

# FOREST GARDEN

## FARMER'S WORKBOOK

Year 3  
English-Anglaise



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## Acknowledgments

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## 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



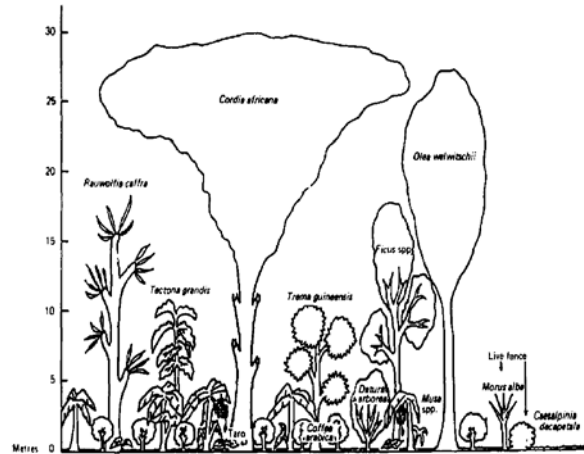
Fill in the calendar with check marks to show when you have products to harvest, sell, eat or trade.

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

# Examples of Vertical Maps

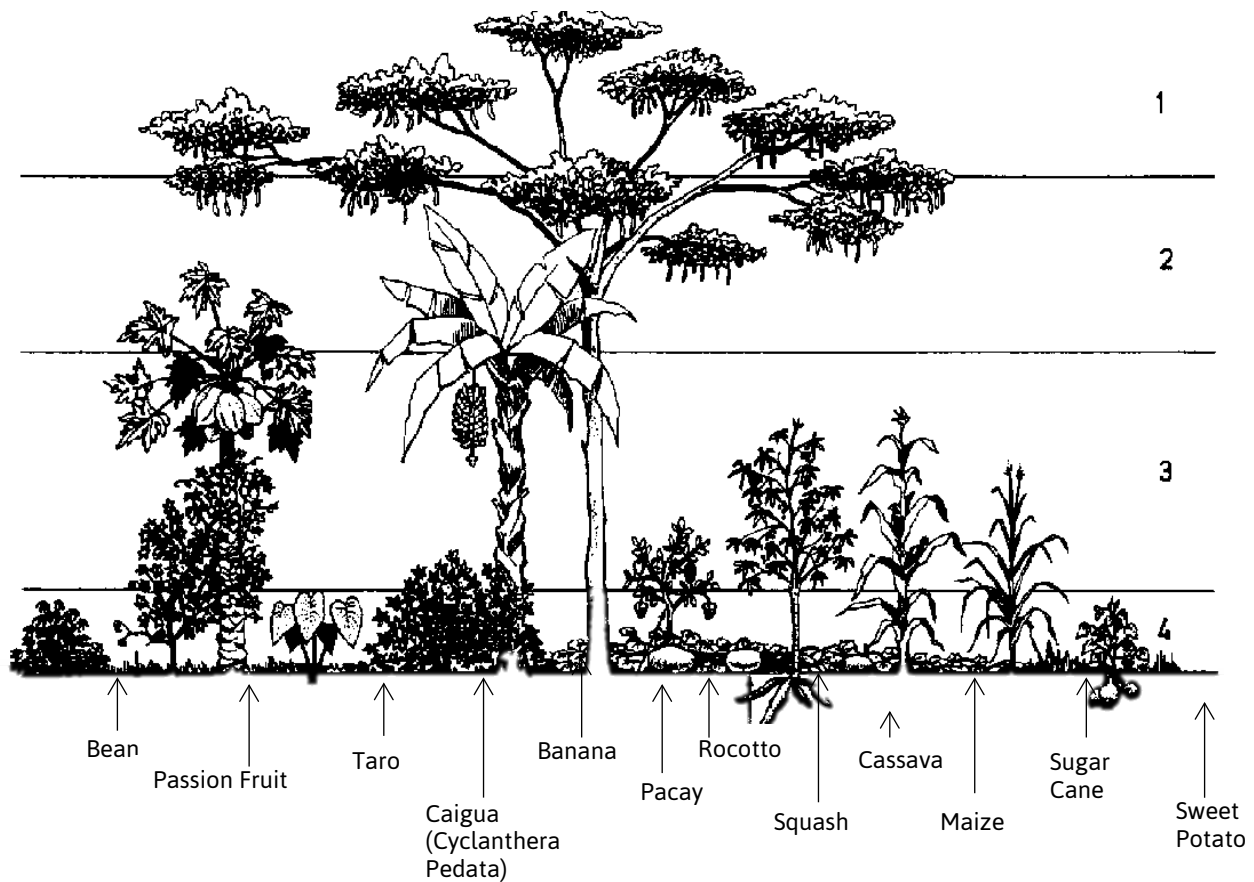


Stories/Layers  
Large Trees  
Medium Trees  
Small Trees  
Shrubs, Vines  
Herbaceous



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

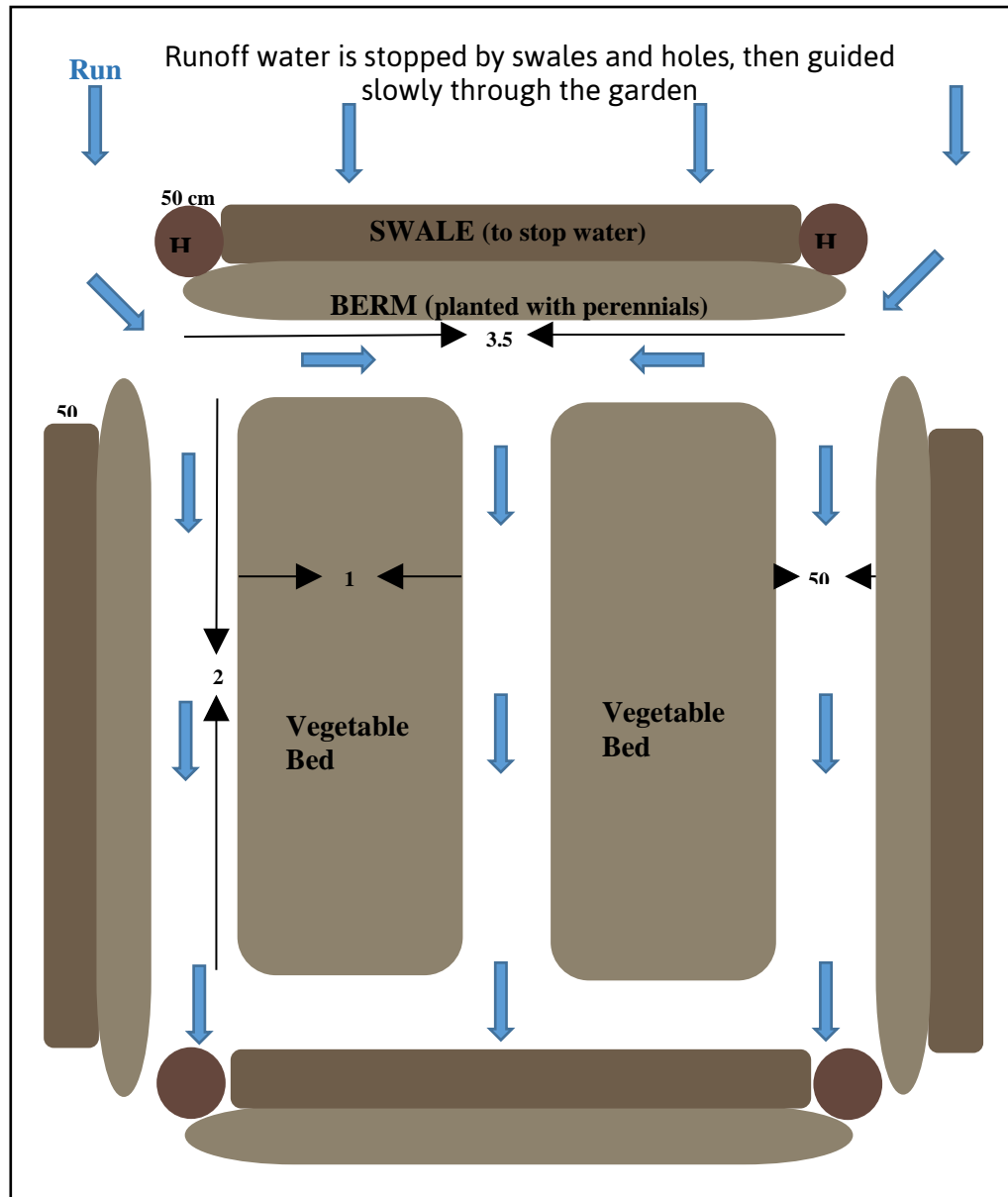
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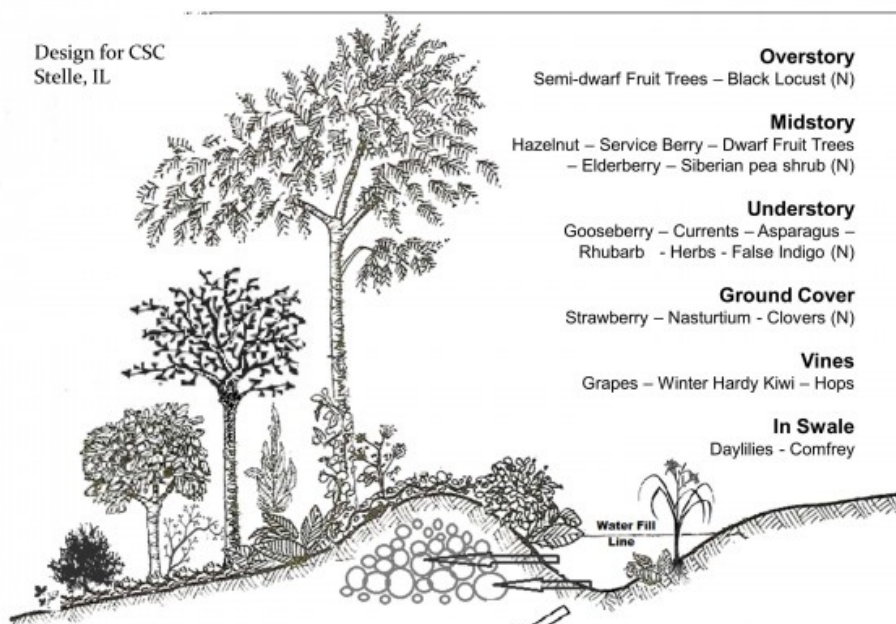
## Module 10: Timber Tree Propagation and Perennials



