

FOREST GARDEN

FARMER'S WORKBOOK

Year 1
English-Anglaise



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Small
Grant



Acknowledgments

The Forest Garden Approach was developed by the team at Trees for the Future, drawing on 27 years of experience working at the grassroots level. The technical content referenced in this Farmer's Workbook was developed by Trees for the Future staff drawing on the experience, knowledge and technical resources from several partners, including the United States Peace Corps, Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), ACIDI/VOCA, the TOPS Permagarden Technical Manual, the International Council for Research in Agroforestry (ICRAF), and the New Zealand Digital Library.

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Welcome to the Forest Garden training program!



Dear Farmer,

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.

This training program consists of 16 workshops delivered by facilitators trained by Trees for the Future who will guide your farmer group in attaining 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 which includes activities and resources you will 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

Year 1 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
 - At least one row planted, surrounding the entire site
 - At least part of the second row is planted
 - Proper spacing between rows
 - Proper spacing across lines
 - Terminal buds pruned
 - Brush and weeds cleared
 - Dead fence surrounding green wall (for all projects where this is determined to be a requirement)
- Alley Cropping and/or Contour Planting
 - Minimum of 1 row planted across cropping area
 - Agroforestry trees interspersed throughout site
 - Proper spacing between rows
 - Proper spacing between trees within rows
 - Contour lines followed (on sloped sites)
- Compost
 - Appropriate placement
 - At least two active piles
 - Good mix of materials (N, C, water, air)
 - Passes stick test when the pile's stick is pulled out; if the stick is warm it passes the test)
 - Demonstrated product and application
- Permagarden
 - Double-dug beds
 - Raised or sunken beds
 - Amended soils
 - Mulching
 - Triangular spacing
 - Adequate spacing between plants
 - At least four species/plant types
 - At least two species/types that were not planted previously by the family
 - Companion planting



Module 1: Forest Garden Design



How to Map Your Forest Garden



Questions about the farm

- Is the field secure from animals and pests? How can you secure it? Where should you plant a green wall or living fence?
- Are there erosion problems on the field? How can you reduce erosion? Where do you need to plant contour rows?
- Is the wind a major problem? Which directions do the wind generally come from? How can you protect the field from wind? Where do you need to plant a windbreak?
- Is the soil quality good? Does the soil quality vary across the field? Are there parts of the farm with degraded soil? How can you improve the soil? Where will you put your compost piles? Where will you plant fertilizer trees?
- Are pests (animals, insects, diseases) a problem on the field? What do farmers do to control pests? Are there plants that repel pests? What are some alternatives to the use of expensive chemical pesticides? Where can you plant walls of trees or perennials to protect from pests?
- Are rainfall patterns changing? How can you keep more water in the soil? What can you plant that can tolerate unpredictable rainfall?
- What weather extremes should the field be prepared to endure? Are there frequent floods or droughts? How have weather patterns changed over the last few years? Which species might be the quickest to rebound from extreme weather?
- Is fire a problem in this area? What is a good way to protect the field from fire? Should you make a fire break? Where? How?
- Should the Forest Garden be divided sections for rotating crops? Where will you plant lines of vegetation to segment the field?

Questions for the family

- What trees would provide more **food** for the family?
- Which foods and other tree products could be **harvested in the lean season**?
- Does the family need **wood for cooking**? Where do they get it? What would make it easier? Which trees give fuelwood? Where could they be grown?
- Does the family need to **feed animals**? Where do they get the fodder? What are the challenges/issues with this (e.g. cost, land degradation, time, etc.)? Which trees are good for animal forage? Where will they be grown?
- What products will be the easiest for the **family to sell on their own**?
- Which set of products is the **farmer group** dedicated to growing and selling?
- How can trees diversify the **timing** of when the family generates income?
- What products will make the most money in the **short term**?
- What will make the most money in the **long term**?
- How can the Forest Garden minimize the **burden of women** in the family? How can the Forest Garden **increase income** specifically for women in the family?
- How can the Forest Garden provide young men or women in the family (youth) with **learning or business opportunities**?

