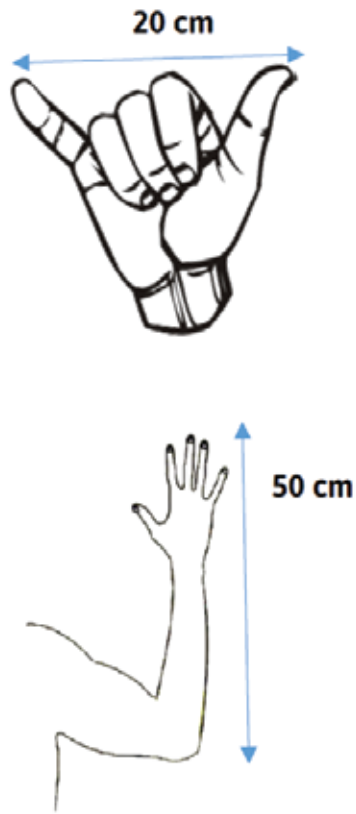
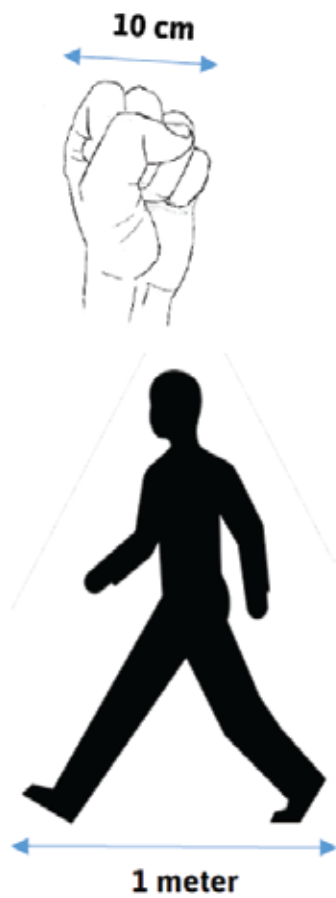
TREES  
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FUTURE



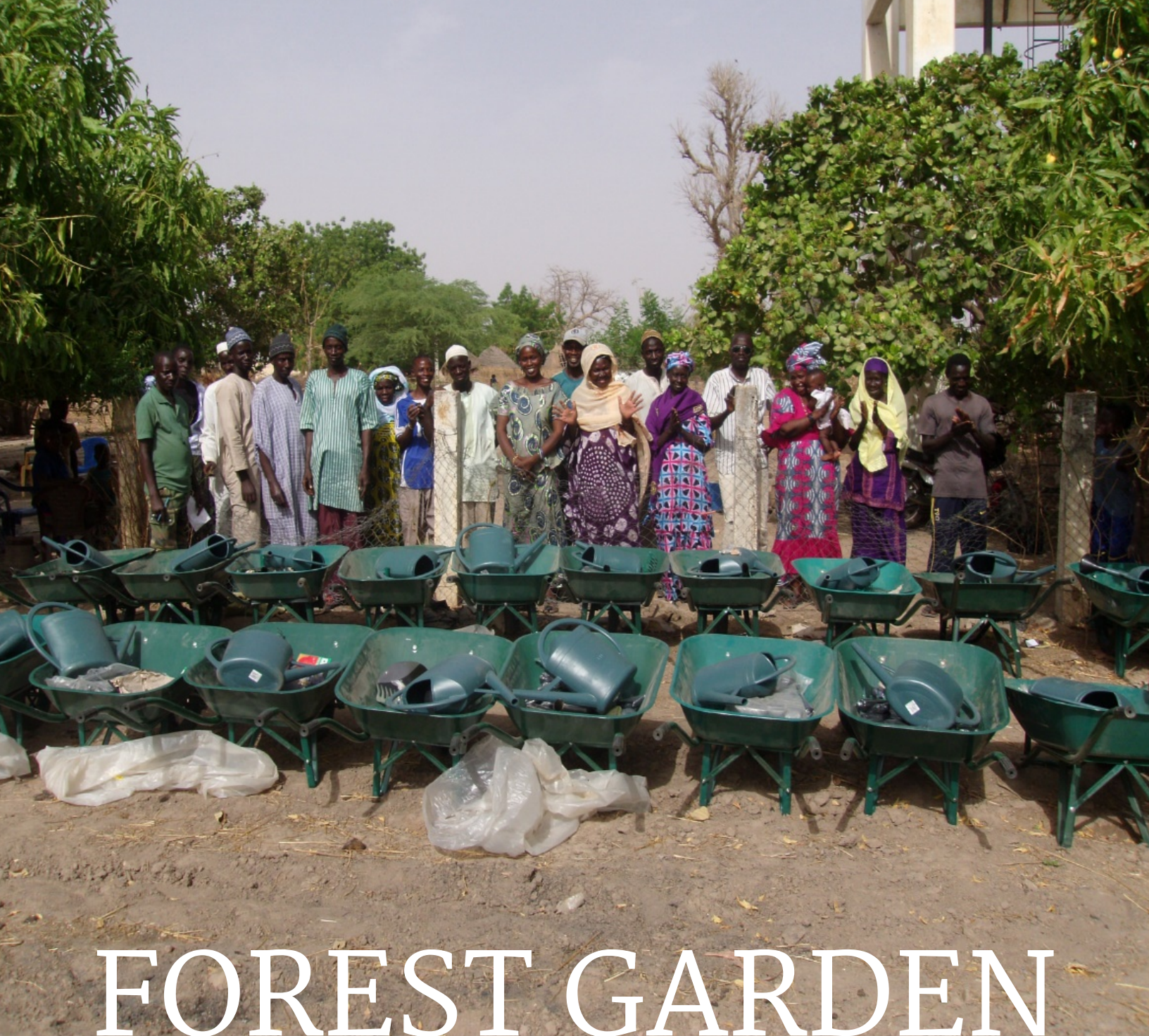
Forest Garden  
Training Center

[training.trees.org](http://training.trees.org)

centimeters







# FOREST GARDEN

## FARMER'S WORKBOOK

Year 3  
English-Anglaise



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Photo Credits: Trees for the Future, World Scout Bureau, Machete Verde, Kusamala Institute of Agriculture and Ecology

**Extend your learning online at [trees.org/training](https://trees.org/training) where you can access the latest resources, interact with the community and earn your certification.**





## Welcome to third year of the Forest Garden training program!



### **Dear Farmer,**

You are on your way to growing a Forest Garden by protecting, diversifying and optimizing your farm with trees and other crops.

This is the third year Farmer Workbook which includes activities and resources you will use throughout the second year of the Forest Garden Training Program. We hope you will keep it clean and safe and bring it to all the Trees for the Future workshops.

There is an evaluation checklist with all the skills you are expected to demonstrate in this second year. We have provided this checklists for you to do a self-assessment, and our technicians will use the same checklists when they visit your farm for annual assessments.

If you participate in the workshops, implement the techniques you learn on your own farm, and meet the evaluation criteria, you will earn a Forest Garden Certificate at the end of the program.

Please do not hesitate to tell your facilitator, trainer, or extension agent how this resource has helped you or how it can be improved. We want you to be successful and wish you luck as you progress through the program.

Good luck,

The team at Trees for the Future



## Year 3 Self-Evaluation Criteria



At the end of the each year, you will be evaluated on the practices that you learned and discussed during training events. After demonstrating that you have completed that year's evaluation criteria, you will be invited to continue in the second year of the project. Use this list to do a self-evaluation and ensure you are meeting all the year's major evaluation criteria.

- Green Wall
  - Three rows, fully surrounding the Forest Garden site
  - Gaps replanted
  - Well-managed
  - Dead fence surrounding green wall if still needed (for all projects where this is determined to be a requirement)
- Alley Cropping and/or Contour Planting
  - Optimum number planted
  - Gaps replanted
  - Well-managed
- Fruit Trees
  - At least 4 species planted
  - At least 2 species grafted
  - Proper spacing between trees
  - Each tree mulched and weeded
- Timber Trees
  - At least 1 species planted
  - Proper spacing between trees planted
  - Each tree is weeded and mulched
- Compost
  - Three active piles
  - Well-managed
- Permagarden
  - Multiple species
  - Demonstrated use and explanation of at least 3 IPM measures
  - Production timed for demand
  - Demonstrated use of the 4 S's
  - Perennials planted on berms around garden



## Module 9: Field Optimization



## Map of Field



## Activity: Identifying Times of Food Shortage



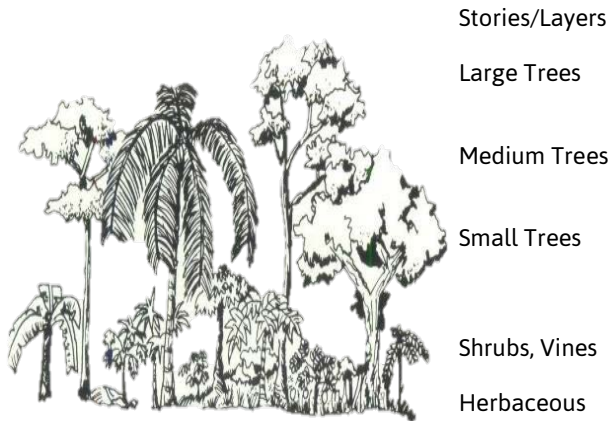
Fill in the calendar with check marks to show when you have products to harvest, sell, eat or trade.

Month or season Crop	J	F	M	A	M	J	J	A	S	O	N	D

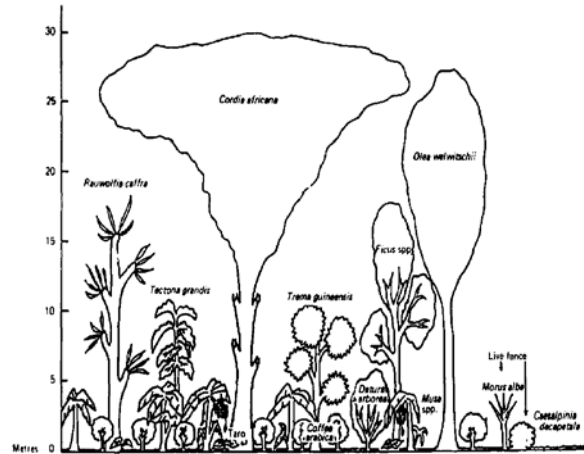
Fill in the calendar with check marks to show when you have products to harvest, sell, eat or trade.

Month or season Crop	J	F	M	A	M	J	J	A	S	O	N	D

# Examples of Vertical Maps

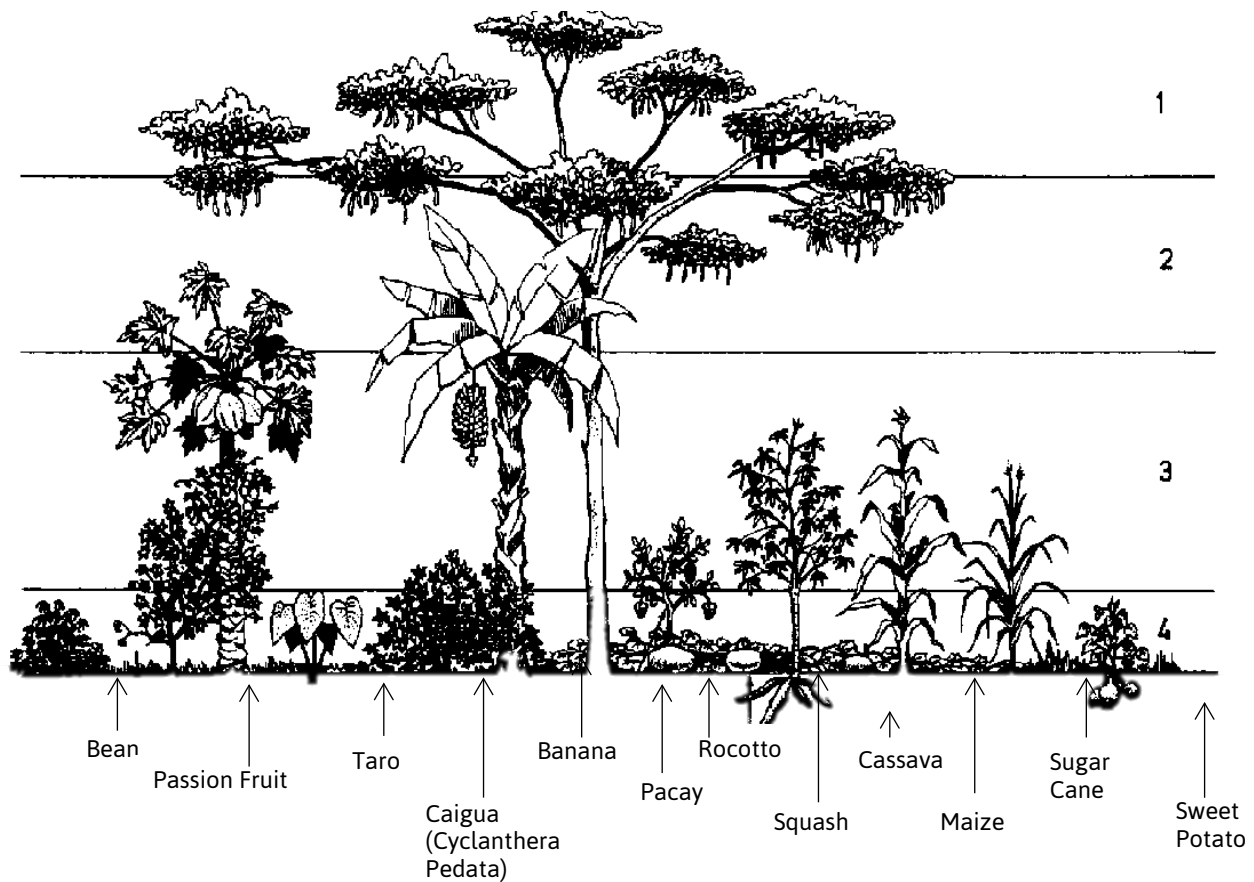


Stories/Layers  
Large Trees  
Medium Trees  
Small Trees  
Shrubs, Vines  
Herbaceous



Source: United Nations University

Source: New Zealand Digital Library



Source: New Zealand Digital Library





Side mapping requires that you look at the field from the side to identify gaps.



An example of side mapping.



## Side Mapping



*Draw your Forest Garden vertical map from the side view*

## Side Mapping



*Draw your Forest Garden vertical map from the side view*

# Optimizing Your Forest Garden



How can I optimize the use of space in my forest Garden?

1.

2.

3.

4.

How can I ensure there are things to harvest all the time throughout the year?

1.

2.

3.

4.

How can I conserve and reuse as much water as possible?

1.

2.

3.

4.

## Notes

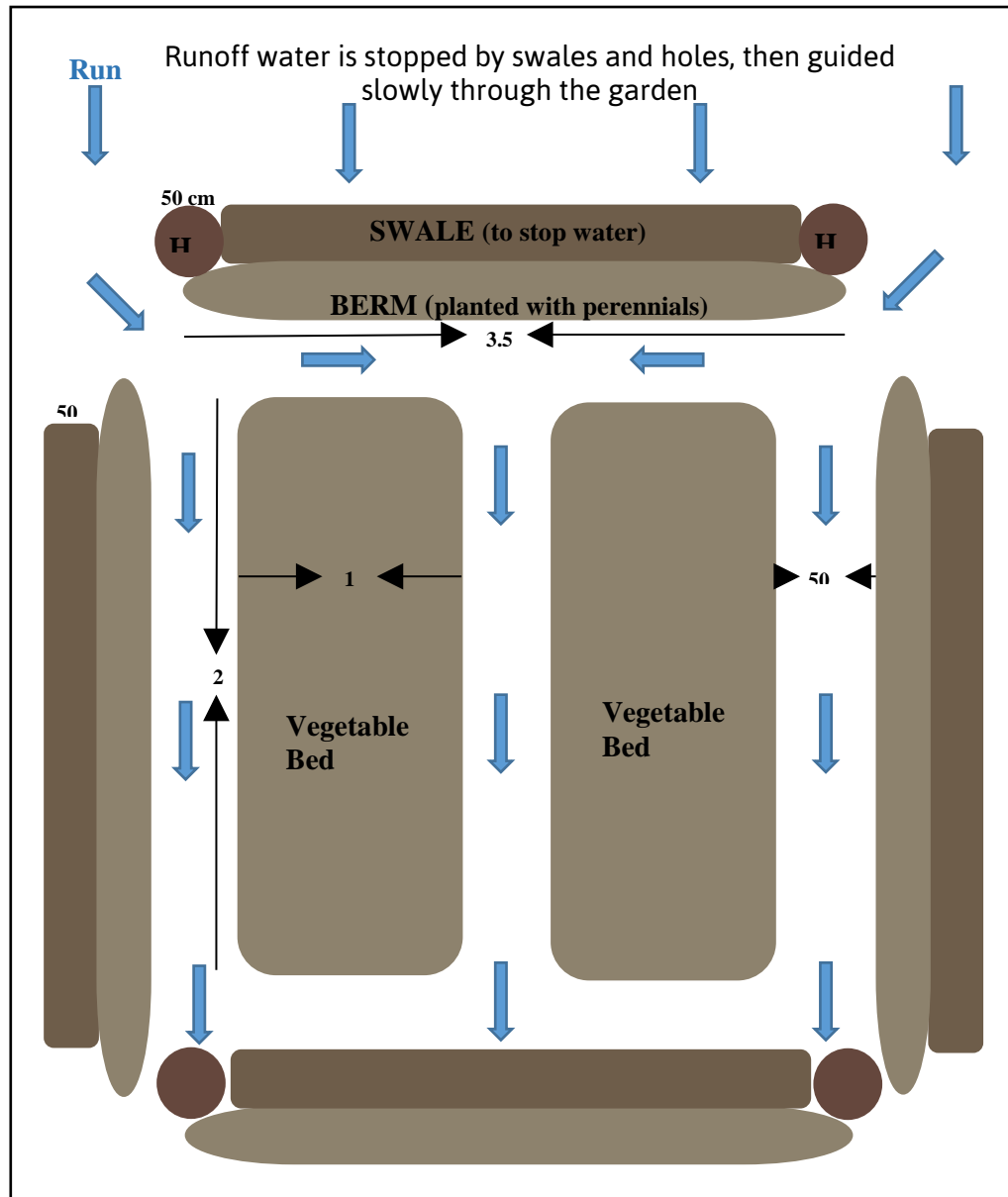
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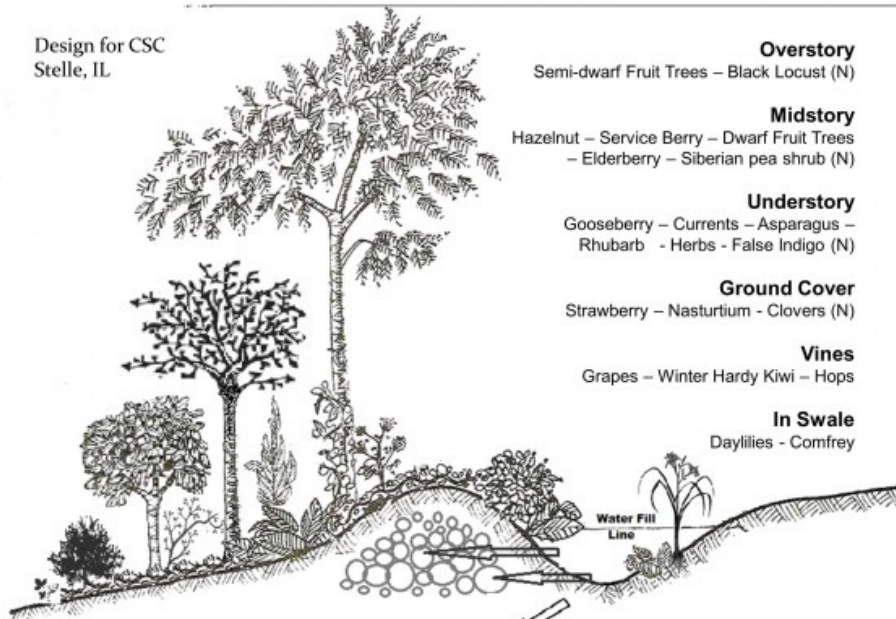
## Module 10: Timber Tree Propagation and Perennials