# Soil and Water Conservation Techniques



# Examples of Berms and Swales



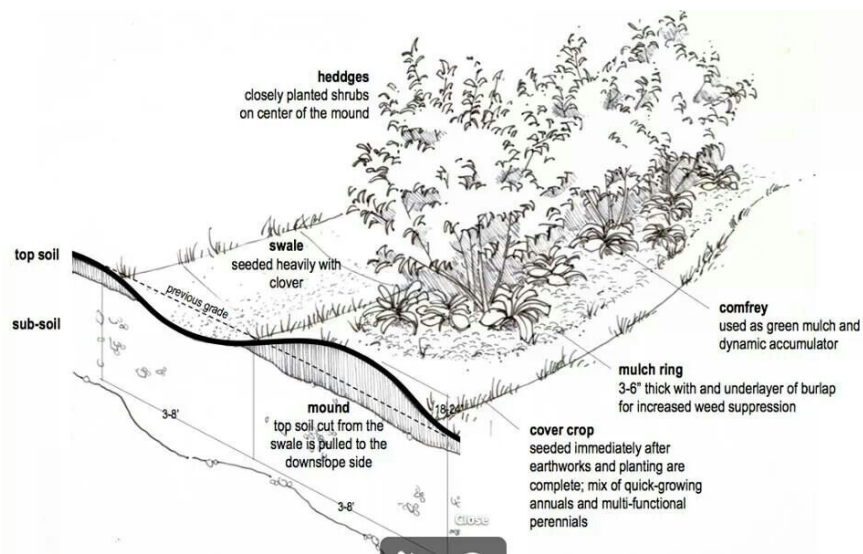
## Hugelkultured Swale & Linear Food Forest

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>



Credit: 2

[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

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## Module 11: Permagardening for the Future