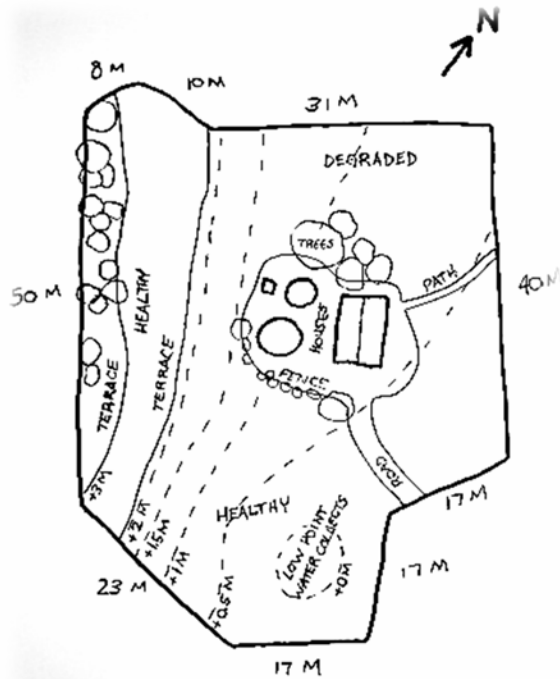
Reviewing the Forest Garden Design

- Is the number of the trees appropriate for the space? Are there too many trees? Not enough trees? Who else in the family need to contribute to the design?
- Is the spacing correct for the type of tree? Are they too close? Too far apart?
- Are the trees placed correctly based on the movement of the sun?