# Soil and Water Conservation Techniques



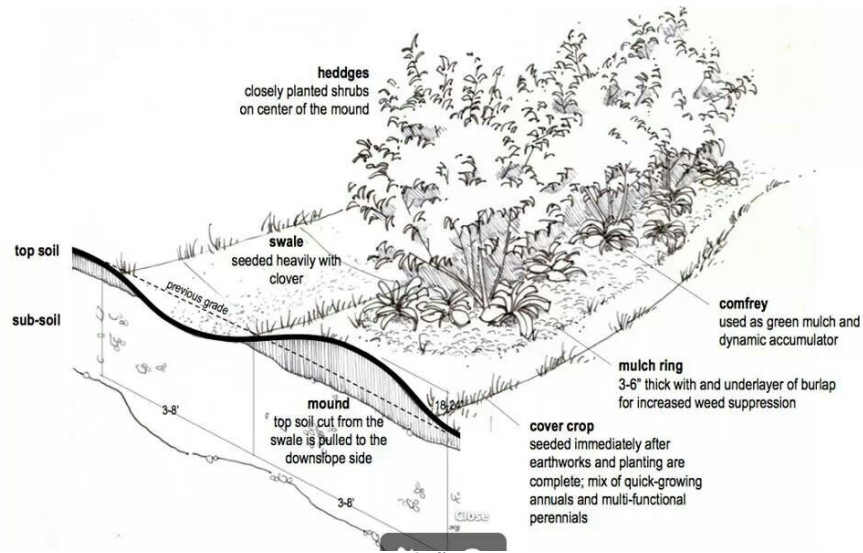
# Examples of Berms and Swales



## Hugelkultured Swale & Linear Food Forest

Perennial trees and plants located along the entire downhill side of the hugelkultured swales  
Based on an illustration from *Introduction to Permaculture* by Bill Mollison  
Modified by Bill Wilson of Midwest Permaculture

Credit: <https://www.google.com/imgres?imgurl=https%3A%2F%2Fmidwestpermaculture.com%2Fwordpress%2Fwp-content%2Fuploads%2F2012%2F07%2FSlide3-640x480.jpg&imgrefurl=https%3A%2F%2Fmidwestpermaculture.com%2F2012%2F07%2Fhugelkultured-swale-with-linear-food-forest%2F&do>



[https://www.google.com/search?q=berm+and+swale&tbm=isch&tbs=rimg:Cb8AQO9hFAYOJjT7cxg8uhXIzcobzniopwVQMF3NSrkRqBEofjaHpgKFEI9da1Gvb1vkd1Q7jU6Tgkh5JIQayOQSoScDptzGdy6FcjERuACo3ZDP7rKhIJNzRvOeL5nBURwTbcU\\_1jBx6wqEgmRAX\\_1c1KuRGhFQWJYMEMVtCoSCYETR-NoemAoER](https://www.google.com/search?q=berm+and+swale&tbm=isch&tbs=rimg:Cb8AQO9hFAYOJjT7cxg8uhXIzcobzniopwVQMF3NSrkRqBEofjaHpgKFEI9da1Gvb1vkd1Q7jU6Tgkh5JIQayOQSoScDptzGdy6FcjERuACo3ZDP7rKhIJNzRvOeL5nBURwTbcU_1jBx6wqEgmRAX_1c1KuRGhFQWJYMEMVtCoSCYETR-NoemAoER)





Example of a Forest Garden with raised beds on contour, Fruit Trees, and a Green Wall.

## Perennials



List perennials you want to grow in your Forest Garden.

1.

2.

3.

4.

5.

## Notes

---



## Module 11: Permagardening for the Future





# Companion Planting



Tomatoes protected by onions



Okra protected by onions



Beans climbing sunflowers



**What insects do you see in your field?**



**What insect damage do you see in your field?**



# Disease Identification



Remove any infected plants. Color is a good indication that a plant is infected. Here are three common diseases for vegetables that flower and fruit:

## Leaf curl virus



## Mosaic virus – green spotting and slight deformation



## Alternaria – this fungus causes spots with yellow and dying leaves.





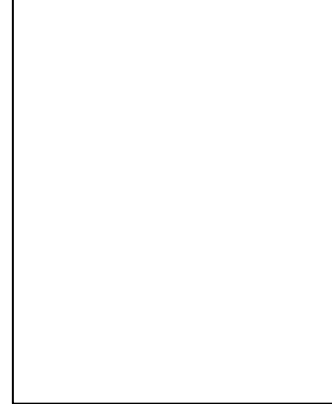
# Common Integrated Pest Management Methods



Intercrop beans with millet to reduce striga.



Encourage natural enemies



Manure tea



Remove infected plants.



Neem solution



## Notes

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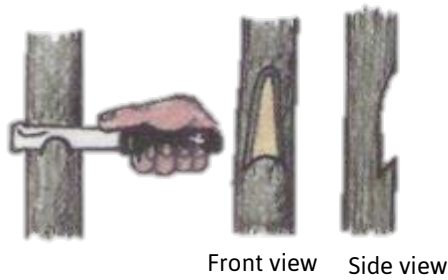
## Module 12: Grafting



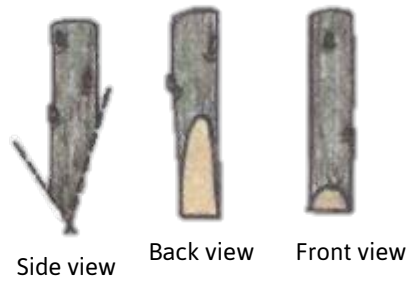
# Side Grafting



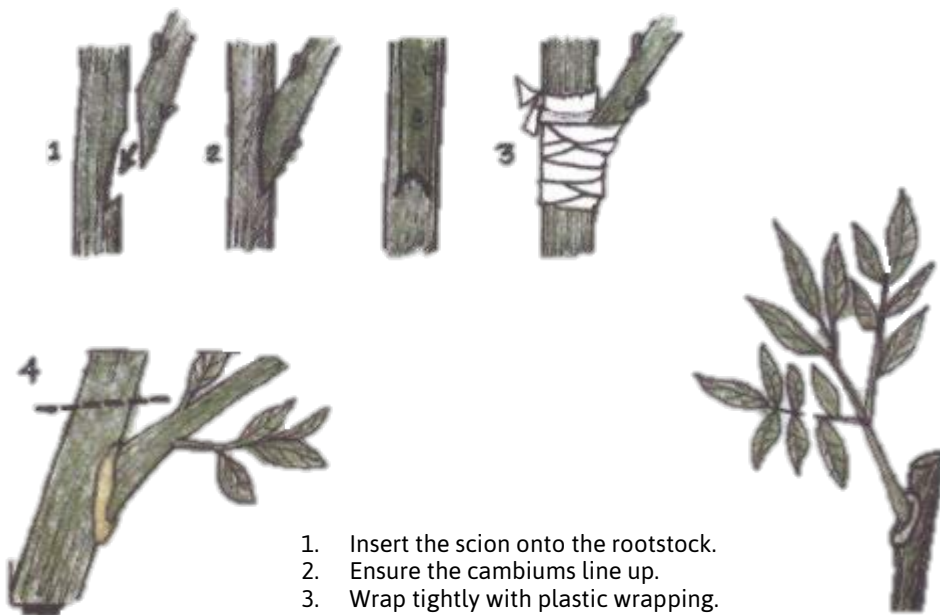
## Rootstock Preparation



## Scion Preparation



Make a downward cut 2.5-4 cm long



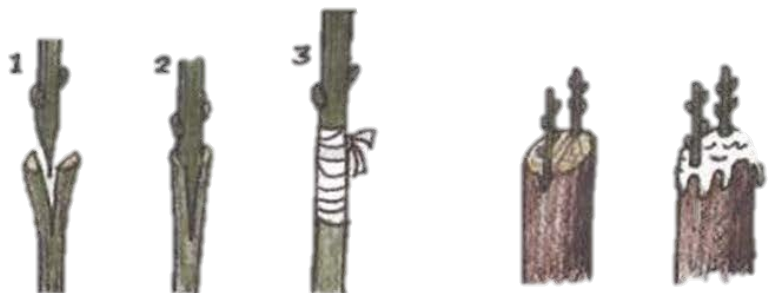
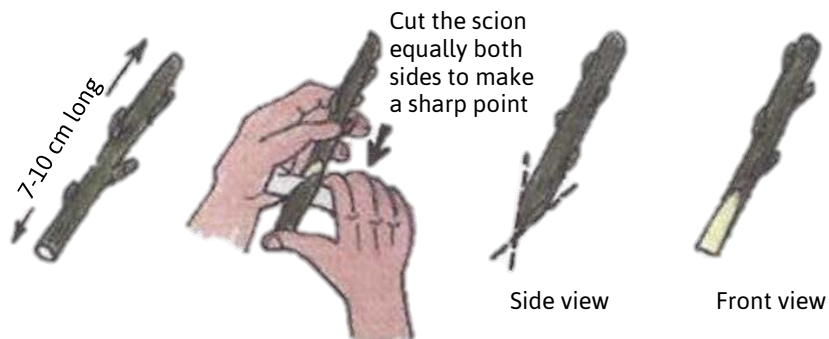
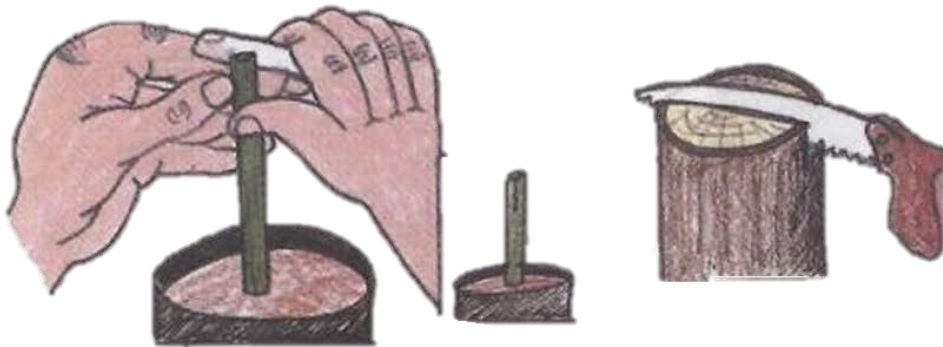
1. Insert the scion onto the rootstock.
2. Ensure the cambiums line up.
3. Wrap tightly with plastic wrapping.
4. After the scion begins to grow, cut off the rootstock above where it was grafted.



# Crown Grafting



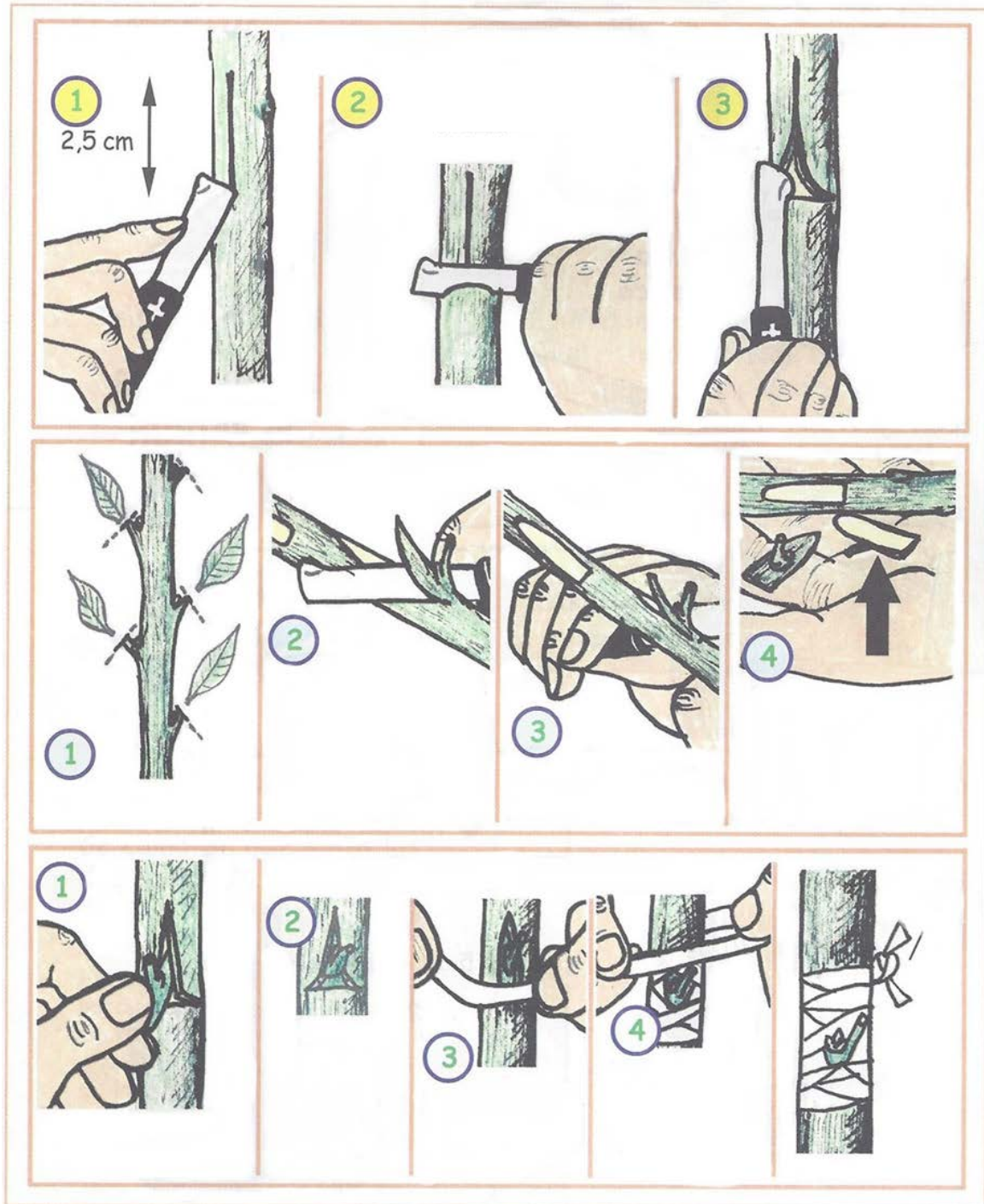
## Rootstock Preparation



1. Insert the scion in the rootstock.
2. Line up the cambium layers
3. Wrap tightly the plastic

Use wax to seal the grafts for larger trees

# T-Bud Grafting



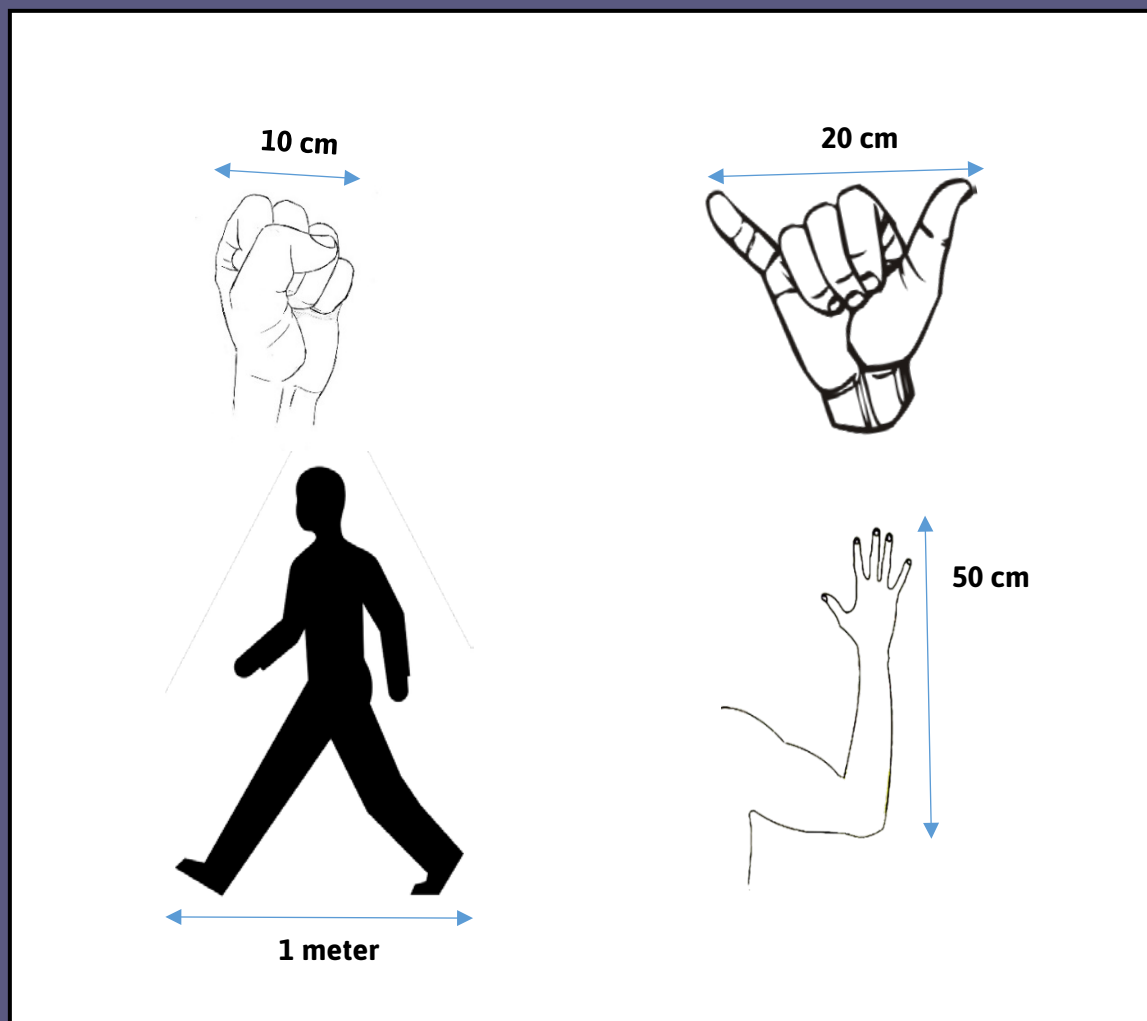
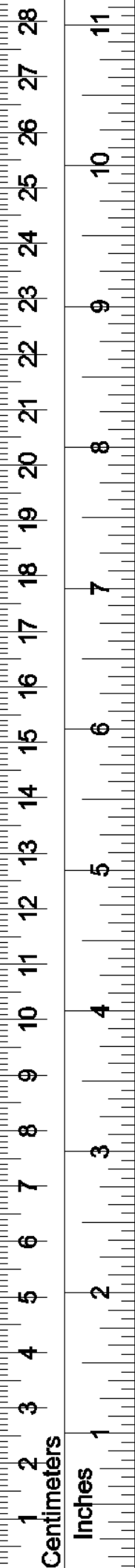
## Notes