# Companion Planting



Tomatoes protected by onions

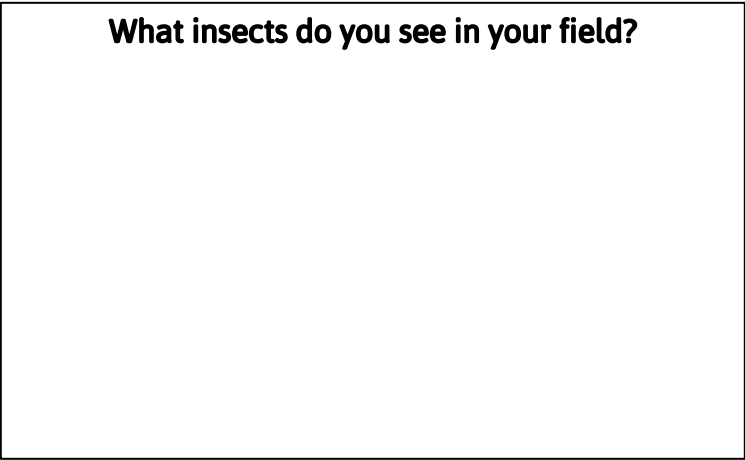


Okra protected by onions

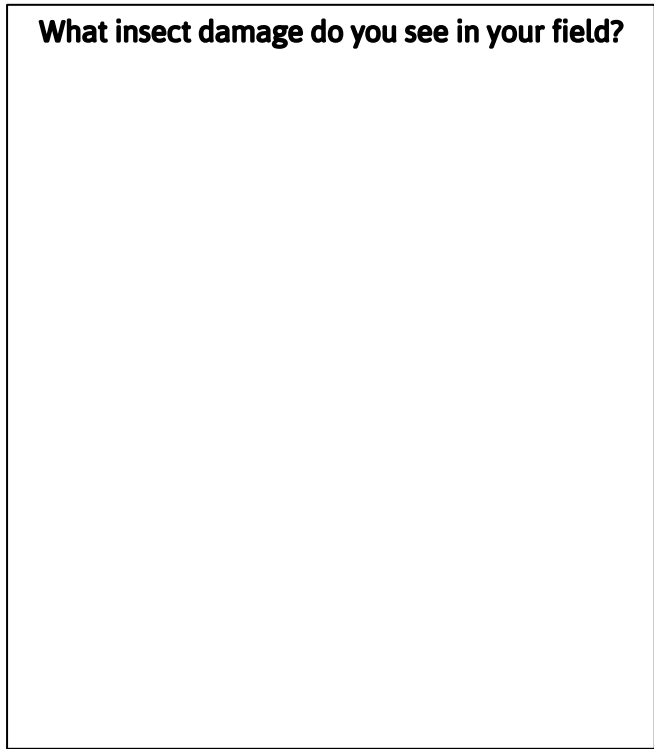


Beans climbing sunflowers





**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

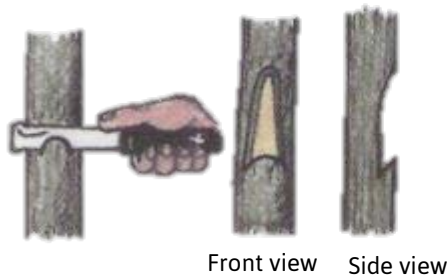




# Side Grafting



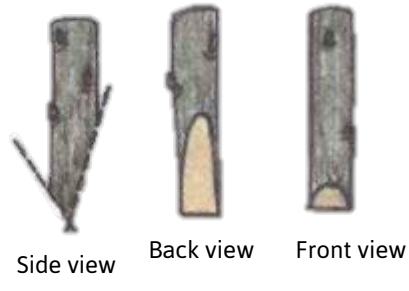
## Rootstock Preparation



Front view

Side view