Examples of Forest Garden Mapping and Design



Forest Garden Map Examples



Design Your Own Forest Garden



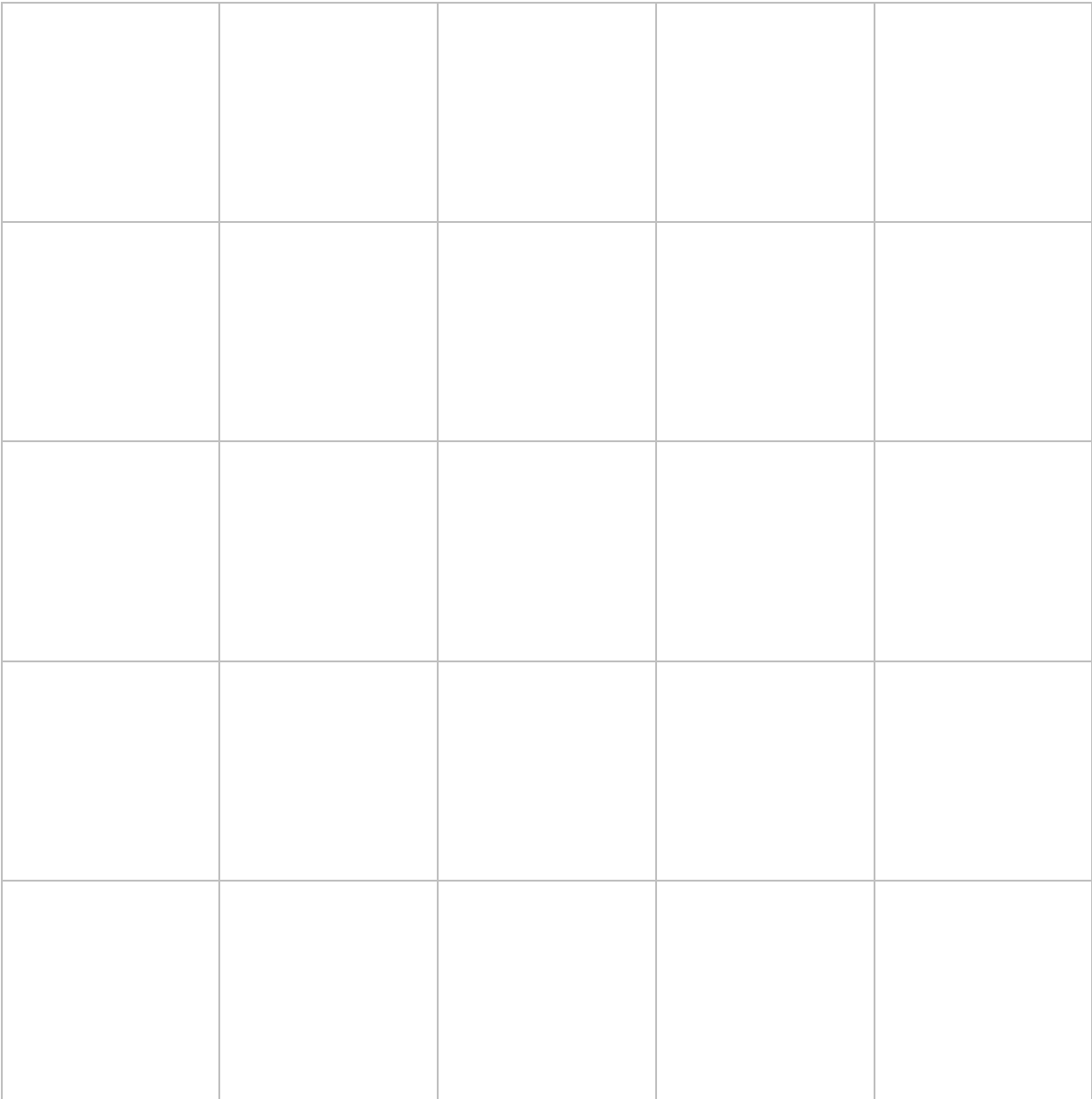
Design Your Own Forest Garden



Design Your Own Forest Garden



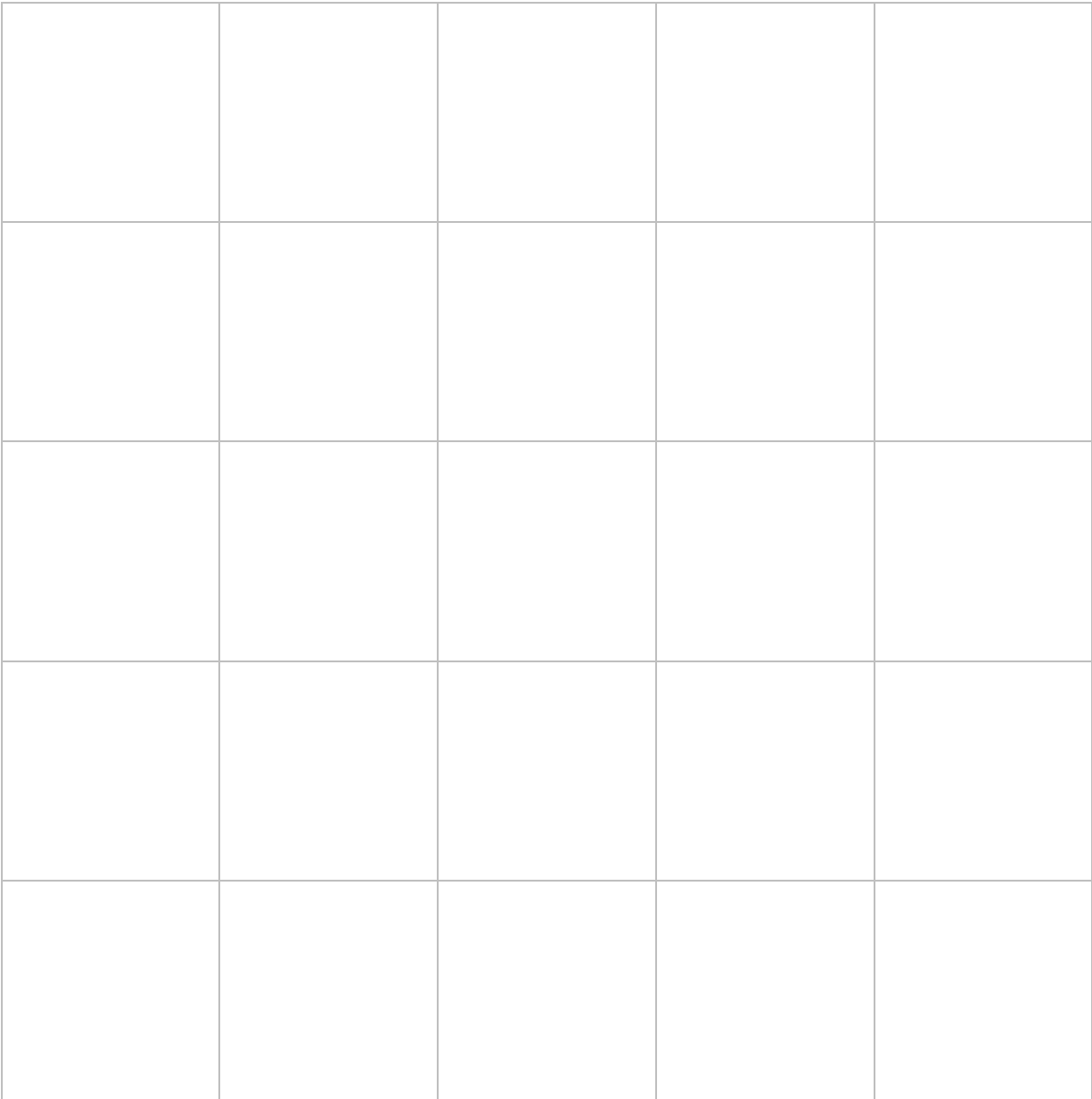
This grid represents 1 hectare.
Each block represents 20 meters.