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## Notes

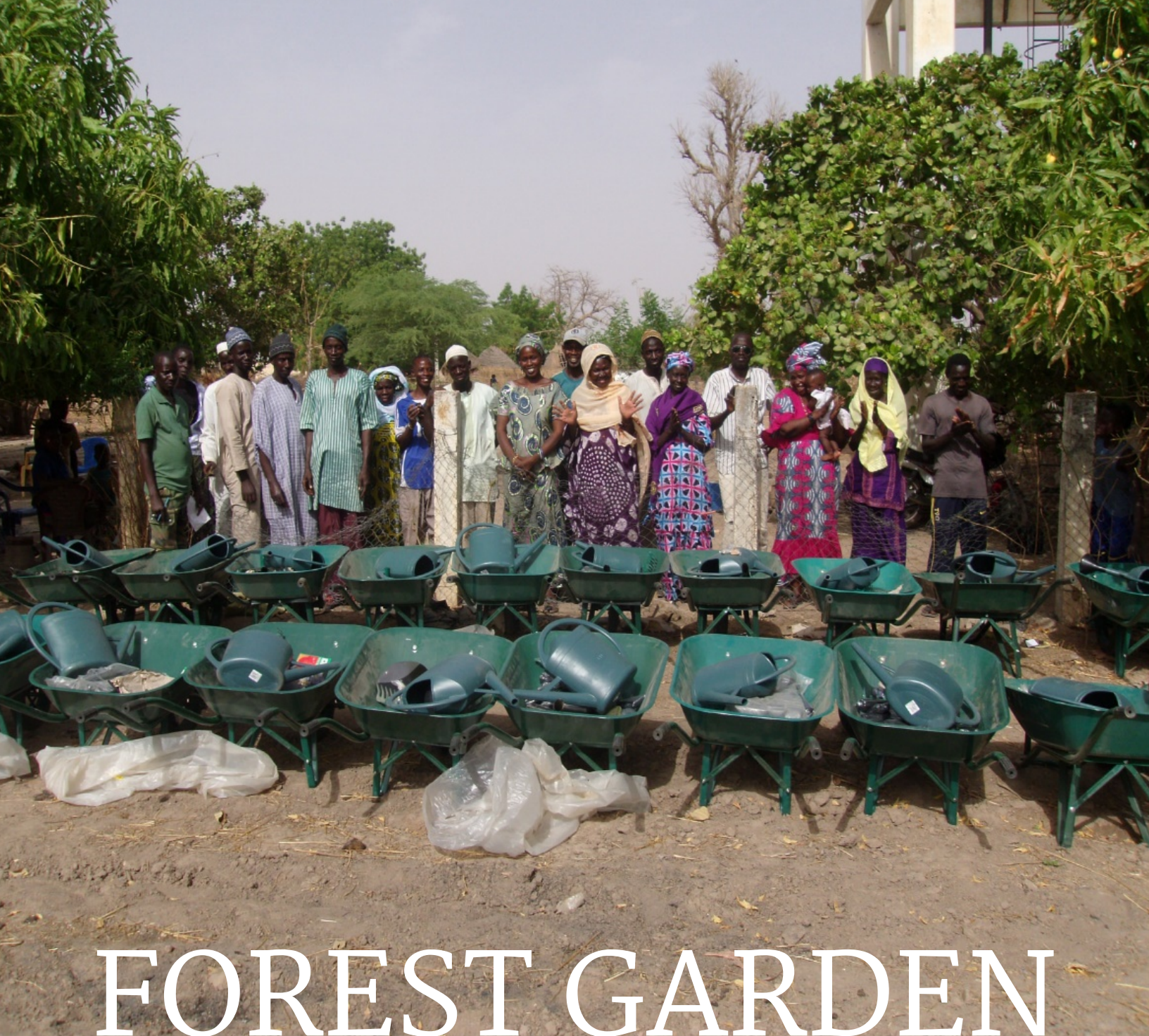
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# FOREST GARDEN

## FARMER'S WORKBOOK

Year 4  
English-Anglaise



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# Welcome to fourth year of the Forest Garden training program!



## **Dear Farmer,**

You are on your way to growing a Forest Garden by protecting, diversifying and optimizing your farm with trees and other crops.

This is the fourth Farmer Workbook which includes activities and resources you will use throughout the this last year of the Forest Garden Training Program. We hope you will keep it clean and safe and bring it to all the Trees for the Future workshops.

There is an evaluation checklist with all the skills you are expected to demonstrate in this second year. We have provided this checklists for you to do a self-assessment, and our technicians will use the same checklists when they visit your farm for annual assessments.

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Good luck,

The team at Trees for the Future

## Year 4 Self-Evaluation Criteria



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- Green Wall
  - Fully surrounding the Forest Garden site
  - Gaps replanted
  - Well-managed
- Alley Cropping and/or Contour Planting
  - Optimum number planted
  - Gaps replanted
  - Well-managed
- Fruit Trees
  - At least 4 species planted
  - At least 2 species grafted
  - Well-pruned
- Timber Trees
  - At least 2 species planted
  - Proper spacing between trees planted
  - Each tree is weeded and mulched
- Compost
  - Three active piles
  - Well-managed
- Permagarden
  - Multiple species
  - Can discuss at least 4 IPM measure applied
  - Demonstrated use of the 4 S's
- Optimization
  - Optimum number of fruit trees planted
  - Optimum number of timber trees planted
  - Demonstrated use of guilds (beneficial plant associations/polyculture patches)
  - Demonstrated use and explanation of at least 5 IPM measures
  - Ground cover planted among fruit and timber trees





## Module 13: Advanced Optimization



## Activity: Identifying Times of Food Shortage

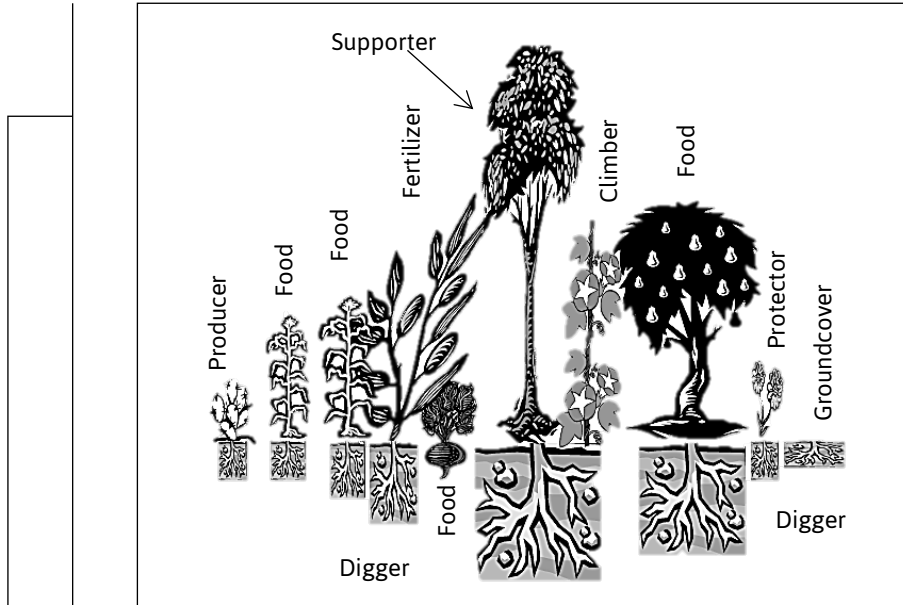


Fill in the calendar with check marks to show when you have products to harvest, sell, eat or trade.

Month or season Crop	J	F	M	A	M	J	J	A	S	O	N	D



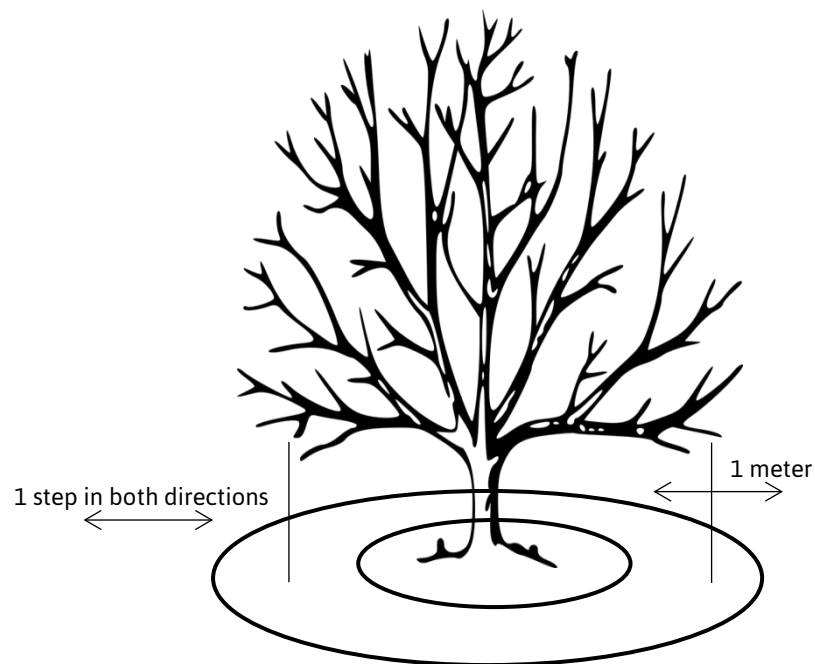
# Guild Example





# Advanced Soil and Water Conservation Techniques

Procedure for making cuvettes for young and adult trees



## Activity: Optimizing Your Forest Garden



**What will you do to optimize space, time and water in your Forest Garden?**

**1.**

**2.**

**3.**



## Notes

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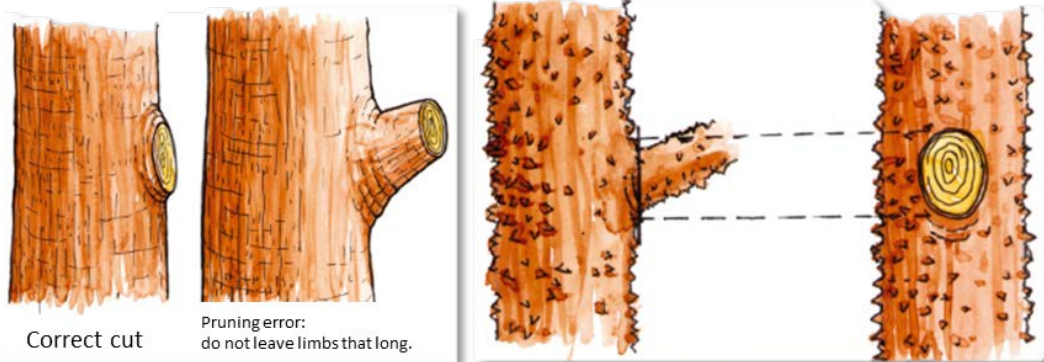
## Module 14: Pruning and Harvesting Trees



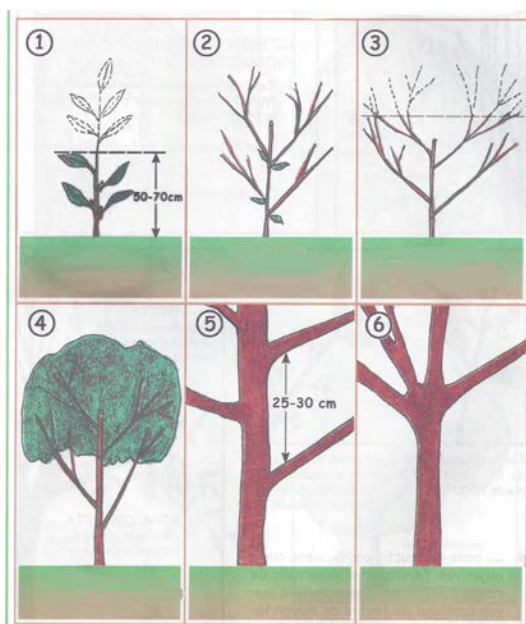
# Pruning Best Practices



Basic pruning tools



Prune tree branches near the trunk.



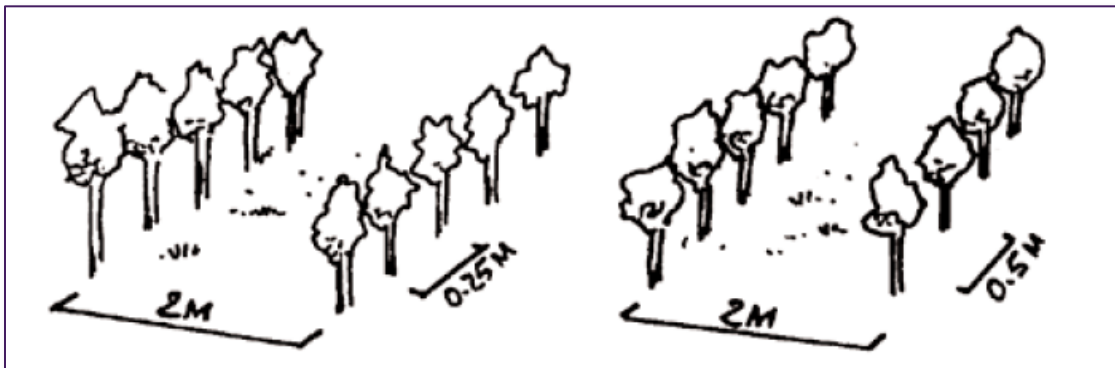
Good times to prune trees:

1. Prune the top of young trees less than a year old if you want them to spread laterally.

2 & 3. Prune branches in the first couple years to shape the tree either tall with a nice crown or short with lateral branching, depending on where the tree is in your Forest Garden.

4, 5 & 6. When trees start to mature, make sure they don't get too dense and that there are not too many branches.

## Pruning Foliage



**How much tree fodder can you feed to your livestock, and should you feed them green, fresh or dried?**

- The easiest way to feed the fodder is to let your cattle, sheep, goats browse directly on trees in the range, in fallow land or in your backyard, if the trees are not too tall.
- If the trees are too tall, you may have to cut the branches and carry them to your animals to eat in the field, in your backyard, or in the stall.



In this way, your animals will eat fresh leaves and small stems. Goats will sometimes eat the bark of large stems and this is also good for them. If overgrazing is causing soil erosion where you live, you may choose to keep animals in stalls or fenced off fields and bring them fodder to eat. Another way is to feed dry forage. Cut it and dry it in the sun for a few days, then store it for feeding later on. It is in this dried form that you should feed the fodder to pigs and chickens. After sun-drying, crush or grind the leaves and small stems to make a leafmeal which you can feed directly or mix with other feeds.



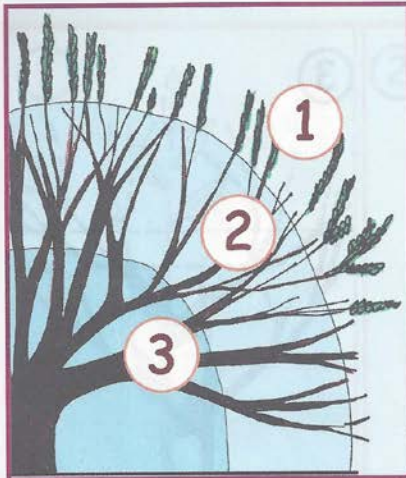
## Pruning for Fertilizer



Prune branches correctly and mix the leaves into the soil.

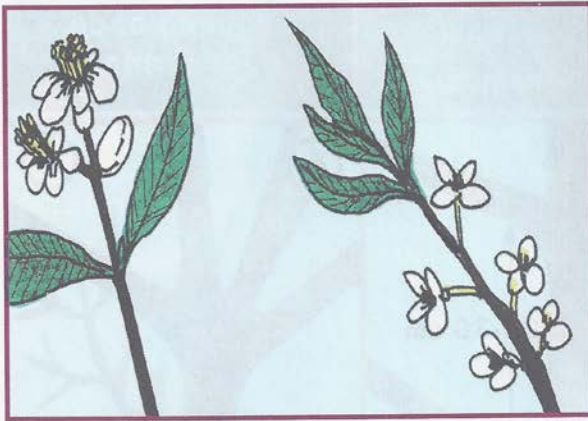


# Pruning Fruit Trees



Remove dead, damaged, and diseased branches.

Decrease the density of the branches to promote air circulation, healthier growth, and productivity.



Train the branches to grow how you want them to grow.





## Notes

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## Module 15: Sustainability Planning



# The Value Chain



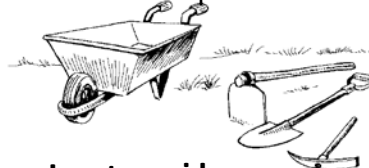
**Consumers**



**Processors**

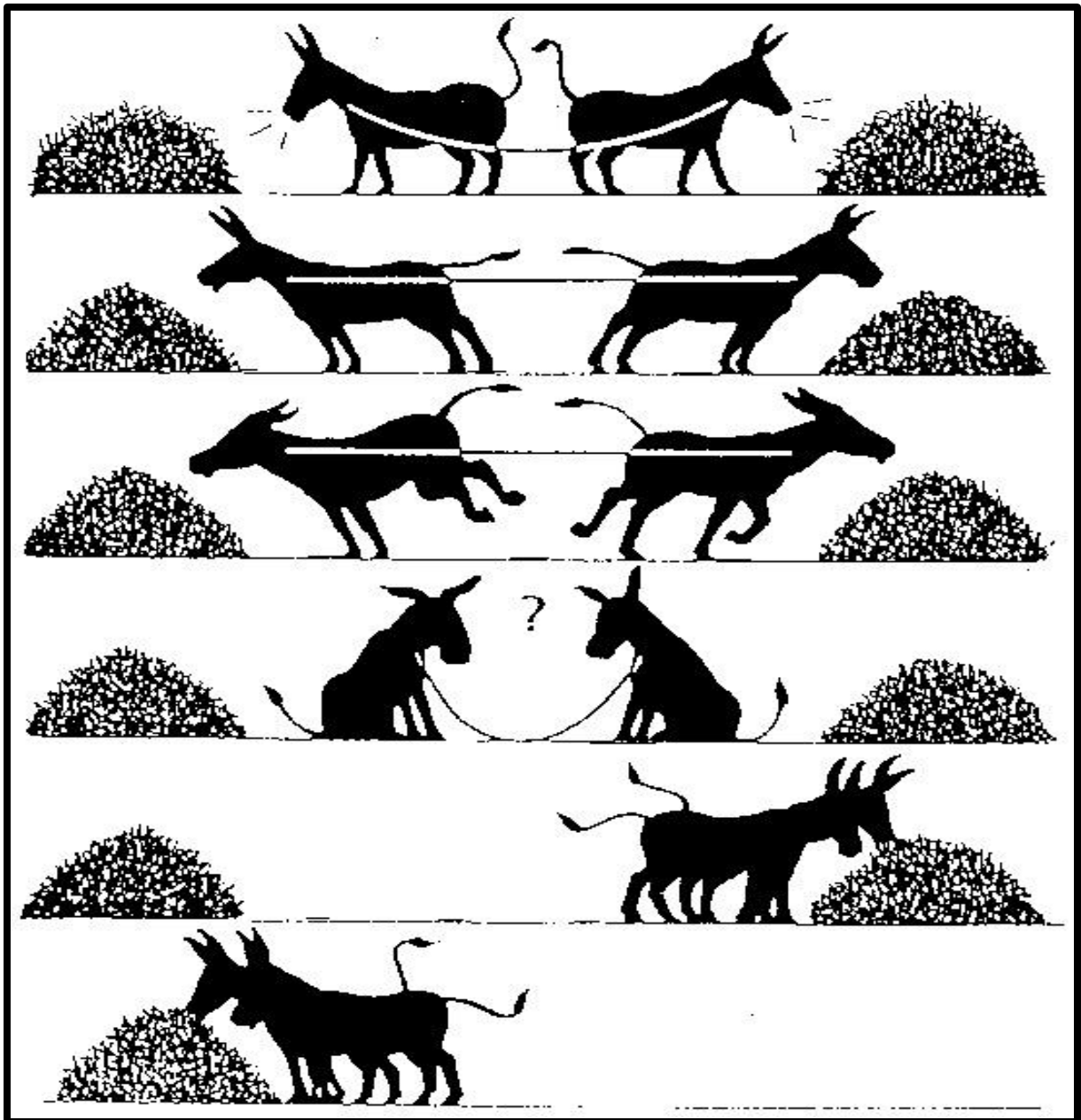


**Producers / Farmers**



**Input providers**

# Donkey Metaphor for Collaboration



# Challenges for Farmer Based Organizations



Challenge	Reasons for happening?	What can we do?

# Farm Inputs



Inputs	Quantity Needed	Benefit from collective buying? (yes/no)	How do we purchase it?



Potential Buyers



Buyer	Location	Quality	Volume	Price

# Sustainability Plan



Action item:			
Task	Who	When	Cost
1			
2			
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4			
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10			

# Cooperative Bylaws Template



Because many groups decide to formalize themselves through the course of this training program, we have provided that following bylaws template for newly groups deciding to establish rules or bylaws. This example was modified slightly from a similar template provided by [Cultivate Coop](#). It was modified to be more applicable internationally.