## Scion Preparation

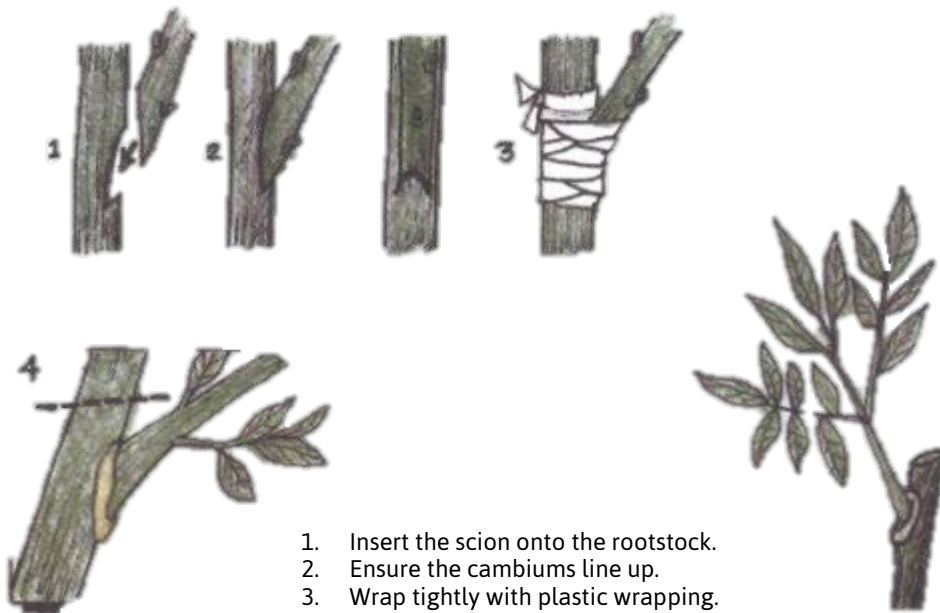


Side view

Back view

Front view

Make a downward cut 2.5-4 cm long

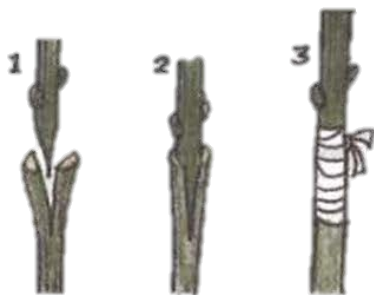
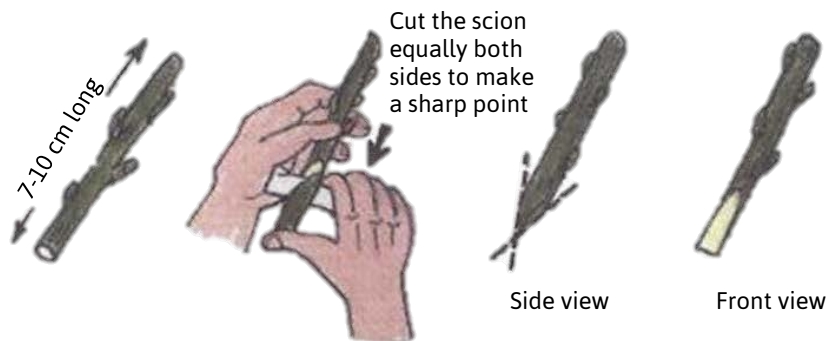
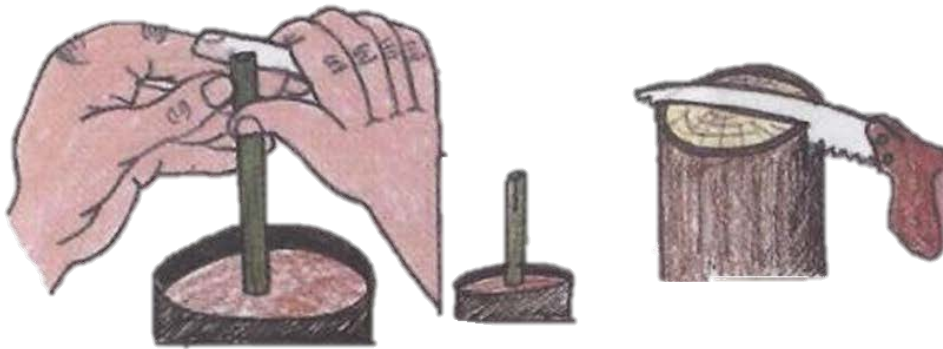


1. Insert the scion onto the rootstock.
2. Ensure the cambiums line up.
3. Wrap tightly with plastic wrapping.
4. After the scion begins to grow, cut off the rootstock above where it was grafted.