Design Your Own Forest Garden



This grid represents 1 hectare.
Each block represents 20 meters.



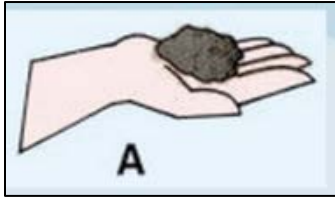
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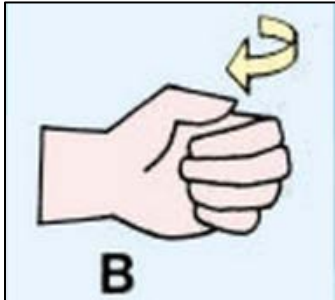
Module 2: Growing Agroforestry Seedlings



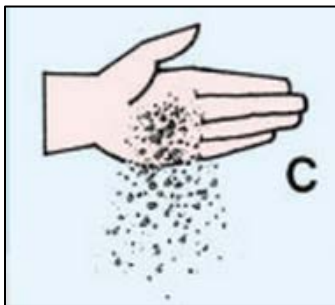
What kind of soil do you have?



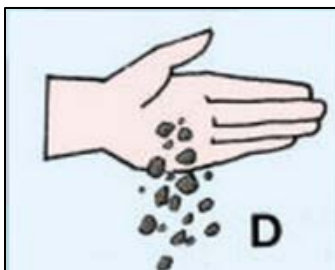
A Hold a moist ball of soil in your hand



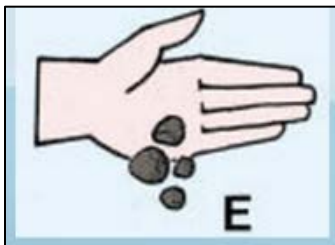
B Close your hand to crush the soil



C Release the soil from your hand, if the particles are small it is more **sand**



D If the particles are medium it is more **loam**

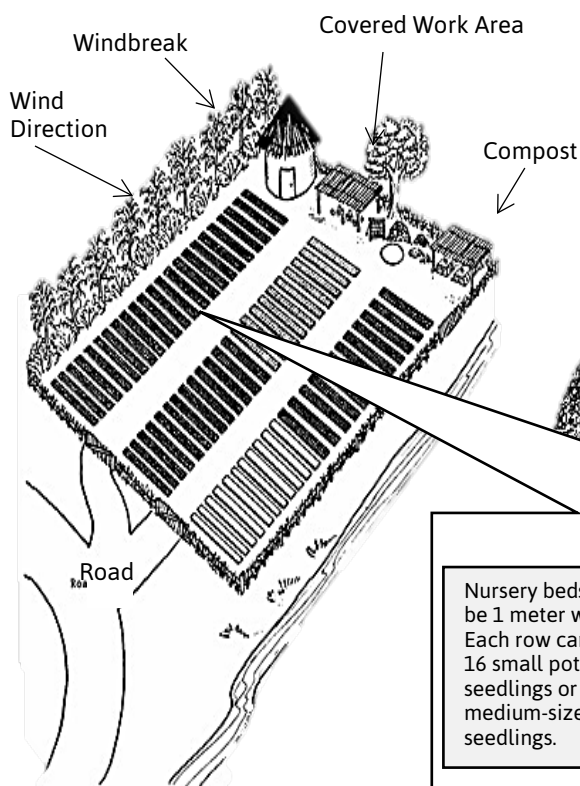


E If the particles are large it is more **clay** which is the type of dirt used for construction