## I. Mission, purpose, and legal structure

This section often includes the cooperative's mission statement, vision statement, or stated purpose.<sup>[3]</sup> This is also a good place to restate the information outlined in the Articles of Incorporation. The Bylaws should agree with the Articles, but you may wish to include this useful phrase:

*"The articles of incorporation are hereby made a part of these bylaws. In case of any inconsistency between the articles of incorporation and these bylaws, the provisions of the articles of incorporation are controlling."*<sup>[4]</sup>

## II. Membership

This section should describe each membership class (if more than one). For each membership class, outline who is eligible for membership, the requirements for membership, voting rights. Specify rules for suspension or termination of membership, including guidelines for returning member investments. Note that membership shares are often non-transferrable.<sup>[5][2]</sup>

## III. Membership Meetings

This section should address the details of annual (or periodic) general membership meetings. Such details may include:

- a) How often are regular membership meetings held? How is the agenda compiled? How is the time and location of the meeting announced?
- b) How are special membership meetings called? How are special meetings announced?
- c) What decision-making process is used? Consensus? Modified consensus? Majority vote? What percentage of participants must vote in favor in order to approve a decision? Do stand-asides affect the outcome? Possible "majority" thresholds include 50% plus 1, 66%, 75%, and occasionally greater percentages.
- d) What number or percentage of members is needed for quorum?<sup>[4]</sup>

## IV. Board of Directors:

The “Board Directors” section should answer these questions:

- a) What is the minimum or maximum number of Board Directors? It may be useful to specify a range in the Bylaws, so the Board can grow if needed. Cooperatives often try to have an odd number of directors. Do you want the Board to reflect certain constituents? Many consumer-owned cooperatives strive to fill a certain number of seats with staff members.
- b) How are Board Directors elected? How long are Board terms? Many cooperatives try to stagger terms, so that only about half of the Board seats are up for re-election at a time. This helps to ensure organizational stability and preserve institutional memory.
- c) How are vacancies filled? Some cooperatives allow the Board Directors to fill vacant seats, while others require a special vote of the membership.<sup>[5] [6]</sup> Others offer vacant seats to runners-up from recent elections.
- d) Under what circumstances can Directors be removed? What is the process for removing Directors? In cases of serious misconduct or negligence, suspension or removal may be automatic. In other cases, there may need to be a mechanism for empowering members to recall Directors or Board Decisions.
- e) Will Directors be paid for serving on the Board? If so, how much? Different states have different statutes.
- f) Do you wish to prohibit Board Directors from voting if they have a conflict of interest (such as compensation of officers)? Here is a useful phrase:  
  
*“It shall be the duty of all board directors to make prompt and full disclosure to the board of any personal, professional, or financial conflict of interest in a matter under discussion. When a conflict of interest is disclosed, the board member must not participate in the discussion or vote on the relevant issue.”<sup>[4]</sup>*
- g) How often are Board Meetings held? How will the time and location be communicated to members? Under what circumstances can emergency Board meetings be called, and how will they be announced?
- h) What are the general duties of Board Directors? What is their relationship to the management, staff, and members?

- i) What is the role of the management? Typically (co-)managers oversee daily operations in compliance with general guidelines set by the Board, and report to the Board of Directors.
- j) Will there be Board Committees? Should these be defined in the Bylaws? How are Board Committees formed? What are the limitations of Board Committees' decision-making power?<sup>[6]</sup>

## **V. Board Officers**

The Board may be required to designate a President / Chair, Secretary, Treasurer, and / or alternatives. Check your area's requirements, and outline the duties of each officer in subsections. Also specify how officers are designated (elected directly by the membership or chosen by Board Directors) and how long their terms last.

## **VI. Finances**

Be sure to cover the following (check your state's statutes):

- a) How are net proceeds (both margins and losses) apportioned?
- b) How are proceeds distributed?
- c) What are your policies for patronage refunds and reserves?
- d) Check the local government's code for guidelines for equity records. Cover equity redemption for terminating members, deceased members, and unclaimed equity.

## **VII. Administration and Miscellaneous**

This section can include a variety of topics (organized into subsections). Topics may include when the fiscal year begins, what meeting process is used (Robert's Rules of Order, Butler's Formal Consensus, or another system detailed in a separate text that can be referenced by members), use of a corporate seal or logo, indemnification and insurance coverage for Directors, financial reviews, options for advisory councils and committees, and more.<sup>[4]</sup> Separate sections can be created for these topics if desired.<sup>[5]</sup>

## **VIII. Amendment to the Bylaws**

It is important to state the procedure for amending the Bylaws. How does

a Board Director or member propose an amendment? How is an amendment approved? (This often requires a period or special general membership meeting and a vote of the membership. Some cooperatives require that members petition for a special meeting and / or Bylaws change in order to demonstrate that their proposal has some support.)

## **IX. Dissolution**

What procedures should be followed if the cooperative goes out of business? If members or Board Directors are interested in dissolving the cooperative voluntarily? How will remaining assets be divided?

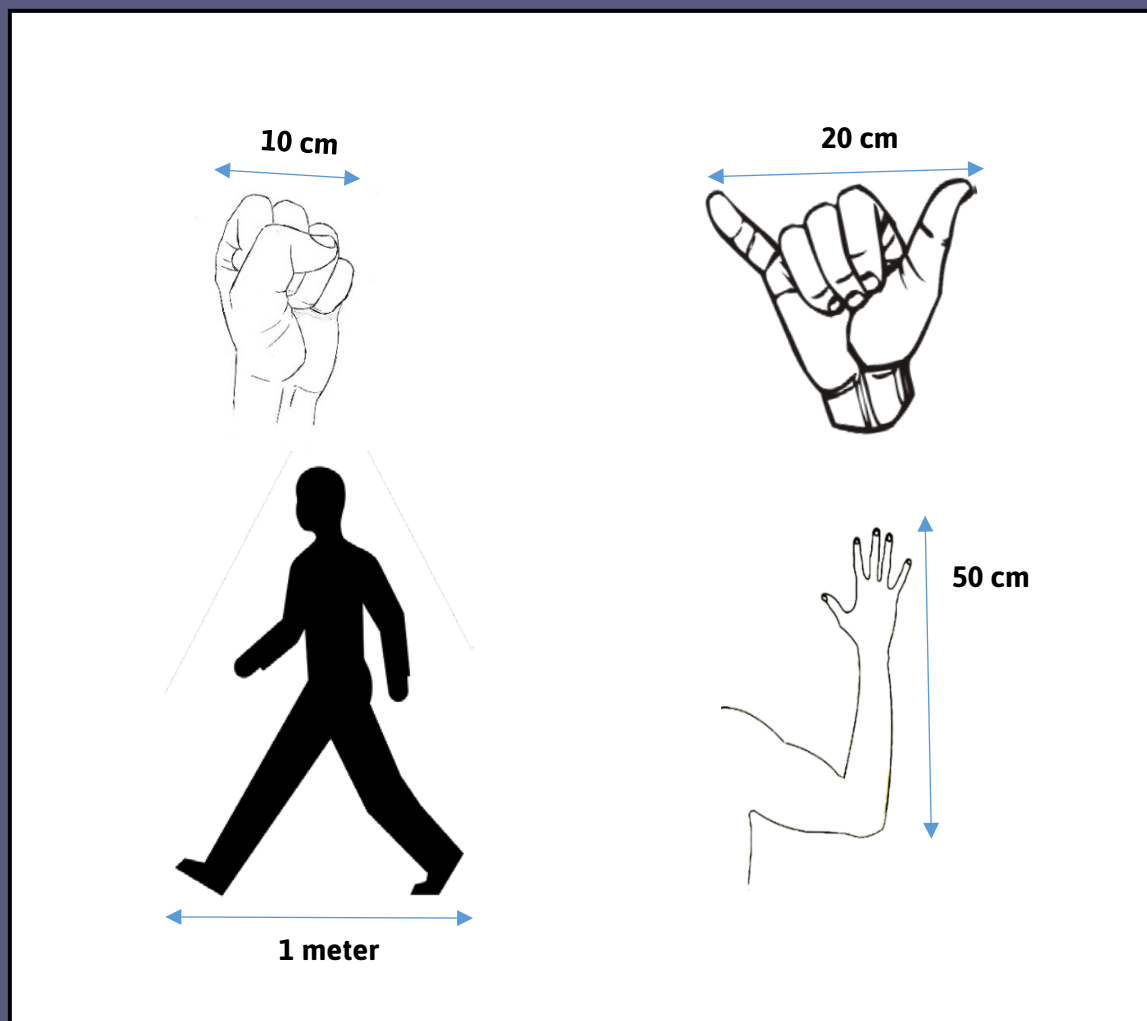
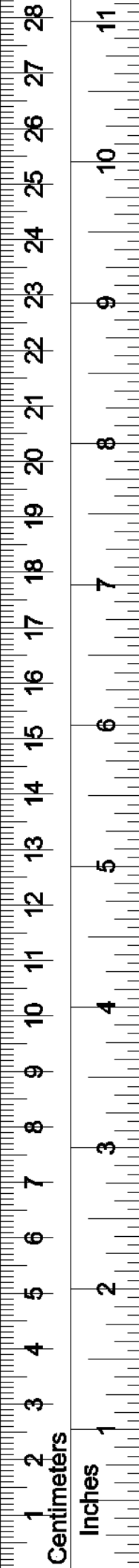


## Notes

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## Notes

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**USAID**  
FROM THE AMERICAN PEOPLE

TOPS  
Small  
Grant



A woman wearing a red long-sleeved top and a patterned skirt is reaching up to touch the leaves of a tree. She is looking upwards with a smile. The background is filled with green foliage.

# Lead Farmer Workbook

Year One



**TREES  
FOR THE  
FUTURE**



Forest Garden  
Training Center



# TREES FOR THE FUTURE

## Lead Farmer Workbook YEAR ONE

Lead Farmer Name	
Project	
Farmer Group Name	
Phone number	

### About this Booklet

Welcome to the Lead Farmer Reporting Workbook. This booklet is intended for use by Trees for the Future (TREES) Lead Farmers to standardize field procedures in reporting.

This guide contains templates and instructions to be used by Lead Farmers when conducting a specific activity:

- Farmer Contact List
- Farmer Evaluations by Lead Farmer
- Materials and Equipment Distribution Record



- Monthly Site Report

## General Instructions for Lead Farmers:

### Your role as a Lead Farmer

Lead Farmers are a key part of our training and extension approach. Lead Farmers are committed, enthusiastic community leaders who demonstrate an interest in the sustainable development of their community. Lead Farmers are not TREES employees. They are group members and project participants, selected by the technician with recommendation from the farmer group members, and act as a conduit between TREES and the community. Lead Farmers maintain close communication with technicians and their group members. They often host and assist with facilitation of training events and are responsible for visiting each participant in their group regularly to deliver planting materials and equipment, provide technical support, and compile monitoring and reporting data.

### Lead Farmer Responsibilities

- Support and liaise between TREES' technicians and participant farmers within each farmer group.
- Attend all community and training events and meetings as requested by TREES technicians.
- Host and assist with facilitation of training events as needed.
- Visit each group member regularly to deliver planting materials and equipment, and provide monitoring.
- Provide regular technical support and guidance to group members.
- Collect, compile, and submit M&E data to the project technicians

### How often to visit farmers

Ideally, Lead Farmers should visit each farmer in their group once after every workshop, though this may not always be possible. For some workshops (Nursery, Outplanting, Permagarden), there are two scheduled visits. Monthly Site Visit Records should be filled in on a monthly basis, or as required by Technicians. For some monitoring activities, and where farmers and lead farmers both have smart phones, farmers can send pictures of their completed activities in place of in-person visits.

### How and what to communicate with technicians

Information from workshop follow-up can be shared with technicians during monthly Lead Farmer meetings. However, if there are any major concerns (for



example, if many farmers are not receiving supplies or completing important activities such as establishing nurseries or outplanting) then these should be communicated to technicians as soon as possible via call or text. Additionally, for some workshop follow ups, there is a remote communication option to send technicians photos from the farmer's assignment. This will help you and technicians provide the best extension support to the farmer.

## Farmer Contact List and Workshop Attendance

	Farmer Name	Contact	Workshop Attendance					
			1	2	3	4	5	6
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2								
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## Farmer Evaluations by Lead Farmer

### What are Farmer Evaluations?

Lead Farmers are responsible for monitoring the activities and progress of farmers in their group, and reporting back to the Technicians. This evaluation form, when filled for a given event or milestone, provides a quick snapshot of the progress of each farmer in the group, and of the group as a whole. When Lead Farmers, Technicians, or other team members are conducting extension or monitoring activities with farmers in the group, this sheet will be useful in determining who in a group might need extra support, or components a given farmer may be struggling with. This simple evaluation system allows for targeted support and extension while minimizing the effort required to complete it.

### Instructions for filling out the Farmer Evaluations

Following each training event or important milestone in Forest Garden establishment, the Lead Farmer will check in on each of their farmers, either in person or (where relevant and possible) through photos sent on smart phones. Based on their observations of each farmer's progress, the Lead Farmer will cross-check the evaluation criteria for each event (listed below the evaluation table), and will give each farmer a score based on the criteria. In many cases, the evaluation criteria consist of a given checklist. The Lead Farmer will count the components that a farmer has completed, following the checklist, then write their score based on the scoring criteria given.

The scoring sheet also allows for a follow-up visit to be conducted if a farmer receives a low score and needs more time to establish a component fully. In this case, the Lead Farmer would cross out the number in the '1<sup>st</sup>' column and write the updated score in the '2<sup>nd</sup>' column under the related training event or milestone.

### When should this be done?

Each evaluation training event or milestone, for which the Lead Farmer is expected to evaluate their farmers, is listed in the instructions below the evaluation table. Immediately after the name of each event or milestone is the 'Timing of Evaluation' which tells the Lead Farmer when it needs to be completed.

### When is it shared with Technicians?

The Lead Farmer will send a photo of their evaluation sheet to the project technicians after having evaluated the farmer's in her/his group.

## Year 1 Evaluation Form for Lead Farmers

[illegible]

[illegible]

## Planning

**Timing of Evaluation:** During Forest Garden Design Workshop

SCORING	Evaluation Indicators used for Scoring
4	The farmer has completed all 8 elements of the Planning Checklist
3	The farmer has completed 5 or more elements of the Planning Checklist
2	The farmer has begun planning but with fewer than half of the elements of the Planning Checklist
1	Planning has not been started

### Planning Checklist

1. Planning calendar
2. Market analysis calendar
3. Fruit trees for market
4. Fruit trees for family/nutrition
5. Vegetables for market
6. Vegetables for family/nutrition
7. Lean season products
8. Priority market products

## Forest Garden Design

**Timing of Evaluation:** Prior to Nursery Establishment (can be during compost check)

SCORING	Evaluation Indicators used for Scoring
4	The farmer has a completed design that includes all 10 elements in the Forest Garden Design checklist
3	A design has been created that has 6 or more of Forest Garden design elements
2	A design has been created but with 5 or fewer of the design elements
1	Forest Garden Design has not been started

### Forest Garden Design Checklist

1. Priority crops identified in Module 1
2. Green Wall
3. Earthworks (if needed)
4. 10m x 10m Permagarden
5. 2 compost pits/piles
6. Alleys or Contours
7. Fruit tree segment
8. Timber tree segment
9. Gated entrance
10. Tree nursery

## Compost

**Timing of Evaluation:** Prior to Nursery Establishment (Farmers can send photos to Lead Farmer instead of in-person visits if possible)

SCORING	Evaluation Indicators used for Scoring
4	The farmer has two or more active pits (2m long) or piles (1m tall), built in layers and covered with a moisture barrier. Piles may have a stick.
3	First compost complete and second is under construction.
2	First compost is under construction
1	No actively managed compost piles



## Nursery Establishment

**Timing of Evaluation:** As soon as nurseries are scheduled to be established

SCORING	Evaluation Indicators used for Scoring
4	The nursery is fully established with all 7 elements of the Nursery Checklist in place
3	The nursery has been established with 4 or more of the 7 elements of the Nursery Checklist in place
2	The nursery has been started but with 3 or fewer elements of the Nursery Checklist in place
1	Nursery establishment has not begun

### Nursery Checklist

1. Good water accessibility
2. Protection from animals/damage
3. Space for the target number of seedlings (per farmer)
4. Bareroot beds double dug and amended
5. Tree sack section
6. Shading constructed over bareroot beds and tree sack section
7. Use of good soil mix for tree sacks

## Germination

**Timing of Evaluation:** After germination (usually 3 to 4 weeks after sowing)

SCORING	Evaluation Indicators used for Scoring
4	The full number of target seedlings have germinated and are growing in the nursery
3	Not all, but more than half of the target number of seedlings are growing in nursery
2	Fewer than half of the target number of seedlings are growing in nursery
1	Few to no seedlings are growing in nursery

## Permagardening (First Visit)

**Timing of Evaluation:** 1 month after permagardening training

SCORING	Evaluation Indicators used for Scoring
4	Permagarden is established with 11 elements of the Permagarden Checklist (first visit) in place
3	Permagarden is established with 6 or more of the Permagarden Checklist (first visit) in place
2	The Permagarden has been started but with 5 or fewer of the Permagarden Checklist (first visit) elements in place
1	Permagarden area is not established

#### Permagardening Checklist (First visit)

1. Area selected is approximately 10m x 10m in size
2. At least 3 sunken or raised beds
3. At least 3 of the beds are double-dug (more to be dug over time)
4. Erosion control measures/earthworks (if needed)
5. Vegetable nursery bed
6. Sufficient use of compost/amendments
7. Diverse primary products selected for nutrition and marketing
8. Use of companions for soil fertility
9. Use of companions for IPM
10. Triangular spacing / correct spacing
11. Beds are covered with mulch

#### Permagardening (Second Visit)

**Timing of Evaluation:** 4 months after permagardening training

SCORING	Evaluation Indicators used for Scoring
4	Permagarden displays 10 elements of the Permagarden Checklist (second visit)
3	Permagarden displays 6 or more elements of the Permagarden Checklist (second visit)
2	Permagarden displays 5 or fewer of the Permagarden Checklist (second visit) elements
1	None of the Permagarden Checklist (second visit) elements are displayed

#### Permagardening Checklist (second visit)

1. Relay planting is practiced, adding 3 or more additional beds
2. Beds are amended prior to planting/replanting
3. Protective border is planted (green wall/windbreak)
4. Productive border is planted with perennials
5. Use of IPM solutions and principles
6. Use of companions for soil fertility
7. Use of companions for IPM
8. Triangular spacing / correct spacing
9. Beds are covered with mulch
10. Seed saving/safe storage is practiced

#### Trees Planted

**Timing of Evaluation:** As soon as possible after outplanting is complete

SCORING	Evaluation Indicators used for Scoring
4	At least 2,000 seedlings are planted in Forest Garden
3	Between 1,000 and 2,000 seedlings are planted in the Forest Garden
2	Fewer than 1,000 seedlings are planted in the Forest Garden
1	Few to no seedlings are planted in the Forest Garden

## Outplanting

**Timing of Evaluation:** At the same time as the 'Trees Planted' evaluation

SCORING	Evaluation Indicators used for Scoring
4	All 5 of the outplanting elements have been started
3	At least 4 of the outplanting elements have been started
2	3 or fewer of the outplanting elements have been started
1	Outplanting has not begun

### Outplanting Checklist

1. Green Wall
2. Alleys or Contours
3. Fruit tree segment
4. Timber tree segment
5. Dead/stick fence

## Materials and Equipment Distribution List

This form records all seed or seedlings, equipment, tools, and materials distributed to farmers.

### What is collected?

Each item distributed (for example one type of seed, one type of seedling, a water can, a wheel barrow, etc) will have it's own section. Two different items can be recorded on each page. Fill in the name or description of the item, and the amount (quantity) received in the appropriate columns. The farmer or Technician will write the farmer's name, and the farmer will sign and date it. The Technician who is distributing the item(s) must also sign for each item distributed under the 'Description' in the column on the left.