# Crown Grafting



## Rootstock Preparation

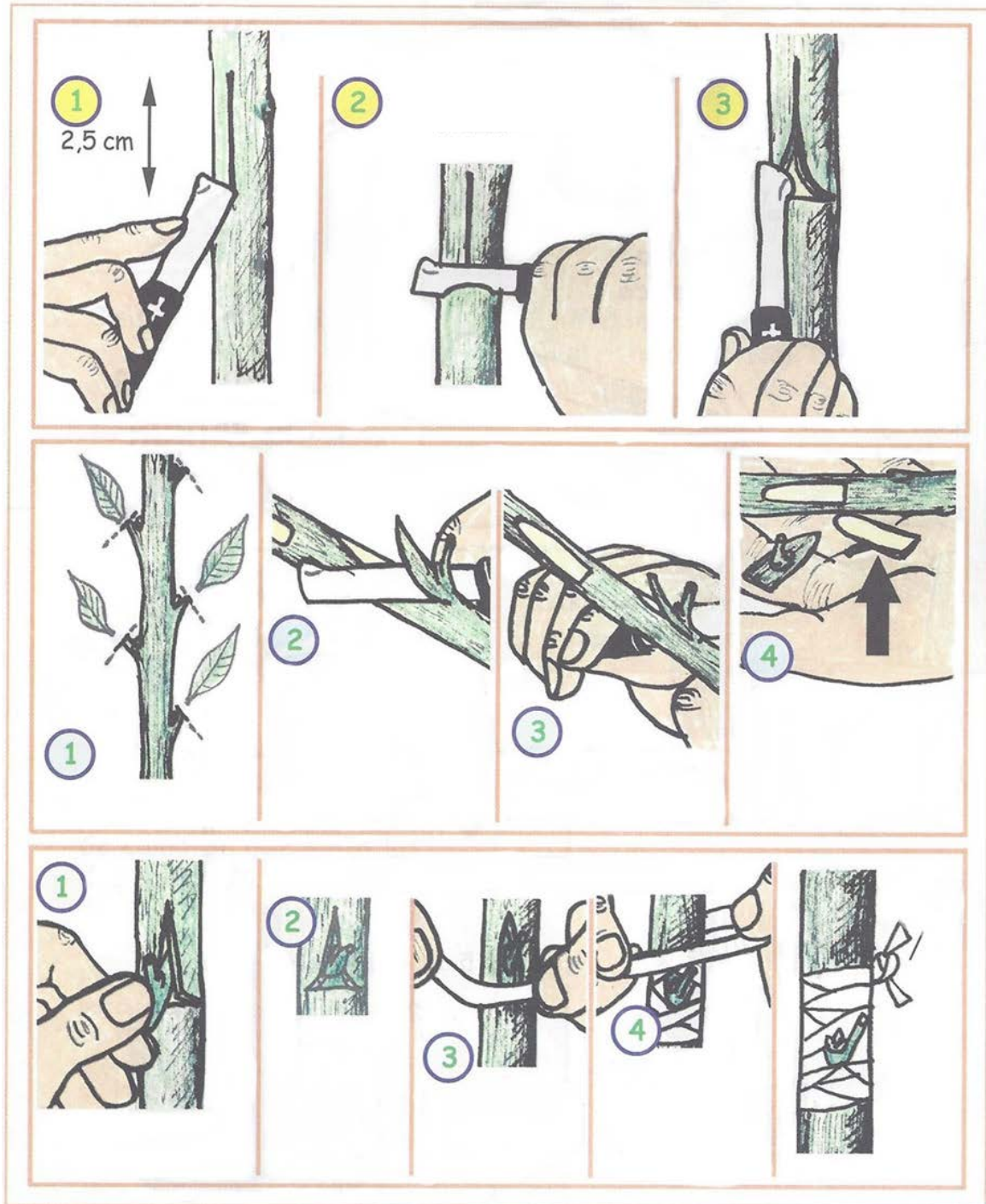


1. Insert the scion in the rootstock.
2. Line up the cambium layers
3. Wrap tightly the plastic



Use wax to seal the grafts for larger trees