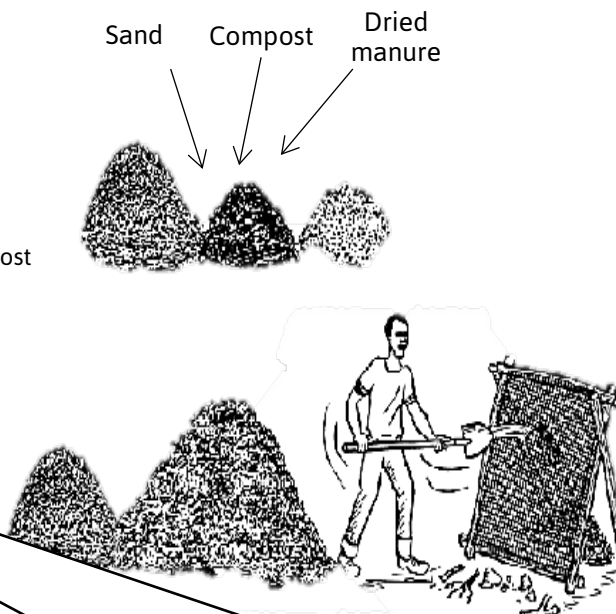
Nursery Construction

Layout of a Tree Nursery



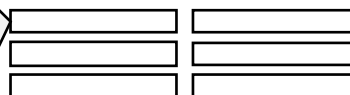
A Good Soil Recipe for Pots

Sand Compost Dried manure



Nursery Bed Dimensions

Nursery beds should be 1 meter wide. Each row can contain 16 small potted seedlings or 12 medium-sized potted seedlings.

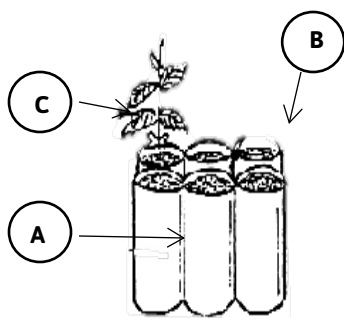


← 10 m → ← 10 m →

Nursery beds can be 10 meters long.

Leave 60 cm wide paths among the nursery beds

Potted Tree Seedlings



- Pots are filled 1 cm from the top.
- Pots are placed in straight rows leaving space for drainage.
- Seeds are placed in the center of the pots.



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

Pictures of tree nurseries.