### When should this be done?

Every time materials are distributed.

### When is it shared with Technicians?

At the next monthly Tech–Lead Farmer meeting.



*Farmers must give their signature and the date on which they receive any material or equipment.*

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## Monthly Site Visit Record

### Instructions:

- Each farmer in the group should have her/his own Monthly Site Visit Record sheet (two pages).
- Write the farmer's name at the top of each record, along with the farmer group and project.
- Each time a farmer's site is visited, write the date of the visit, and have the farmer sign the form.
- If there are trees in the nurseries, list all tree species and the number for each that you observe growing in the **nursery**.
- For months when outplanted trees are to be counted, list **Newly planted trees** for the month visited, broken down by the type of planting (e.g. alleys, green walls, fruit, etc)
- Record all current **pests and diseases** affecting the trees or vegetables in a given month, and applied or possible solutions.
- Record any soil or water-related issues relevant in the farmer's nursery or forest garden, any questions, comments, or notes, and any innovations observed, recommendations, or problems solved.

### When is data collected?

The Monthly Site Visit form is designed to be filled monthly. If there is any change, it should be indicated by the project Technicians.

### When is it shared with technicians?

At the next monthly Tech–Lead Farmer meeting.



***Print and include one Monthly Site Visit Record sheet (two pages) for each farmer in the group, and add them to the Lead Farmer Workbook.***

## Monthly Site Visit Record

**Farmer's  
Name:**

**Farmer  
Group:**

**Project:**[illegible]

Fruit trees												
Timber trees												
Scattered												
Other:												
Other:												
<b>Pests and Diseases (Name and tick/check where appropriate)</b>												
1												
2												
3												
4												
5												
<i>For the following 3 notes sections, write date next to comment</i>												
<b>Soil and Water Problems</b>												
<b>Farmer Questions/ Comments/ Notes</b>												
<b>Innovations / recommendations / problems solved</b>												

# Lead Farmer Workbook—Year 1

<b>Lead Farmer Name</b>	
<b>Project</b>	
<b>Farmer Group Name</b>	
<b>Phone number</b>	

## About this Booklet

Welcome to the Lead Farmer Reporting Workbook. This booklet is intended for use by Trees for the Future (TREES) Lead Farmers to standardize field procedures in reporting.

This guide contains templates and instructions to be used by Lead Farmers when conducting a specific activity:

- Farmer Contact List
- Farmer Evaluations by Lead Farmer
- Materials and Equipment Distribution Record
- Monthly Site Report

## General Instructions for Lead Farmers:

### Your role as a Lead Farmer

Lead Farmers are a key part of our training and extension approach. Lead Farmers are committed, enthusiastic community leaders who demonstrate an interest in the sustainable development of their community. Lead Farmers are not TREES employees. They are group members and project participants, selected by farmer group members and technicians, and act as a conduit between TREES and the community. Lead Farmers maintain close communication with technicians and their group members. They often host and assist with facilitation of training events and are responsible for visiting each participant in their group regularly to deliver planting materials and equipment, provide technical support, and compile monitoring and reporting data.

### *Lead Farmer Responsibilities*

- Support and liaise between TREES' technicians and participant farmers within each farmer group.
- Attend all community and training events and meetings as requested by TREES technicians.
- Host and assist with facilitation of training events as needed.
- Visit each group member regularly to deliver planting materials and equipment, and provide monitoring.
- Provide regular technical support and guidance to group members.
- Collect, compile, and submit M&E data to the project technicians



### How often to visit farmers

Ideally, Lead Farmers should visit each farmer in their group once after every workshop, though this may not always be possible. For some workshops (Nursery, Outplanting, Permagarden), there are two scheduled visits. Monthly Site Visit Records should be filled in on a monthly basis, or as required by Technicians. For some monitoring activities, and where farmers and lead farmers both have smart phones, farmers can send pictures of their completed activities in place of in-person visits.

### How and what to communicate with technicians

Information from workshop follow-up can be shared with technicians during monthly Lead Farmer meetings. However, if there are any major concerns (for example, if many farmers are not receiving supplies or completing important activities such as establishing nurseries or outplanting) then these should be communicated to technicians as soon as possible via phone call or text message. Additionally, for some workshop follow ups, there is a remote communication option to send technicians photos from the farmer's assignment.

### List of Workshops

Write the workshops given and dates below, in the order they were given (to be used for Workshop Attendance below):

No.	WORKSHOP NAME	WORKSHOP DATE
1.		
2.		
3.		
4.		
5.		
6.		

## Farmer Contact List and Workshop Attendance

	Farmer Name	Contact	Workshop Attendance					
			1	2	3	4	5	6
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## Farmer Evaluations by Lead Farmer

### What are Farmer Evaluations?

Lead Farmers are responsible for monitoring the activities and progress of farmers in their group, and reporting back to the Technicians. This evaluation form, when filled for a given event or milestone, provides a quick snapshot of the progress of each farmer in the group, and of the group as a whole. When Lead Farmers, Technicians, or other team members are conducting extension or monitoring activities with farmers in the group, this sheet will be useful in determining who in a group might need extra support, or components a given farmer may be struggling with. This simple evaluation system allows for targeted support and extension while minimizing the effort required to complete it.

### Instructions for filling out the Farmer Evaluations

Following each training event or important milestone in Forest Garden establishment, the Lead Farmer will check in on each of their farmers, either in person or (where relevant and possible) through photos sent on smart phones. Based on their observations of each farmer's progress, the Lead Farmer will cross-check the evaluation criteria for each event (listed below the evaluation table), and will give each farmer a score based on the criteria. In many cases, the evaluation criteria consist of a given checklist. The Lead Farmer will count the components that a farmer has completed, following the checklist, then write their score based on the scoring criteria given.

The scoring sheet also allows for a follow-up visit to be conducted if a farmer receives a low score and needs more time to establish a component fully. In this case, the Lead Farmer would cross out the number in the '1<sup>st</sup>' column and write the updated score in the '2<sup>nd</sup>' column under the related training event or milestone.

### When should this be done?

Each evaluation training event or milestone, for which the Lead Farmer is expected to evaluate their farmers, is listed in the instructions below the evaluation table. Immediately after the name of each event or milestone is the 'Timing of Evaluation' which tells the Lead Farmer when it needs to be completed.

### When is it shared with Technicians?

The Lead Farmer will send a photo of their evaluation sheet to the project technicians after having evaluated the farmer's in her/his group.

## Evaluation Scoring Form #1

No.	LF Name:  Group Name:	Planning		FG Design		Compost		Permagarden (1 <sup>st</sup> visit)		Permagarden (2 <sup>nd</sup> visit)	
		1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
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## Evaluation Scoring Form #2

No.	LF Name:  Group Name:	Nursery establishment		Trees in nursery (germination)		Trees planted		Outplanting	
		1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
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## Evaluation Scoring Form (Second Rainy Season)

No.	LF Name:	Nursery Establishment		Trees in nursery (Germination)		Trees planted		Outplanting	
	Group Name:	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
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## NOTES



## NOTES

## Planning

**Timing of Evaluation:** During Forest Garden Design Workshop

SCORING	Evaluation Indicators used for Scoring
4	The farmer has completed all 8 elements of the Planning Checklist
3	The farmer has completed 5 or more elements of the Planning Checklist
2	The farmer has begun planning but with fewer than half of the elements of the Planning Checklist
1	Planning has not been started

### Planning Checklist

1. Planning calendar
2. Market analysis calendar
3. Fruit trees for market
4. Fruit trees for family/nutrition
5. Vegetables for market
6. Vegetables for family/nutrition
7. Lean season products
8. Priority market products

## Forest Garden Design

**Timing of Evaluation:** Prior to Nursery Establishment

SCORING	Evaluation Indicators used for Scoring
4	The farmer has a completed design that includes all 10 elements in the Forest Garden Design checklist
3	A design has been created that has 6 or more of Forest Garden design elements
2	A design has been created but with 5 or fewer of the design elements
1	Forest Garden Design has not been started

### Forest Garden Design Checklist

1. Priority crops identified in Module 1
2. Green Wall
3. Earthworks (if needed)
4. 10m x 10m Permagarden
5. 2 compost pits/piles
6. Alleys or Contours
7. Fruit tree segment
8. Timber tree segment
9. Gated entrance
10. Tree nursery

## Compost

**Timing of Evaluation:** 3 to 4 weeks after Compost training (Farmers can send photos to Lead Farmer instead of in-person visits if possible)

SCORING	Evaluation Indicators used for Scoring
4	The farmer has two or more active pits (2m long) or piles (1m tall), built in layers and covered with a moisture barrier. Piles may have a stick.
3	First compost complete and second is under construction.
2	First compost is under construction
1	No actively managed compost piles

## Nursery Establishment

**Timing of Evaluation:** As soon as nurseries are scheduled to be established

SCORING	Evaluation Indicators used for Scoring
4	The nursery is fully established with all 7 elements of the Nursery Checklist in place
3	The nursery has been established with 4 or more of the 7 elements of the Nursery Checklist in place
2	The nursery has been started but with 3 or fewer elements of the Nursery Checklist in place
1	Nursery establishment has not begun

### Nursery Checklist

1. Good water accessibility
2. Protection from animals/damage
3. Space for the target number of seedlings (per farmer)
4. Bareroot beds double dug and amended
5. Tree sack section
6. Shading constructed over bareroot beds and tree sack section
7. Use of good soil mix for tree sacks

## Trees in Nursery (Germination)

**Timing of Evaluation:** After germination (usually 3 to 4 weeks after sowing)

SCORING	Evaluation Indicators used for Scoring
4	The full number of target seedlings have germinated and are growing in the nursery
3	Not all, but more than half of the target number of seedlings are growing in nursery
2	Fewer than half of the target number of seedlings are growing in nursery
1	Few to no seedlings are growing in nursery

## Permagardening (First Visit)

**Timing of Evaluation:** 1 month after permagardening training

SCORING	Evaluation Indicators used for Scoring
4	Permagarden is established with 11 elements of the Permagarden Checklist (first visit) in place
3	Permagarden is established with 6 or more of the Permagarden Checklist (first visit) in place
2	The Permagarden has been started but with 5 or fewer of the Permagarden Checklist (first visit) elements in place
1	Permagarden area is not established

### Permagardening Checklist (First visit)

1. Area selected is approximately 10m x 10m in size
2. At least 3 sunken or raised beds
3. At least 3 of the beds are double-dug (more to be dug over time)
4. Erosion control measures/earthworks (if needed)
5. Vegetable nursery bed
6. Sufficient use of compost/amendments
7. Diverse primary products selected for nutrition and marketing
8. Use of companions for soil fertility
9. Use of companions for IPM
10. Triangular spacing / correct spacing
11. Beds are covered with mulch

## Permagardening (Second Visit)

**Timing of Evaluation:** 4 months after permagardening training

SCORING	Evaluation Indicators used for Scoring
4	Permagarden displays 10 elements of the Permagarden Checklist (second visit)
3	Permagarden displays 6 or more elements of the Permagarden Checklist (second visit)
2	Permagarden displays 5 or fewer of the Permagarden Checklist (second visit) elements
1	None of the Permagarden Checklist (second visit) elements are displayed

### Permagardening Checklist (second visit)

1. Relay planting is practiced, adding 3 or more additional beds
2. Beds are amended prior to planting/replanting
3. Protective border is planted (green wall/windbreak)
4. Productive border is planted with perennials
5. Use of IPM solutions and principles
6. Use of companions for soil fertility
7. Use of companions for IPM
8. Triangular spacing / correct spacing
9. Beds are covered with mulch
10. Seed saving/safe storage is practiced

## Trees Planted

**Timing of Evaluation:** As soon as possible after outplanting is complete

SCORING	Evaluation Indicators used for Scoring
4	Target number of seedlings are planted in Forest Garden
3	More than half of the target seedlings are planted in the Forest Garden
2	Fewer than half of the target seedlings are planted in the Forest Garden
1	Few to no seedlings are planted in the Forest Garden

## Outplanting

**Timing of Evaluation:** At the same time as the 'Trees Planted' evaluation

SCORING	Evaluation Indicators used for Scoring
4	At least two rows of the Green Wall are completed
3	Two rows of the Green Wall are each at least 50% (half) complete
2	One or more rows of the Green Wall is started but is less than 50% (half) complete
1	Green Wall has not been planted

## Materials and Equipment Distribution List

This form records all seed or seedlings, equipment, tools, and materials distributed to farmers.

### What is collected?

Each item distributed (for example one type of seed, one type of seedling, a water can, a wheel barrow, etc) will have it's own section. Two different items can be recorded on each page. Fill in the name or description of the item, and the amount (quantity) received in the appropriate columns. The farmer or Technician will write the farmer's name, and the farmer will sign and date it. The Technician who is distributing the item(s) must also sign for each item distributed under the 'Description' in the column on the left.

### When should this be done?

Every time materials are distributed.

### When is it shared with Technicians?

At the next monthly Tech–Lead Farmer meeting.



*Farmers must give their signature and the date on which they receive any material or equipment.*

Project:			Lead Farmer:				Farmer Group:			
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## Monthly Site Visit Record

### Instructions:

- Each farmer in the group should have her/his own Monthly Site Visit Record sheet (two pages).
- Write the farmer's name at the top of each record, along with the farmer group and project.
- Each time a farmer's site is visited, write the date of the visit, and have the farmer sign the form.
- If there are trees in the nurseries, list all tree species and the number for each that you observe growing in the **nursery**.
- For months when outplanted trees are to be counted, list **Newly planted trees** for the month visited, broken down by the type of planting (e.g. alleys, green walls, fruit, etc)
- Record all current **pests and diseases** affecting the trees or vegetables in a given month, and applied or possible solutions.
- Record any issues relevant in the farmer's nursery or forest garden, any questions, comments, or notes, and any innovations observed, recommendations, or problems solved.

### When is data collected?

The Monthly Site Visit form is designed to be filled monthly. If there is any change, it should be indicated by the project Technicians.

### When is it shared with technicians?

At the next monthly Tech–Lead Farmer meeting.



***Print and include one Monthly Site Visit Record sheet (two pages) for each farmer in the group, and add them to the Lead Farmer Workbook.***

Monthly Site Visit Record												
Farmer's Name:				Farmer Group:				Project:				
MONTH	Jan	Feb	March	April	May	June	July	August	Sept	October	Nov	Dec
Visit Date												
Farmer Signature												
Tree Species in Nursery	#	#	#	#	#	#	#	#	#	#	#	#
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Number Newly Planted Trees	#	#	#	#	#	#	#	#	#	#	#	#
Green wall												
Alleys												
Contours												

Fruit trees												
Timber trees												
Scattered												
Other:												
Other:												
<b>Pests and Diseases (Name and tick/check where appropriate)</b>												
1												
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<b><i>For the following 3 notes sections, write date next to comment</i></b>												
<b>Issues farmers face</b>												
<b>Farmer Questions/ Comments/ Notes</b>												
<b>Innovations / recommendations / problems solved</b>												

## VISITOR SIGN-IN SHEET

**Date**

**Name of Visitor(s)**

**Signature**

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## VISITOR SIGN-IN SHEET

**Date**

**Name of Visitor(s)**

**Signature**

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## VISITOR SIGN-IN SHEET

**Date**

**Name of Visitor(s)**

**Signature**

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## VISITOR SIGN-IN SHEET

**Date**

**Name of Visitor(s)**

**Signature**

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A smiling man with a short beard, wearing a blue, white, and red plaid shirt, stands in a lush green cornfield. The background is filled with tall corn plants and large green leaves.

# Lead Farmer Workbook

Year Two



**TREES  
FOR THE  
FUTURE**



Forest Garden  
Training Center



## Lead Farmer Workbook YEAR TWO

Lead Farmer Name	
Project	
Farmer Group Name	
Phone number	

### About this Booklet

Welcome to the Year 2 Lead Farmer Reporting Workbook. This booklet is intended for use by Trees for the Future (TREES) Lead Farmers to standardize field procedures in reporting. The Year 2 version is similar to Year 1, with only some additions to the Lead Farmer Evaluation responsibilities. The procedures for filling in the information remains the same.

This guide contains templates and instructions to be used by Lead Farmers when conducting a specific activity:

- Farmer Contact List
- Farmer Evaluations by Lead Farmer
- Materials and Equipment Distribution Record
- Monthly Site Report

## General Instructions for Lead Farmers:

### Your role as a Lead Farmer

Lead Farmers are a key part of our training and extension approach. Lead Farmers are committed, enthusiastic community leaders who demonstrate an interest in the sustainable development of their community. Lead Farmers are not TREES employees. They are group members and project participants, selected by the technician with recommendation from the farmer group members, and act as a conduit between TREES and the community. Lead Farmers maintain close communication with technicians and their group members. They often host and assist with facilitation of training events and are responsible for visiting each participant in their group regularly to deliver planting materials and equipment, provide technical support, and compile monitoring and reporting data.

### Lead Farmer Responsibilities

- Support and liaise between TREES' technicians and participant farmers within each farmer group.
- Attend all community and training events and meetings as requested by TREES technicians.
- Host and assist with facilitation of training events as needed.
- Visit each group member regularly to deliver planting materials and equipment, and provide monitoring.
- Provide regular technical support and guidance to group members.
- Collect, compile, and submit M&E data to the project technicians

### How often to visit farmers

Ideally, Lead Farmers should visit each farmer in their group once after every workshop, though this may not always be possible. For some workshops (Nursery, Outplanting, Permagarden), there are two scheduled visits. Monthly Site Visit Records should be filled in on a monthly basis, or as required by Technicians. For some monitoring activities, and where farmers and lead farmers both have smart phones, farmers can send pictures of their completed activities in place of in-person visits.

### How and what to communicate with technicians

Information from workshop follow-up can be shared with technicians during monthly Lead Farmer meetings. However, if there are any major concerns (for example, if many farmers are not receiving supplies or completing important activities such as establishing nurseries or outplanting) then these should be communicated to technicians as soon as possible via call or text. Additionally, for some workshop follow ups, there is a remote communication option to send technicians photos from the farmer's assignment. This will help you and technicians provide the best extension support to the farmer.

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## Farmer Contact List and Workshop Attendance

	Farmer Name	Contact	Workshop Attendance					
			1	2	3	4	5	6
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## Farmer Evaluations by Lead Farmer

### What are Farmer Evaluations?

Lead Farmers are responsible for monitoring the activities and progress of farmers in their group, and reporting back to the Technicians. This evaluation form, when filled for a given event or milestone, provides a quick snapshot of the progress of each farmer in the group, and of the group as a whole. When Lead Farmers, Technicians, or other team members are conducting extension or monitoring activities with farmers in the group, this sheet will be useful in determining who in a group might need extra support, or components a given farmer may be struggling with. This simple evaluation system allows for targeted support and extension while minimizing the effort required to complete it.

### Instructions for filling out the Farmer Evaluations

Following each training event or important milestone in Forest Garden establishment, the Lead Farmer will check in on each of their farmers, either in person or (where relevant and possible) through photos sent on smart phones. When visiting a farmer in the group, the Lead Farmer will closely observe the elements in question for a component of the Forest Garden. They will cross-check the evaluation criteria or checklist for each component (listed below the evaluation table), as during their observations and discussion with the farmer. In some cases there is no checklist so the Lead Farmer simply follows the scoring criteria to give a score. When there is a checklist, s/he will count the components that a farmer has completed, following the checklist, then write their score based on the scoring criteria.

The scoring sheet also allows for a follow-up visit to be conducted if a farmer receives a low score and needs more time to establish a component fully. In this case, the Lead Farmer would cross out the number in the '1<sup>st</sup>' column and write the updated score in the '2<sup>nd</sup>' column under the related training event or milestone.

### Timing of Evaluations

The timing for each evaluation (i.e. when the evaluation should be conducted) is noted above the scoring table for each component.