# T-Bud Grafting



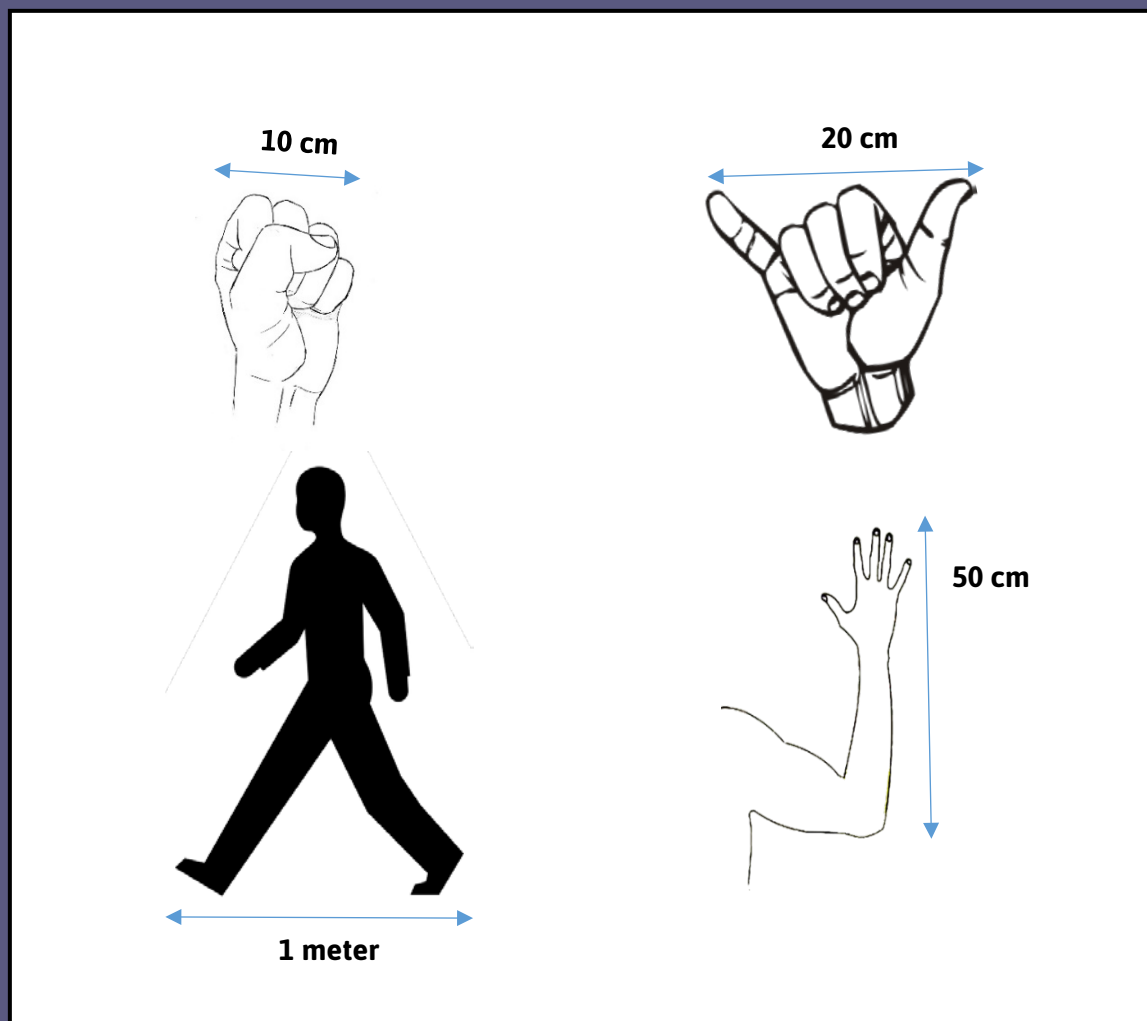
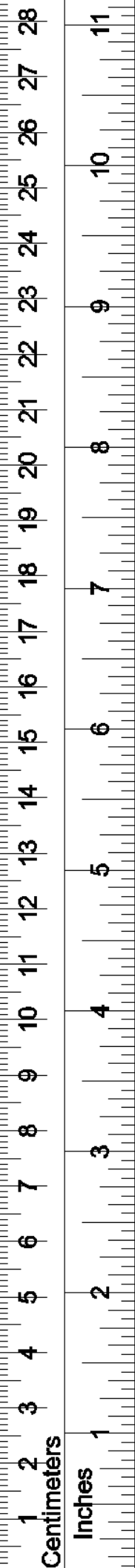
## Notes

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## Notes

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