### When is it shared with Technicians?

The Lead Farmer will send a photo of their evaluation sheet to the project technicians after having evaluated all the farmers in her/his group.

**\*NOTE that the order of the form and checklists below may not follow the order that they are to be conducted in your project.**



## Evaluation Scoring Form #1

No.	LF Name:  Group Name:	Review, Planning, & Optimization		Compost		Nursery Establishment		Germination		Permagarden (1st visit)		Permagarden (2nd visit)	
		1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
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## Evaluation Scoring Form #2

No.	LF Name: Group Name:	Trees Planted		Ouplanting		Pruning & Harvesting		IPM		Seed Saving		Water Conservation	
		1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
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## NOTES

## NOTES

## Evaluation Criteria & Scoring for Form #1

### Review, Planning, and Optimization

**Timing of Evaluation** – one month after training event

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 5 elements of the checklist
3	The farmer has completed 3 or more elements of the checklist
2	The farmer has begun review and planning but with fewer than 3 of the elements complete
1	Review and planning has not been started

### Review, Optimization and Planning Checklist

1. Top view map (from Year 1) is updated
2. Side view map is sketched out in Farmers Workbook
3. Tree Nursery Planning chart is complete in Farmers Workbook
4. Seed Planning chart is complete in Farmers Workbook
5. Crop Rotation chart is complete in Farmers Workbook

### Compost

**Timing of Evaluation:** One month before the rainy season (Farmers can send photos to Lead Farmer instead of in-person visits if possible)

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has two or more active pits (2m long) or piles (1m tall), built in layers and covered with a moisture barrier. Piles may have a stick.
3	First compost complete and second is under construction.
2	First compost is under construction
1	No actively managed compost piles

## Nursery Establishment

**Timing of Evaluation:** As soon as nurseries are scheduled to be established

SCORING	Evaluation Indicators Used for Scoring
4	The nursery is fully established with all 7 elements of the Nursery Checklist in place
3	The nursery has been established with 4 or more of the 7 elements of the Nursery Checklist in place
2	The nursery has been started but with 3 or fewer elements of the Nursery Checklist in place
1	Nursery establishment has not begun

### Nursery Checklist

1. Nursery site has good water accessibility
2. Nursery is protected from animals/damage
3. There is enough space for the target number of seedlings (per farmer)
4. Bareroot beds are double dug and amended
5. There is a section built for tree sacks
6. Shading is constructed over bareroot beds and tree sack section
7. Use of good soil mix for tree sacks

## Germination

**Timing of Evaluation:** After germination (usually 3 to 4 weeks after sowing)

SCORING	Evaluation Indicators Used for Scoring
4	The full number of target seedlings have germinated and are growing in the nursery
3	Not all, but more than half of the target number of seedlings are growing in nursery
2	Fewer than half of the target number of seedlings are growing in nursery
1	Few to no seedlings are growing in nursery

## Permagardening (First Visit)

**Timing of Evaluation:** Two to four weeks after gardening season begins

SCORING	Evaluation Indicators Used for Scoring
4	Permagarden is established with 12 elements of the Permagarden Checklist (first visit) in place
3	Permagarden is established with 7 or more of the Permagarden Checklist (first visit) in place
2	The Permagarden has been started but with 6 or fewer of the Permagarden Checklist (first visit) elements in place
1	Permagarden area is not established

### Permagardening Checklist (First visit)

1. Area selected is at least 10m x 10m in size
2. At least 6 sunken or raised beds
3. At least 6 of the beds are double-dug
4. Farmer has applied erosion control measures/earthworks (if needed)
5. Farmer is using a vegetable nursery bed where needed
6. Farmer is using rotation, planting plots with different crop families from previous season
7. Sufficient use of compost/amendments
8. Diverse primary products selected for nutrition and marketing
9. Use of companions for soil fertility
10. Use of companions for IPM
11. Triangular spacing / correct spacing
12. Beds are covered with mulch

## Permagardening (Second Visit)

**Timing of Evaluation:** Three months after gardening season begins

SCORING	Evaluation Indicators Used for Scoring
4	Permagarden displays 11 elements of the Permagarden Checklist (second visit)
3	Permagarden displays 6 or more elements of the Permagarden Checklist (second visit)
2	Permagarden displays 5 or fewer of the Permagarden Checklist (second visit) elements
1	None of the Permagarden Checklist (second visit) elements are displayed

### Permagardening Checklist (second visit)

1. Relay (succession) planting is practiced, adding 3 or more additional beds
2. Beds are amended prior to planting/replanting
3. Farmer is using crop rotation
4. Protective border is planted around the permagarden (green wall/windbreak)
5. Productive border is planted with perennials
6. Use of IPM solutions and principles
7. Use of companions for soil fertility
8. Use of companions for IPM
9. Triangular spacing / correct spacing
10. Beds are covered with mulch
11. Seed saving/safe storage is practiced



## Evaluation Criteria & Scoring for Form #1

### Trees Planted

**Timing of Evaluation:** As soon as possible after outplanting is complete

SCORING	Evaluation Indicators Used for Scoring
4	Target trees are planted in the farmer's Forest Garden for this season
3	At least half of the farmer's target number of seedlings for this season are planted in the Forest Garden
2	Fewer than half of the target number of seedlings for this season are planted in the Forest Garden
1	Few to no seedlings have been planted yet this season in the Forest Garden

### Outplanting

**Timing of Evaluation:** At the same time as the 'Trees Planted' evaluation

SCORING	Evaluation Indicators Used for Scoring
4	All 4 of the outplanting elements are in place
3	At least 3 of the outplanting elements have been started
2	2 or fewer of the outplanting elements have been started
1	Outplanting has not begun

### Outplanting Checklist

1. Green Wall
2. Alleys or Contours
3. Fruit tree segment
4. Hardwood tree segment

## Pruning & Harvesting

**Timing of Evaluation** – at the end of the dry season

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 7 elements of the checklist
3	The farmer has completed 4 or more elements of the checklist
2	The farmer has begun practicing pruning but has completed fewer than 3
1	The farmer has not yet begun pruning

### Pruning Checklist

1. Unhealthy branches in Forest Garden are pruned
2. Green Wall terminal buds are pruned (except in windbreak line)
3. Side branches are woven into Green Wall, with excess branches pruned
4. Slow growing trees in the nursery are pruned for form and health
5. Trees in alleys and contours are pruned
6. Green manure is applied to the field
7. Correct pruning practices used all around (clean cuts; limited breakage or tearing)

## Integrated Pest Management (IPM)

**Timing of Evaluation** – one month after training event (during annual crop/garden cultivation)

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 5 elements of the checklist
3	The farmer has completed 3 or more elements of the checklist
2	The farmer has begun practicing IPM but with fewer than 3 of the elements complete
1	IPM practices have not yet been used

### IPM Checklist

1. Regularly scouts Forest Garden for pests (farmer can explain how they scout, what they have found, and what they have applied to address problems)
2. Ensures crop health through use of compost and other natural soil fertility measures
3. Demonstrated use of companion planting to repel pests or attract pest predators
4. Practices crop rotation, in permagarden or elsewhere (farmer can explain the rotation(s) they use)
5. Created and applied a natural pesticide in their Forest Garden

## Seed Saving

**Timing of Evaluation** – one month after rainy season ends

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 5 elements of the checklist
3	The farmer has completed 3 or more elements of the checklist
2	The farmer has begun saving seeds but with fewer than 3 of the elements complete
1	The farmer has not started seed saving

### Saving Checklist

1. Farmer collected and is saving tree seeds at their home
2. Farmer collected and is saving vegetable seeds at their home
3. Farmer is using air-tight containers for seeds, stored in a cool, dry place
4. Seeds are labeled with species, location of harvest, and date
5. Seeds were properly dried, cleaned, and sorted

## Water Conservation

**Timing of Evaluation** – at the start of the rainy season (OR one month after training)

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 3 elements of the checklist
3	The farmer has completed 2 elements of the checklist
2	The farmer has completed 1 element of the checklist
1	The farmer has not practiced water conservation practices

### Water Conservation Checklist

1. Demonstrated use of mulch on all vegetable beds and fruit trees
2. Demonstrated use of cuvettes and/or half-moon berms around fruit trees
3. Established vegetative strips or berms and swales along contours of erosion-prone areas

## Materials and Equipment Distribution List

This form records all seed or seedlings, equipment, tools, and materials distributed to farmers.

### What is collected?

Each item distributed (for example one type of seed, one type of seedling, a water can, a wheel barrow, etc) will have it's own section. Two different items can be recorded on each page. Fill in the name or description of the item, and the amount (quantity) received in the appropriate columns. The farmer or Technician will write the farmer's name, and the farmer will sign and date it. The Technician who is distributing the item(s) must also sign for each item distributed under the 'Description' in the column on the left.

### When should this be done?

Every time materials are distributed.

### When is it shared with Technicians?

At the next monthly Tech-Lead Farmer meeting.



*Farmers must give their signature and the date on which they receive any material or equipment.*

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## Monthly Site Visit Record

### Instructions:

- Each farmer in the group should have her/his own Monthly Site Visit Record sheet (two pages).
- Write the farmer's name at the top of each record, along with the farmer group and project.
- Each time a farmer's site is visited, write the date of the visit, and have the farmer sign the form.
- If there are trees in the nurseries, list all tree species and the number for each that you observe growing in the **nursery**.
- For months when outplanted trees are to be counted, list **Newly planted trees** for the month visited, broken down by the type of planting (e.g. alleys, green walls, fruit, etc)
- Record the most common or destructive **pests and diseases** affecting the trees or vegetables, marking when they are present, and the applied or possible solutions.
- Record any issues or challenges relevant in the farmer's nursery or forest garden, any questions, comments, or notes, and any innovations observed, recommendations, or problems solved.

### When is data collected?

The Monthly Site Visit form is designed to be filled monthly. If there is any change, it should be indicated by the project Technicians.

### When is it shared with technicians?

At the next monthly Tech–Lead Farmer meeting.



***Print and include one Monthly Site Visit Record sheet (two pages) for each farmer in the group, and add them to the Lead Farmer Workbook.***



Monthly Site Visit Record												
Farmer's Name:				Farmer Group:				Project:				
MONTH	Jan	Feb	March	April	May	June	July	August	Sept	October	Nov	Dec
Visit Date												
Farmer Signature												
Tree Species in Nursery	#	#	#	#	#	#	#	#	#	#	#	#
1												
2												
3												
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Number Newly Planted Trees	#	#	#	#	#	#	#	#	#	#	#	#
Green wall												
Alleys												
Contours												

Fruit trees												
Timber trees												
Scattered												
Other:												
Other:												
<b>Pests and Diseases (Name and tick/check where appropriate)</b>												
1												
2												
3												
4												
5												
<i>For the following 3 notes sections, write date next to comment</i>												
<b>Issues or Challenges that Group Farmers are facing</b>												
<b>Farmer Questions/ Comments/ Notes</b>												
<b>Innovations / recommendations / problems solved</b>												



**TREES  
FOR THE  
FUTURE**



Forest Garden  
Training Center

[training.trees.org](https://training.trees.org)

# Lead Farmer Workbook—Year 2

<b>Lead Farmer Name</b>	
<b>Project</b>	
<b>Farmer Group Name</b>	
<b>Phone number</b>	

## About this Booklet

Welcome to the Year 2 Lead Farmer Reporting Workbook. This booklet is intended for use by Trees for the Future (TREES) Lead Farmers to standardize field procedures in reporting. The Year 2 version is similar to Year 1, with only some additions to the Lead Farmer Evaluation responsibilities. The procedures for filling in the information remains the same.

This guide contains templates and instructions to be used by Lead Farmers when conducting a specific activity:

- Farmer Contact List
- Farmer Evaluations by Lead Farmer
- Materials and Equipment Distribution Record
- Monthly Site Report

## General Instructions for Lead Farmers:

### Your role as a Lead Farmer

Lead Farmers are a key part of our training and extension approach. Lead Farmers are committed, enthusiastic community leaders who demonstrate an interest in the sustainable development of their community. Lead Farmers are not TREES employees. They are group members and project participants, selected by farmer group members and technicians, and act as a conduit between TREES and the community. Lead Farmers maintain close communication with technicians and their group members. They often host and assist with facilitation of training events and are responsible for visiting each participant in their group regularly to deliver planting materials and equipment, provide technical support, and compile monitoring and reporting data.

### *Lead Farmer Responsibilities*

- Support and liaise between TREES' technicians and participant farmers within each farmer group.
- Attend all community and training events and meetings as requested by TREES technicians.
- Host and assist with facilitation of training events as needed.
- Visit each group member regularly to deliver planting materials and equipment and provide monitoring.
- Provide regular technical support and guidance to group members.
- Collect, compile, and submit M&E data to the project technicians

### How often to visit farmers

Ideally, Lead Farmers should visit each farmer in their group once after every workshop, though this may not always be possible. For some workshops (Nursery, Outplanting, Permagarden), there are two scheduled visits. Monthly Site Visit Records should be filled in on a monthly basis, or as required by Technicians. For some monitoring activities, and where farmers and lead farmers both have smart phones, farmers can send pictures of their completed activities in place of in-person visits.

### How and what to communicate with technicians

Information from workshop follow-up can be shared with technicians during monthly Lead Farmer meetings. However, if there are any major concerns (for example, if many farmers are not receiving supplies or completing important activities such as establishing nurseries or outplanting) then these should be communicated to technicians as soon as possible via call or text. Additionally, for some workshop follow ups, there is a remote communication option to send technicians photos from the farmer's assignment. This will help you and technicians provide the best extension support to the farmer.

## List of Workshops

Write the workshops given and dates below, in the order they were given (to be used for Workshop Attendance below):

No.	WORKSHOP NAME	WORKSHOP DATE
1.		
2.		
3.		
4.		
5.		
6.		

## Farmer Contact List and Workshop Attendance

	Farmer Name	Contact	Workshop Attendance					
			1	2	3	4	5	6
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## Farmer Evaluations by Lead Farmer

### What are Farmer Evaluations?

Lead Farmers are responsible for monitoring the activities and progress of farmers in their group, and reporting back to the Technicians. This evaluation form, when filled for a given event or milestone, provides a quick snapshot of the progress of each farmer in the group, and of the group as a whole. When Lead Farmers, Technicians, or other team members are conducting extension or monitoring activities with farmers in the group, this sheet will be useful in determining who in a group might need extra support, or components a given farmer may be struggling with. This simple evaluation system allows for targeted support and extension while minimizing the effort required to complete it.

### Instructions for filling out the Farmer Evaluations

Following each training event or important milestone in Forest Garden establishment, the Lead Farmer will check in on each of their farmers, either in person or (where relevant and possible) through photos sent on smart phones. When visiting a farmer in the group, the Lead Farmer will closely observe the elements in question for a component of the Forest Garden. They will cross-check the evaluation criteria or checklist for each component (listed below the evaluation table), as during their observations and discussion with the farmer. In some cases there is no checklist so the Lead Farmer simply follows the scoring criteria to give a score. When there is a checklist, s/he will count the components that a farmer has completed, following the checklist, then write their score based on the scoring criteria.

The scoring sheet also allows for a follow-up visit to be conducted if a farmer receives a low score and needs more time to establish a component fully. In this case, the Lead Farmer would cross out the number in the '1<sup>st</sup>' column and write the updated score in the '2<sup>nd</sup>' column under the related training event or milestone.

### Timing of Evaluations

The timing for each evaluation (i.e. when the evaluation should be conducted) is noted above the scoring table for each component.

### When is it shared with Technicians?

The Lead Farmer will send a photo of their evaluation sheet to the project technicians after having evaluated all the farmer's in her/his group.

**\*NOTE that the order of the form and checklists below may not follow the order that they are to be conducted in your project.**



## Evaluation Scoring Form #1

No.	LF Name:  Group Name:	Review, Planning, & Optimization		Compost		Nursery Establishment		Trees in Nurseries (Germination)		Permagarden (1st visit)		Permagarden (2nd visit)	
		1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
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## Evaluation Scoring Form #2

No.	LF Name: Group Name:	Trees Planted		Ouplanting		Pruning & Harvesting		IPM		Seed Saving		Water Conservation	
		1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
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## Evaluation Scoring Form (Second Rainy Season)

No.	LF Name:	Nursery Establishment		Trees in nursery (Germination)		Trees planted		Outplanting	
	Group Name:	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
	Farmer Name								
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## NOTES

## NOTES

# Evaluation Criteria & Scoring for Form #1

## REVIEW, PLANNING, & OPTIMIZATION

**Timing of Evaluation** – one month after training event

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 5 elements of the checklist
3	The farmer has completed 3 or more elements of the checklist
2	The farmer has begun review and planning but with fewer than 3 of the elements complete
1	Review and planning has not been started

### Review, Optimization and Planning Checklist

1. Top view map (from Year 1) is updated
2. Side view map is sketched out in Farmers Workbook
3. Tree Nursery Planning chart is complete in Farmers Workbook
4. Seed Planning chart is complete in Farmers Workbook
5. Crop Rotation chart is complete in Farmers Workbook

## COMPOST

**Timing of Evaluation:** Should be measured twice in the year: before nurseries are started, and before permagardens are planted (Farmers can send photos to Lead Farmer instead of in-person visits if possible)

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has two or more active pits (2m long) or piles (1m tall), built in layers and covered with a moisture barrier. Piles may have a stick.
3	First compost pit/pile complete and second is under construction.
2	First compost pit/pile is under construction
1	No actively managed compost piles

## NURSERY ESTABLISHMENT

**Timing of Evaluation:** As soon as nurseries are scheduled to be established

SCORING	Evaluation Indicators Used for Scoring
4	The nursery is fully established with all 7 elements of the Nursery Checklist in place
3	The nursery has been established with 4 or more of the 7 elements of the Nursery Checklist in place
2	The nursery has been started but with 3 or fewer elements of the Nursery Checklist in place
1	Nursery establishment has not begun

### Nursery Checklist

1. Nursery site has good water accessibility
2. Nursery is protected from animals/damage
3. There is enough space for the target number of seedlings (per farmer)
4. Bareroot beds are double dug and amended
5. There is a section built for tree sacks
6. Shading is constructed over bareroot beds and tree sack section
7. Use of good soil mix for tree sacks

## TREES IN NURSERIES - GERMINATION

**Timing of Evaluation:** After germination (usually 3 to 4 weeks after sowing)

SCORING	Evaluation Indicators Used for Scoring
4	The full number of target seedlings have germinated and are growing in the nursery
3	Not all, but more than half of the target number of seedlings are growing in nursery
2	Fewer than half of the target number of seedlings are growing in nursery
1	Few to no seedlings are growing in nursery

## PERMAGARDENING (First Visit)

**Timing of Evaluation:** Two to four weeks after gardening season begins

SCORING	Evaluation Indicators Used for Scoring
4	Permagarden is established with 12 elements of the Permagarden Checklist (first visit) in place
3	Permagarden is established with 7 or more of the Permagarden Checklist (first visit) in place
2	The Permagarden has been started but with 6 or fewer of the Permagarden Checklist (first visit) elements in place
1	Permagarden area is not established

### Permagardening Checklist (First visit)

1. Area selected is at least 10m x 10m in size
2. At least 6 sunken or raised beds
3. At least 6 of the beds are double-dug
4. Farmer has applied erosion control measures/earthworks (if needed)
5. Farmer is using a vegetable nursery bed where needed
6. Farmer is using rotation, planting plots with different crop families from previous season
7. Sufficient use of compost/amendments
8. Diverse primary products selected for nutrition and marketing
9. Use of companions for soil fertility
10. Use of companions for IPM
11. Triangular spacing / correct spacing
12. Beds are covered with mulch

## PERMAGARDENING (Second Visit)

**Timing of Evaluation:** Three months after gardening season begins

SCORING	Evaluation Indicators Used for Scoring
4	Permagarden displays 11 elements of the Permagarden Checklist (second visit)
3	Permagarden displays 6 or more elements of the Permagarden Checklist (second visit)
2	Permagarden displays 5 or fewer of the Permagarden Checklist (second visit) elements
1	None of the Permagarden Checklist (second visit) elements are displayed

### Permagardening Checklist (second visit)

1. Relay (succession) planting is practiced, adding 3 or more additional beds
2. Beds are amended prior to planting/replanting
3. Farmer is using crop rotation
4. Protective border is planted around the permagarden (green wall/windbreak)
5. Productive border is planted with perennials
6. Use of IPM solutions and principles
7. Use of companions for soil fertility
8. Use of companions for IPM
9. Triangular spacing / correct spacing
10. Beds are covered with mulch
11. Seed saving/safe storage is practiced



## Evaluation Criteria & Scoring for Form #1

### TREES PLANTED

**Timing of Evaluation:** As soon as possible after outplanting is complete

SCORING	Evaluation Indicators Used for Scoring
4	Target trees are planted in the farmer's Forest Garden for this season
3	At least half of the farmer's target number of seedlings for this season are planted in the Forest Garden
2	Fewer than half of the target number of seedlings for this season are planted in the Forest Garden
1	Few to no seedlings have been planted yet this season in the Forest Garden

### OUPLANTING

**Timing of Evaluation:** At the same time as the 'Trees Planted' evaluation

SCORING	Evaluation Indicators Used for Scoring
4	All 4 of the outplanting elements are in place
3	At least 3 of the outplanting elements have been started
2	2 or fewer of the outplanting elements have been started
1	Outplanting has not begun

#### Outplanting Checklist

1. Green Wall
2. Alleys or Contours
3. Fruit tree segment
4. Hardwood tree segment

## PRUNING & HARVESTING

Timing of Evaluation – at the end of the dry season

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 7 elements of the checklist
3	The farmer has completed 4 or more elements of the checklist
2	The farmer has begun practicing pruning but has completed fewer than 3
1	The farmer has not yet begun pruning

### Pruning Checklist

1. Unhealthy branches in Forest Garden are pruned
2. Green Wall terminal buds are pruned (except in windbreak line)
3. Side branches are woven into Green Wall, with excess branches pruned
4. Slow growing trees in the nursery are pruned for form and health
5. Trees in alleys and contours are pruned
6. Green manure is applied to the field
7. Correct pruning practices used all around (clean cuts; limited breakage or tearing)

## INTEGRATED PEST MANAGEMENT (IPM)

Timing of Evaluation – one month after training event (during annual crop/garden cultivation)

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 5 elements of the checklist
3	The farmer has completed 3 or more elements of the checklist
2	The farmer has begun practicing IPM but with fewer than 3 of the elements complete
1	IPM practices have not yet been used

### IPM Checklist

1. Regularly scouts Forest Garden for pests (farmer can explain how they scout, what they have found, and what they have applied to address problems)
2. Ensures crop health through use of compost and other natural soil fertility measures
3. Demonstrated use of companion planting to repel pests or attract pest predators
4. Practices crop rotation, in permagarden or elsewhere (farmer can explain the rotation(s) they use)
5. Created and applied a natural pesticide in their Forest Garden

## SEED SAVING

**Timing of Evaluation** – one month after rainy season ends

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 5 elements of the checklist
3	The farmer has completed 3 or more elements of the checklist
2	The farmer has begun saving seeds but with fewer than 3 of the elements complete
1	The farmer has not started seed saving

### Saving Checklist

1. Farmer collected and is saving tree seeds at their home
2. Farmer collected and is saving vegetable seeds at their home
3. Farmer is using air-tight containers for seeds, stored in a cool, dry place
4. Seeds are labeled with species, location of harvest, and date
5. Seeds were properly dried, cleaned, and sorted

## WATER CONSERVATION

**Timing of Evaluation** – During the planting season (OR one month after training)

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 3 elements of the checklist
3	The farmer has completed 2 elements of the checklist
2	The farmer has completed 1 element of the checklist
1	The farmer has not practiced water conservation practices

### Water Conservation Checklist

1. Demonstrated use of mulch on all vegetable beds and fruit trees
2. Demonstrated use of cuvettes and/or half-moon berms around fruit trees
3. Established vegetative strips or berms and swales along contours of erosion-prone areas

## Materials and Equipment Distribution List

This form records all seed or seedlings, equipment, tools, and materials distributed to farmers.

### What is collected?

Each item distributed (for example one type of seed, one type of seedling, a water can, a wheelbarrow, etc) will have it's own section. Two different items can be recorded on each page. Fill in the name or description of the item, and the amount (quantity) received in the appropriate columns. The farmer or Technician will write the farmer's name, and the farmer will sign and date it. The Technician who is distributing the item(s) must also sign for each item distributed under the 'Description' in the column on the left.

### When should this be done?

Every time materials are distributed.

### When is it shared with Technicians?

At the next monthly Tech–Lead Farmer meeting.



*Farmers must give their signature and the date on which they receive any material or equipment.*

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## Monthly Site Visit Record

### Instructions:

- Each farmer in the group should have her/his own Monthly Site Visit Record sheet (two pages).
- Write the farmer's name at the top of each record, along with the farmer group and project.
- Each time a farmer's site is visited, write the date of the visit, and have the farmer sign the form.
- If there are trees in the nurseries, list all tree species and the number for each that you observe growing in the **nursery**.
- For months when outplanted trees are to be counted, list **Newly planted trees** for the month visited, broken down by the type of planting (e.g. alleys, green walls, fruit, etc)
- Record the most common or destructive **pests and diseases** affecting the trees or vegetables, marking when they are present, and the applied or possible solutions.
- Record any issues or challenges relevant in the farmer's nursery or forest garden, any questions, comments, or notes, and any innovations observed, recommendations, or problems solved.

### When is data collected?

The Monthly Site Visit form is designed to be filled monthly. If there is any change, it should be indicated by the project Technicians.

### When is it shared with technicians?

At the next monthly Tech–Lead Farmer meeting.



***Print and include one Monthly Site Visit Record sheet (two pages) for each farmer in the group, and add them to the Lead Farmer Workbook.***

Monthly Site Visit Record												
Farmer's Name:				Farmer Group:				Project:				
MONTH	Jan	Feb	March	April	May	June	July	August	Sept	October	Nov	Dec
Visit Date												
Farmer Signature												
Tree Species in Nursery	#	#	#	#	#	#	#	#	#	#	#	#
1												
2												
3												
4												
5												
6												
7												
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10												
Number Newly Planted Trees	#	#	#	#	#	#	#	#	#	#	#	#
Green wall												
Alleys												
Contours												



Fruit trees												
Timber trees												
Scattered												
Other:												
Other:												
<b>Pests and Diseases (Name and tick/check where appropriate)</b>												
1												
2												
3												
4												
5												
<i>For the following 3 notes sections, write date next to comment</i>												
<b>Issues or Challenges that Group Farmers are facing</b>												
<b>Farmer Questions/ Comments/ Notes</b>												
<b>Innovations / recommendations / problems solved</b>												

## VISITOR SIGN-IN SHEET

**Date**

**Name of Visitor(s)**

**Signature**

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# VISITOR SIGN-IN SHEET

**Date**

**Name of Visitor(s)**

**Signature**

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## VISITOR SIGN-IN SHEET

**Date**

**Name of Visitor(s)**

**Signature**

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# VISITOR SIGN-IN SHEET

<u>Date</u>	<u>Name of Visitor(s)</u>	<u>Signature</u>
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# Lead Farmer Workbook

Years Three and Four



**TREES  
FOR THE  
FUTURE**



Forest Garden  
Training Center



## Lead Farmer Workbook YEARS THREE AND FOUR

<b>Lead Farmer Name</b>	
<b>Project</b>	
<b>Farmer Group Name</b>	
<b>Phone number</b>	

### About this Booklet

Welcome to the Lead Farmer Reporting Workbook for Years 3 and 4. This booklet is intended for use by Trees for the Future (TREES) Lead Farmers to standardize field procedures in reporting. This version is similar to Years 1 and 2. However, as farmers' Forest Gardens advance from the establishment phase toward maturity, farmers should display a higher level of use and expertise of all components in their Forest Gardens. The procedures for filling in the information remains the same.

This guide contains templates and instructions to be used by Lead Farmers when conducting a specific activity:

- Farmer Contact List
- Farmer Evaluations by Lead Farmer
- Materials and Equipment Distribution Record
- Monthly Site Report

## General Instructions for Lead Farmers:

### Your role as a Lead Farmer

Lead Farmers are a key part of our training and extension approach. Lead Farmers are committed, enthusiastic community leaders who demonstrate an interest in the sustainable development of their community. Lead Farmers are not TREES employees. They are group members and project participants, selected by the technician with recommendation from the farmer group members, and act as a conduit between TREES and the community. Lead Farmers maintain close communication with technicians and their group members. They often host and assist with facilitation of training events and are responsible for visiting each participant in their group regularly to deliver planting materials and equipment, provide technical support, and compile monitoring and reporting data.

### Lead Farmer Responsibilities

- Support and liaise between TREES' technicians and participant farmers within each farmer group.
- Attend all community and training events and meetings as requested by TREES technicians.
- Host and assist with facilitation of training events as needed.
- Visit each group member regularly to deliver planting materials and equipment, and provide monitoring.
- Provide regular technical support and guidance to group members.
- Collect, compile, and submit M&E data to the project technicians

### How often to visit farmers

Ideally, Lead Farmers should visit each farmer in their group once after every workshop, though this may not always be possible. For some workshops (Nursery, Outplanting, Permagarden), there are two scheduled visits. Monthly Site Visit Records should be filled in on a monthly basis, or as required by Technicians. For some monitoring activities, and where farmers and lead farmers both have smart phones, farmers can send pictures of their completed activities in place of in-person visits.

### How and what to communicate with technicians

Information from workshop follow-up can be shared with technicians during monthly Lead Farmer meetings. However, if there are any major concerns (for example, if many farmers are not receiving supplies or completing important activities such as establishing nurseries or outplanting) then these should be communicated to technicians as soon as possible via call or text. Additionally, for some workshop follow ups, there is a remote communication option to send technicians photos from the farmer's assignment. This will help you and technicians provide the best extension support to the farmer.



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## Farmer Contact List and Workshop Attendance

	Farmer Name	Contact	Workshop Attendance					
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# Farmer Evaluations by Lead Farmer

## What are Farmer Evaluations?

Lead Farmers are responsible for monitoring the activities and progress of farmers in their group, and reporting back to the Technicians. This evaluation form, when filled for a given event or milestone, provides a quick snapshot of the progress of each farmer in the group, and of the group as a whole. When Lead Farmers, Technicians, or other team members are conducting extension or monitoring activities with farmers in the group, this sheet will be useful in determining who in a group might need extra support, or components a given farmer may be struggling with. This simple evaluation system allows for targeted support and extension while minimizing the effort required to complete it.

## Instructions for filling out the Farmer Evaluations

Following each training event or important milestone in Forest Garden establishment, the Lead Farmer will check in on each of their farmers, either in person or (where relevant and possible) through photos sent on smart phones. When visiting a farmer in the group, the Lead Farmer will closely observe the elements in question for a component of the Forest Garden. They will cross-check the evaluation criteria or checklist for each component (listed below the evaluation table), as during their observations and discussion with the farmer. In some cases there is no checklist so the Lead Farmer simply follows the scoring criteria to give a score. When there is a checklist, s/he will count the components that a farmer has completed, following the checklist, then write their score based on the scoring criteria.

The scoring sheet also allows for a follow-up visit to be conducted if a farmer receives a low score and needs more time to establish a component fully. In this case, the Lead Farmer would cross out the number in the '1<sup>st</sup>' column and write the updated score in the '2<sup>nd</sup>' column under the related training event or milestone.

## Timing of Evaluations

The timing for each evaluation (i.e. when the evaluation should be conducted) is noted above the scoring table for each component.

## When is it shared with Technicians?

The Lead Farmer will send a photo of their evaluation sheet to the project technicians after having evaluated all the farmer's in her/his group.

**\*NOTE** that the order of the form and checklists below may not follow the order that they are to be conducted in your project.

## Evaluation Scoring Form #1

No.	LF Name:  Group Name:	Review, Planning, & Optimization		Compost		Nursery Establishment		Germination		Permagarden (1st visit)		Permagarden (2nd visit)	
		1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
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## Evaluation Scoring Form #2

No.	LF Name: Group Name:	Trees Planted		Ouplanting		Pruning & Harvesting		IPM		Seed Saving		Water Conservation	
		1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
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## NOTES

## NOTES

## Evaluation Criteria & Scoring for Form #1

### Review, Planning, and Optimization

**Timing of Evaluation** – one month after training event

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 5 elements of the checklist
3	The farmer has completed 3 or more elements of the checklist
2	The farmer has begun review and planning but with fewer than 3 of the elements complete
1	Review and planning has not been started

### Review, Optimization and Planning Checklist

1. Top view map (from Year 1) is updated
2. Side view map is sketched out in Farmers Workbook
3. Tree Nursery Planning chart is complete in Farmers Workbook
4. Seed Planning chart is complete in Farmers Workbook
5. Crop Rotation chart is complete in Farmers Workbook

### Compost

**Timing of Evaluation:** One month before the rainy season (Farmers can send photos to Lead Farmer instead of in-person visits if possible)

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has two or more active pits (2m long) or piles (1m tall), built in layers and covered with a moisture barrier. Piles may have a stick.
3	First compost complete and second is under construction.
2	First compost is under construction
1	No actively managed compost piles



## Nursery Establishment

**Timing of Evaluation:** As soon as nurseries are scheduled to be established

SCORING	Evaluation Indicators Used for Scoring
4	The nursery is fully established with all 7 elements of the Nursery Checklist in place
3	The nursery has been established with 4 or more of the 7 elements of the Nursery Checklist in place
2	The nursery has been started but with 3 or fewer elements of the Nursery Checklist in place
1	Nursery establishment has not begun

### Nursery Checklist

1. Nursery site has good water accessibility
2. Nursery is protected from animals/damage
3. There is enough space for the target number of seedlings (per farmer)
4. Bareroot beds are double dug and amended
5. There is a section built for tree sacks
6. Shading is constructed over bareroot beds and tree sack section
7. Use of good soil mix for tree sacks

## Germination

**Timing of Evaluation:** After germination (usually 3 to 4 weeks after sowing)

SCORING	Evaluation Indicators Used for Scoring
4	The full number of target seedlings have germinated and are growing in the nursery
3	Not all, but more than half of the target number of seedlings are growing in nursery
2	Fewer than half of the target number of seedlings are growing in nursery
1	Few to no seedlings are growing in nursery

## Permagardening (First Visit)

**Timing of Evaluation:** Two to four weeks after gardening season begins

SCORING	Evaluation Indicators Used for Scoring
4	Permagarden is established with 11 elements of the Permagarden Checklist (first visit) in place
3	Permagarden is established with 6 or more of the Permagarden Checklist (first visit) in place
2	The Permagarden has been started but with 6 or fewer of the Permagarden Checklist (first visit) elements in place
1	Permagarden area is not established

### Permagardening Checklist (First visit)

1. Area selected is at least 10m x 10m in size
2. All beds, where used, are double-dug
3. Farmer has applied erosion control measures/earthworks throughout permagarden site (if needed)
4. Farmer is using a vegetable nursery bed for vegetables that require it
5. Farmer is using rotation, planting plots with different crop families from previous season
6. Sufficient use of compost/amendments
7. Diverse primary products selected for nutrition and marketing
8. Farmer uses of companions for soil fertility
9. Farmer uses companions for IPM
10. Farmer uses triangular spacing / correct spacing
11. All beds/plots are covered with mulch

## Permagardening (Second Visit)

**Timing of Evaluation:** Three months after gardening season begins

SCORING	Evaluation Indicators Used for Scoring
4	Permagarden displays 11 elements of the Permagarden Checklist (second visit)
3	Permagarden displays 6 or more elements of the Permagarden Checklist (second visit)
2	Permagarden displays 5 or fewer of the Permagarden Checklist (second visit) elements
1	None of the Permagarden Checklist (second visit) elements are displayed

### Permagardening Checklist (second visit)

1. Relay (succession) planting is practiced
2. Beds are amended prior to planting/replanting
3. Farmer is using crop rotation
4. Protective border is planted around the permagarden (green wall/windbreak)
5. Productive border is planted with perennials
6. Use of IPM solutions and principles
7. Use of companions for soil fertility
8. Use of companions for IPM
9. Triangular spacing / correct spacing
10. Beds are covered with mulch
11. Seed saving/safe storage is practiced

## Evaluation Criteria & Scoring for Form #1

### Trees Planted

**Timing of Evaluation:** As soon as possible after outplanting is complete

SCORING	Evaluation Indicators Used for Scoring
4	Target trees are planted in the farmer's Forest Garden for this season
3	At least half of the farmer's target number of seedlings for this season are planted in the Forest Garden
2	Fewer than half of the target number of seedlings for this season are planted in the Forest Garden
1	Few to no seedlings have been planted yet this season in the Forest Garden

### Outplanting

**Timing of Evaluation:** At the same time as the 'Trees Planted' evaluation

SCORING	Evaluation Indicators Used for Scoring
4	All 4 of the outplanting elements are fully established
3	All 4 outplanting elements have been started but are not complete
2	3 or fewer of the outplanting elements have been started but are not complete
1	2 or fewer of the outplanting elements have been started

### Outplanting Checklist

1. Green Wall
2. Alleys or Contours
3. Fruit tree segment
4. Hardwood tree segment

## Pruning and Harvesting

Timing of Evaluation – At the end of the dry season

SCORING	Evaluation Indicators Used for Scoring
4	The farmer practices all 8 elements in the checklist
3	The farmer practices 5 or more elements of the checklist
2	The farmer practices 4 or fewer of the pruning elements in the checklist
1	The farmer does not consistently practice pruning

### Pruning Checklist

1. Unhealthy branches in Forest Garden are pruned
2. Green Wall is properly pruned (except in windbreak line)
3. Side branches are woven into Green Wall
4. Trees in alleys and contours are pruned
5. Green manure is applied to the field
6. Fruit trees are pruned for form and health
7. Timber trees are pruned for form and health (where relevant)
8. Correct pruning practices used all around (clean cuts; limited breakage or tearing)

## Integrated Pest Management (IPM)

Timing of Evaluation – Any time during a cultivation season

SCORING	Evaluation Indicators Used for Scoring
4	The farmer regularly practices all 5 elements of the checklist
3	The farmer regularly practices 3 or more elements of the checklist
2	The farmer regularly practices fewer than 3 of the elements of the IPM checklist
1	IPM practices are rarely used

### IPM Checklist

1. Regularly scouts Forest Garden for pests (farmer can explain how they scout, what they have found, and what they have applied to address problems)
2. Ensures crop health through use of compost and other natural soil fertility measures
3. Demonstrated use of companion planting to repel pests or attract pest predators
4. Practices crop rotation, in permagarden or elsewhere (farmer can explain the rotation(s) they use)
5. Created and applied a natural pesticide in their Forest Garden

## Seed Saving

**Timing of Evaluation** – Can happen any time (suggested during IPM evaluation)

SCORING	Evaluation Indicators Used for Scoring
4	The farmer regularly practices all 5 elements of the checklist
3	The farmer regularly practices 3 or more elements of the checklist
2	The farmer regularly practices fewer than 3 of the elements complete
1	The farmer rarely practices seed saving

### Saving Checklist

1. Farmer collects and saves tree seeds at their home
2. Farmer collects and saves vegetable seeds at their home
3. Farmer is using air-tight containers for seeds, stored in a cool, dry place
4. Seeds are labeled with species, location of harvest, and date
5. Seeds were properly dried, cleaned, and sorted

## Water Conservation

**Timing of Evaluation** – At the start of the rainy season

SCORING	Evaluation Indicators Used for Scoring
4	The farmer uses all 3 elements of the checklist
3	The farmer uses 2 elements of the checklist
2	The farmer uses 1 element of the checklist
1	The farmer is not using water conservation practices

### Water Conservation Checklist

1. Demonstrated use of mulch on all vegetable beds and fruit trees
2. Demonstrated use of cuvettes and/or half-moon berms around fruit trees
3. Established vegetative strips or berms and swales along contours of erosion-prone areas

## Materials and Equipment Distribution List

This form records all seed or seedlings, equipment, tools, and materials distributed to farmers.

### What is collected?

Each item distributed (for example one type of seed, one type of seedling, a water can, a wheel barrow, etc) will have it's own section. Two different items can be recorded on each page. Fill in the name or description of the item, and the amount (quantity) received in the appropriate columns. The farmer or Technician will write the farmer's name, and the farmer will sign and date it. The Technician who is distributing the item(s) must also sign for each item distributed under the 'Description' in the column on the left.

### When should this be done?

Every time materials are distributed.

### When is it shared with Technicians?

At the next monthly Tech-Lead Farmer meeting.



*Farmers must give their signature and the date on which they receive any material or equipment.*

Project:			Lead Farmer:				Farmer Group:			
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## Monthly Site Visit Record

### Instructions:

- Each farmer in the group should have her/his own Monthly Site Visit Record sheet (two pages).
- Write the farmer's name at the top of each record, along with the farmer group and project.
- Each time a farmer's site is visited, write the date of the visit, and have the farmer sign the form.
- If there are trees in the nurseries, list all tree species and the number for each that you observe growing in the **nursery**.
- For months when outplanted trees are to be counted, list **Newly planted trees** for the month visited, broken down by the type of planting (e.g. alleys, green walls, fruit, etc)
- Record the most common or destructive **pests and diseases** affecting the trees or vegetables, marking when they are present, and the applied or possible solutions.
- Record any issues or challenges relevant in the farmer's nursery or forest garden, any questions, comments, or notes, and any innovations observed, recommendations, or problems solved.

### When is data collected?

The Monthly Site Visit form is designed to be filled monthly. If there is any change, it should be indicated by the project Technicians.

### When is it shared with technicians?

At the next monthly Tech–Lead Farmer meeting.



***Print and include one Monthly Site Visit Record sheet (two pages) for each farmer in the group, and add them to the Lead Farmer Workbook.***

Monthly Site Visit Record												
Farmer's Name:				Farmer Group:				Project:				
MONTH	Jan	Feb	March	April	May	June	July	August	Sept	October	Nov	Dec
Visit Date												
Farmer Signature												
Tree Species in Nursery	#	#	#	#	#	#	#	#	#	#	#	#
1												
2												
3												
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Number Newly Planted Trees	#	#	#	#	#	#	#	#	#	#	#	#
Green wall												
Alleys												
Contours												

Fruit trees												
Timber trees												
Scattered												
Other:												
Other:												
<b>Pests and Diseases (Name and tick/check where appropriate)</b>												
1												
2												
3												
4												
5												
<i>For the following 3 notes sections, write date next to comment</i>												
<b>Issues or Challenges that Group Farmers are facing</b>												
<b>Farmer Questions/ Comments/ Notes</b>												
<b>Innovations / recommendations / problems solved</b>												



**TREES  
FOR THE  
FUTURE**



Forest Garden  
Training Center

[training.trees.org](https://training.trees.org)

## Lead Farmer Workbook—Years 3 & 4

<b>Lead Farmer Name</b>	
<b>Project</b>	
<b>Farmer Group Name</b>	
<b>Phone number</b>	

### About this Booklet

Welcome to the Lead Farmer Reporting Workbook for Years 3 and 4. This booklet is intended for use by Trees for the Future (TREES) Lead Farmers to standardize field procedures in reporting. This version is similar to Years 1 and 2. However, as farmers' Forest Gardens advance from the establishment phase toward maturity, farmers should display a higher level of use and expertise of all components in their Forest Gardens. The procedures for filling in the information remains the same.

This guide contains templates and instructions to be used by Lead Farmers when conducting a specific activity:

- Farmer Contact List
- Farmer Evaluations by Lead Farmer
- Materials and Equipment Distribution Record
- Monthly Site Report

### General Instructions for Lead Farmers:

#### Your role as a Lead Farmer

Lead Farmers are a key part of our training and extension approach. Lead Farmers are committed, enthusiastic community leaders who demonstrate an interest in the sustainable development of their community. Lead Farmers are not TREES employees. They are group members and project participants, selected by farmer group members and technicians, and act as a conduit between TREES and the community. Lead Farmers maintain close communication with technicians and their group members. They often host and assist with facilitation of

training events and are responsible for visiting each participant in their group regularly to deliver planting materials and equipment, provide technical support, and compile monitoring and reporting data.

#### *Lead Farmer Responsibilities*

- Support and liaise between TREES' technicians and participant farmers within each farmer group.
- Attend all community and training events and meetings as requested by TREES technicians.
- Host and assist with facilitation of training events as needed.
- Visit each group member regularly to deliver planting materials and equipment and provide monitoring.
- Provide regular technical support and guidance to group members.
- Collect, compile, and submit M&E data to the project technicians

### How often to visit farmers

Ideally, Lead Farmers should visit each farmer in their group once after every workshop, though this may not always be possible. For some workshops (Nursery, Outplanting, Permagarden), there are two scheduled visits. Monthly Site Visit Records should be filled in on a monthly basis, or as required by Technicians. For some monitoring activities, and where farmers and lead farmers both have smart phones, farmers can send pictures of their completed activities in place of in-person visits.

### How and what to communicate with technicians

Information from workshop follow-up can be shared with technicians during monthly Lead Farmer meetings. However, if there are any major concerns (for example, if many farmers are not receiving supplies or completing important activities such as establishing nurseries or outplanting) then these should be communicated to technicians as soon as possible via call or text. Additionally, for some workshop follow ups, there is a remote communication option to send technicians photos from the farmer's assignment. This will help you and technicians provide the best extension support to the farmer.

### List of Workshops

Write the workshops given and dates below, in the order they were given (to be used for Workshop Attendance below):

No.	WORKSHOP NAME	WORKSHOP DATE
1.		
2.		
3.		
4.		
5.		
6.		

## Farmer Contact List and Workshop Attendance

	Farmer Name	Contact	Workshop Attendance					
			1	2	3	4	5	6
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## Farmer Evaluations by Lead Farmer

### What are Farmer Evaluations?

Lead Farmers are responsible for monitoring the activities and progress of farmers in their group, and reporting back to the Technicians. This evaluation form, when filled for a given event or milestone, provides a quick snapshot of the progress of each farmer in the group, and of the group as a whole. When Lead Farmers, Technicians, or other team members are conducting extension or monitoring activities with farmers in the group, this sheet will be useful in determining who in a group might need extra support, or components a given farmer may be struggling with. This simple evaluation system allows for targeted support and extension while minimizing the effort required to complete it.

### Instructions for filling out the Farmer Evaluations

Following each training event or important milestone in Forest Garden establishment, the Lead Farmer will check in on each of their farmers, either in person or (where relevant and possible) through photos sent on smart phones. When visiting a farmer in the group, the Lead Farmer will closely observe the elements in question for a component of the Forest Garden. They will cross-check the evaluation criteria or checklist for each component (listed below the evaluation table), as during their observations and discussion with the farmer. In some cases there is no checklist so the Lead Farmer simply follows the scoring criteria to give a score. When there is a checklist, s/he will count the components that a farmer has completed, following the checklist, then write their score based on the scoring criteria.

The scoring sheet also allows for a follow-up visit to be conducted if a farmer receives a low score and needs more time to establish a component fully. In this case, the Lead Farmer would cross out the number in the '1<sup>st</sup>' column and write the updated score in the '2<sup>nd</sup>' column under the related training event or milestone.

### Timing of Evaluations

The timing for each evaluation (i.e. when the evaluation should be conducted) is noted above the scoring table for each component.

### When is it shared with Technicians?

The Lead Farmer will send a photo of their evaluation sheet to the project technicians after having evaluated all the farmer's in her/his group.

**\*NOTE that the order of the form and checklists below may not follow the order that they are to be conducted in your project.**

Evaluation Scoring Form #1

No.	LF Name:	Review, Planning, & Optimization		Compost		Nursery Establishment		Trees in Nurseries (Germination)		Permagarden (1st visit)		Permagarden (2nd visit)	
	Group Name:	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
	Farmer Name	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
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Evaluation Scoring Form #2

No.	LF Name:	Trees Planted		Ouplanting		Pruning & Harvesting		IPM		Seed Saving		Water Conservation	
	Group Name:	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
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### Evaluation Scoring Form (First Rainy Season)

No.	LF Name:	Nursery Establishment		Trees in nursery (Germination)		Trees planted		Outplanting	
	Group Name:	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
	Farmer Name								
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## NOTES

## NOTES

## Evaluation Criteria & Scoring for Form #1

### REVIEW, PLANNING, & OPTIMIZATION

**Timing of Evaluation** – one month after training event

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has completed all 5 elements of the checklist
3	The farmer has completed 3 or more elements of the checklist
2	The farmer has begun review and planning but with fewer than 3 of the elements complete
1	Review and planning has not been started

#### Review, Optimization and Planning Checklist

1. Top view map (from Year 1) is updated
2. Side view map is sketched out in Farmers Workbook
3. Tree Nursery Planning chart is complete in Farmers Workbook
4. Seed Planning chart is complete in Farmers Workbook
5. Crop Rotation chart is complete in Farmers Workbook

Commented [p1]: @Gabriel Buttram Do we have workbooks for the Year 3 or what else can the farmer use

### COMPOST

**Timing of Evaluation:** Should be measured twice in the year: before nurseries are started, and before permagardens are planted (Farmers can send photos to Lead Farmer instead of in-person visits if possible)

SCORING	Evaluation Indicators Used for Scoring
4	The farmer has two or more active pits (2m long) or piles (1m tall), built in layers and covered with a moisture barrier. Piles may have a stick.
3	First compost complete and second is under construction.
2	First compost is under construction
1	No actively managed compost piles

## NURSERY ESTABLISHMENT

**Timing of Evaluation:** As soon as nurseries are scheduled to be established

SCORING	Evaluation Indicators Used for Scoring
4	The nursery is fully established with all 7 elements of the Nursery Checklist in place
3	The nursery has been established with 4 or more of the 7 elements of the Nursery Checklist in place
2	The nursery has been started but with 3 or fewer elements of the Nursery Checklist in place
1	Nursery establishment has not begun

### Nursery Checklist

1. Nursery site has good water accessibility
2. Nursery is protected from animals/damage
3. There is enough space for the target number of seedlings (per farmer)
4. Bareroot beds are double dug and amended
5. There is a section built for tree sacks
6. Shading is constructed over bareroot beds and tree sack section
7. Use of good soil mix for tree sacks

## TREES IN NURSERIES - GERMINATION

**Timing of Evaluation:** After germination (usually 3 to 4 weeks after sowing)

SCORING	Evaluation Indicators Used for Scoring
4	The full number of target seedlings have germinated and are growing in the nursery
3	Not all, but more than half of the target number of seedlings are growing in nursery
2	Fewer than half of the target number of seedlings are growing in nursery
1	Few to no seedlings are growing in nursery



## PERMAGARDENING (First Visit)

**Timing of Evaluation:** Two to four weeks after gardening season begins

SCORING	Evaluation Indicators Used for Scoring
4	Permagarden is established with 11 elements of the Permagarden Checklist (first visit) in place
3	Permagarden is established with 6 or more of the Permagarden Checklist (first visit) in place
2	The Permagarden has been started but with 6 or fewer of the Permagarden Checklist (first visit) elements in place
1	Permagarden area is not established

### Permagardening Checklist (First visit)

1. Area selected is at least 10m x 10m in size
2. All beds, where used, are double-dug
3. Farmer has applied erosion control measures/earthworks throughout permagarden site (if needed)
4. Farmer is using a vegetable nursery bed for vegetables that require it
5. Farmer is using rotation, planting plots with different crop families from previous season
6. Sufficient use of compost/amendments
7. Diverse primary products selected for nutrition and marketing
8. Farmer uses companions for soil fertility
9. Farmer uses companions for IPM
10. Farmer uses triangular spacing / correct spacing
11. All beds/plots are covered with mulch

## PERMAGARDENING (Second Visit)

**Timing of Evaluation:** Three months after gardening season begins

SCORING	Evaluation Indicators Used for Scoring
4	Permagarden displays 11 elements of the Permagarden Checklist (second visit)
3	Permagarden displays 6 or more elements of the Permagarden Checklist (second visit)
2	Permagarden displays 5 or fewer of the Permagarden Checklist (second visit) elements
1	None of the Permagarden Checklist (second visit) elements are displayed

### Permagardening Checklist (second visit)

1. Relay (succession) planting is practiced
2. Beds are amended prior to planting/replanting
3. Farmer is using crop rotation
4. Protective border is planted around the permagarden (green wall/windbreak)
5. Productive border is planted with perennials
6. Use of IPM solutions and principles
7. Use of companions for soil fertility
8. Use of companions for IPM
9. Triangular spacing / correct spacing
10. Beds are covered with mulch
11. Seed saving/safe storage is practiced

## Evaluation Criteria & Scoring for Form #1

### TREES PLANTED

**Timing of Evaluation:** As soon as possible after outplanting is complete

SCORING	Evaluation Indicators Used for Scoring
4	Target trees are planted in the farmer's Forest Garden for this season
3	At least half of the farmer's target number of seedlings for this season are planted in the Forest Garden
2	Fewer than half of the target number of seedlings for this season are planted in the Forest Garden
1	Few to no seedlings have been planted yet this season in the Forest Garden

### OUPLANTING

**Timing of Evaluation:** At the same time as the 'Trees Planted' evaluation

SCORING	Evaluation Indicators Used for Scoring
4	All 4 of the outplanting elements are fully established
3	All 4 outplanting elements have been started but are not complete
2	3 or fewer of the outplanting elements have been started but are not complete
1	2 or fewer of the outplanting elements have been started

### Outplanting Checklist

1. Green Wall
2. Alleys or Contours
3. Fruit tree segment
4. Hardwood tree segment

## PRUNING & HARVESTING

**Timing of Evaluation** – At the end of the dry season

SCORING	Evaluation Indicators Used for Scoring
4	The farmer practices all 8 elements in the checklist
3	The farmer practices 5 or more elements of the checklist
2	The farmer practices 4 or fewer of the pruning elements in the checklist
1	The farmer does not consistently practice pruning

### Pruning Checklist

1. Unhealthy branches in Forest Garden are pruned
2. Green Wall is properly pruned (except in windbreak line)
3. Side branches are woven into Green Wall
4. Trees in alleys and contours are pruned
5. Green manure is applied to the field
6. Fruit trees are pruned for form and health
7. Timber trees are pruned for form and health (where relevant)
8. Correct pruning practices used all around (clean cuts; limited breakage or tearing)

## INTEGRATED PEST MANAGEMENT (IPM)

**Timing of Evaluation** – Any time during a cultivation season

SCORING	Evaluation Indicators Used for Scoring
4	The farmer regularly practices all 5 elements of the checklist
3	The farmer regularly practices 3 or more elements of the checklist
2	The farmer regularly practices fewer than 3 of the elements of the IPM checklist
1	IPM practices are rarely used

### IPM Checklist

1. Regularly scouts Forest Garden for pests (farmer can explain how they scout, what they have found, and what they have applied to address problems)
2. Ensures crop health through use of compost and other natural soil fertility measures
3. Demonstrated use of companion planting to repel pests or attract pest predators
4. Practices crop rotation, in permagarden or elsewhere (farmer can explain the rotation(s) they use)
5. Created and applied a natural pesticide in their Forest Garden

## SEED SAVING

**Timing of Evaluation** – Can happen any time (suggested during IPM evaluation)

SCORING	Evaluation Indicators Used for Scoring
4	The farmer regularly practices all 5 elements of the checklist
3	The farmer regularly practices 3 or more elements of the checklist
2	The farmer regularly practices fewer than 3 of the elements complete
1	The farmer rarely practices seed saving

### Saving Checklist

1. Farmer collects and saves tree seeds at their home
2. Farmer collects and saves vegetable seeds at their home
3. Farmer is using air-tight containers for seeds, stored in a cool, dry place
4. Seeds are labeled with species, location of harvest, and date
5. Seeds were properly dried, cleaned, and sorted

## WATER CONSERVATION

**Timing of Evaluation** – During the planting season

SCORING	Evaluation Indicators Used for Scoring
4	The farmer uses all 3 elements of the checklist
3	The farmer uses 2 elements of the checklist
2	The farmer uses 1 element of the checklist
1	The farmer is not using water conservation practices

### Water Conservation Checklist

1. Demonstrated use of mulch on all vegetable beds and fruit trees
2. Demonstrated use of cuvettes and/or half-moon berms around fruit trees
3. Established vegetative strips or berms and swales along contours of erosion-prone areas

## Materials and Equipment Distribution List

This form records all seed or seedlings, equipment, tools, and materials distributed to farmers.

### What is collected?

Each item distributed (for example one type of seed, one type of seedling, a water can, a wheel barrow, etc) will have it's own section. Two different items can be recorded on each page. Fill in the name or description of the item, and the amount (quantity) received in the appropriate columns. The farmer or Technician will write the farmer's name, and the farmer will sign and date it. The Technician who is distributing the item(s) must also sign for each item distributed under the 'Description' in the column on the left.

### When should this be done?

Every time materials are distributed.

### When is it shared with Technicians?

At the next monthly Tech–Lead Farmer meeting.



*Farmers must give their signature and the date on which they receive any material or equipment.*

Project:			Lead Farmer:			Farmer Group:				
Item		Farmer Name	#	Farmer Signature	Date		Farmer Name	#	Farmer Signature	Date
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## Monthly Site Visit Record

### Instructions:

- Each farmer in the group should have her/his own Monthly Site Visit Record sheet (two pages).
- Write the farmer's name at the top of each record, along with the farmer group and project.
- Each time a farmer's site is visited, write the date of the visit, and have the farmer sign the form.
- If there are trees in the nurseries, list all tree species and the number for each that you observe growing in the **nursery**.
- For months when outplanted trees are to be counted, list **Newly planted trees** for the month visited, broken down by the type of planting (e.g. alleys, green walls, fruit, etc)
- Record the most common or destructive **pests and diseases** affecting the trees or vegetables, marking when they are present, and the applied or possible solutions.
- Record any issues or challenges relevant in the farmer's nursery or forest garden, any questions, comments, or notes, and any innovations observed, recommendations, or problems solved.

### When is data collected?

The Monthly Site Visit form is designed to be filled monthly. If there is any change, it should be indicated by the project Technicians.

### When is it shared with technicians?

At the next monthly Tech–Lead Farmer meeting.



***Print and include one Monthly Site Visit Record sheet (two pages) for each farmer in the group, and add them to the Lead Farmer Workbook.***



Monthly Site Visit Record												
Farmer's Name:				Farmer Group:					Project:			
MONTH	Jan	Feb	March	April	May	June	July	August	Sept	October	Nov	Dec
Visit Date												
Farmer Signature												
Tree Species in Nursery	#	#	#	#	#	#	#	#	#	#	#	#
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
Number Newly Planted Trees	#	#	#	#	#	#	#	#	#	#	#	#
Green wall												
Alleys												
Contours												

Fruit trees												
Timber trees												
Scattered												
Other:												
Other:												
<b>Pests and Diseases (Name and tick/check where appropriate)</b>												
1												
2												
3												
4												
5												
<i>For the following 3 notes sections, write date next to comment</i>												
<b>Issues or Challenges that Group Farmers are facing</b>												
<b>Farmer Questions/ Comments/ Notes</b>												
<b>Innovations / recommendations / problems solved</b>												

## VISITOR SIGN-IN SHEET

<u>Date</u>	<u>Name of Visitor(s)</u>	<u>Signature</u>
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## VISITOR SIGN-IN SHEET

<u>Date</u>	<u>Name of Visitor(s)</u>	<u>Signature</u>
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**VISITOR SIGN-IN SHEET**

Date                      Name of Visitor(s)                      Signature

## VISITOR SIGN-IN SHEET

<u>Date</u>	<u>Name of Visitor(s)</u>	<u>Signature</u>
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