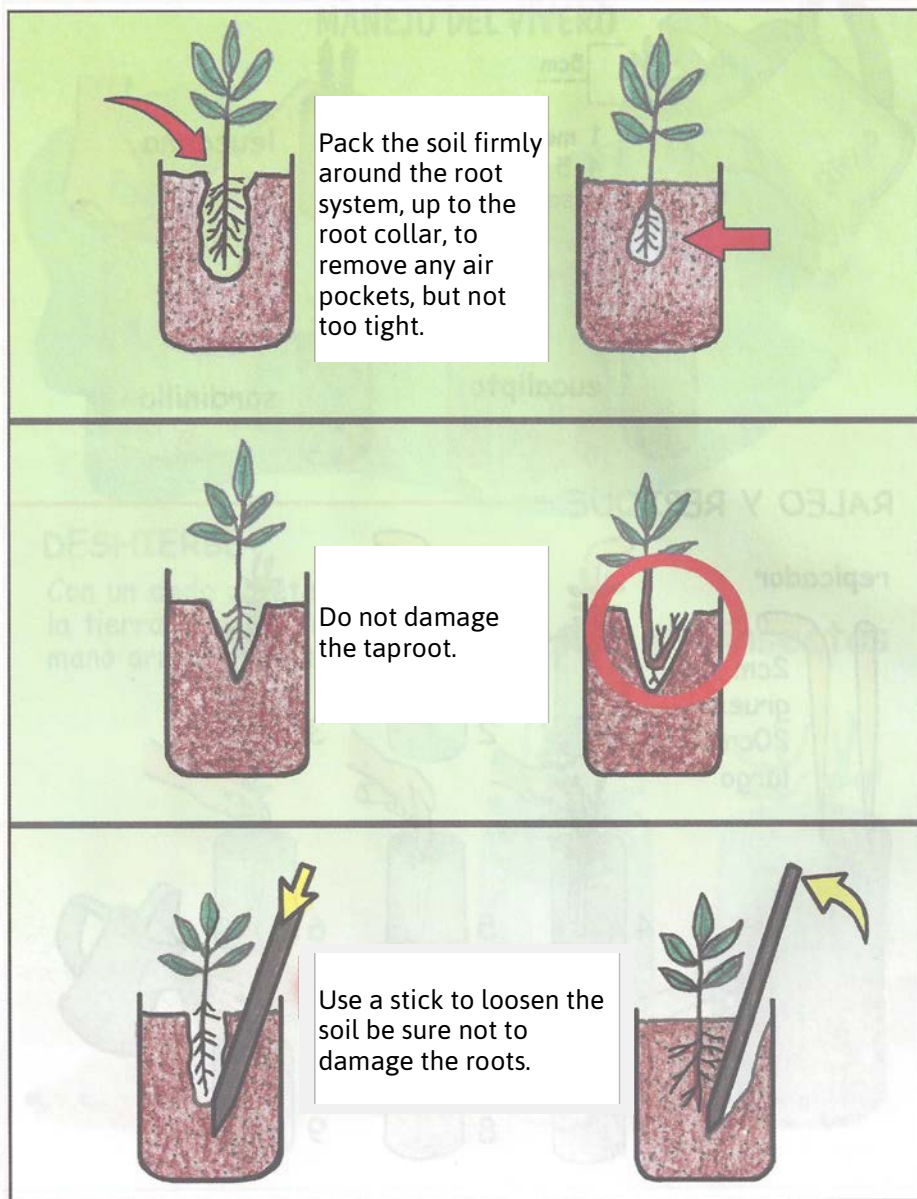
Potted seedlings



Direct seed and bare root beds



Transplanting Basics



Nursery Tree Species Chart



SPECIES	SEED PREPARATION	NURSERY PERIOD	DAYS TO GERMINATE	# PER POT	USES
<i>Acacia albida</i>	scarify	10-14 wks	6 - 30 days	2	fodder, intercropping
<i>Acacia ataxacantha</i>	soaked in hot water	10-14 wks	3-15 days	2	live fence, fodder
<i>Acacia holoserica</i>	Boil water, remove from heat, then soak	10-14 wks	7 - 25 days	2	windbreak, border planting
<i>Acacia laeta</i>	scarify	10-14 wks	4 - 15 days	2	live fence, fodder
<i>Acacia mellifera</i>	scarify	8-10 wks	4 - 15 days	2	live fence, fodder
<i>Acacia nilotica</i>	scarify	14-18 wks	5 - 18 days	2	live fence, fodder, fuelwood
<i>Acacia polycantha</i>	Boil water, remove from heat, then soak	10-14 wks	10 - 21 days	2	live fence, fodder, fuelwood
<i>Acacia senegal</i>	scarify	14-18 wks	7 - 21 days	2	live fence, intercropping
<i>Acacia seyal</i>	Boil water, remove from heat, then soak	8-10 wks	5 - 20 days	2	fuelwood, fodder
<i>Acacia sieberiana</i>	Boil water, remove from heat, then soak	10-14 wks	5 - 20 days	2	fuelwood, windbreak
<i>Acacia tortillis</i>	Boil water, remove from heat, then soak	14-18 wks	5 - 15 days	2	fodder, fuelwood
<i>Adansonia digitata</i>	Boil water, remove from heat, then soak	12-16 wks	14 - 28 days	2	fodder, fruit
<i>Albizia lebbek</i>	Boil water, remove from heat, then soak	15-18 wks	3 - 14 days	2	fuelwood, windbreak
<i>Anacardium occidentale</i>	24 hr cold soak	6-8 wks	12 - 30 days	1	fruit, windbreak
<i>Annona spp.</i>	scarify	12 wks	21 - 45 days	2	shade, windbreak
<i>Azadirachta indica</i>	none	6-8 mos	7 - 21 days	2	fruit
<i>Balanites aegyptiaca</i>	24 hr cold soak	18-24 wks	7 - 15 days	2	fruit, live fence
<i>Bauhinia rufescens</i>	Boil water, remove from heat, then soak	20-24 wks	17 - 42 days	2	live fence, windbreak,
<i>Borassus aethiopium</i>	none	direct seed	20 - 40 days	fruit	fruit, border planting, timber
<i>Bougainvillea spectabilis</i>	soak cutting 24 hrs	Many mos	cuttings	1	live fence, ornamental
<i>Cajanus cajan</i>	none	10-14 wks	5 - 10 days	2	fodder, intercropping
<i>Carica papaya</i>	24 hr cold soak	6-8 wks	15 - 21 days	2	fruit
<i>Cassia siamea</i>	scarify	10-12 wks	15 - 20 days	2	windbreak, shade,
<i>Cassia sieberiana</i>	Boil water, remove from heat, then soak	10-14 wks	7 - 20 days	2	ornamental, timber
<i>Casuarina equisetifolia</i>	none but ants attack	25 cm tall	5 - 22 days	bareroot	windbreak, fuelwood
<i>Citrus spp.</i>	none	4 mos +	15 - 30 days	2	fruit

<i>Cola cordifolia</i>	none	many mos	21 - 35 days	2	fruit
<i>Daniella oliveri</i>	Boil water, remove from heat, then soak	6-8 wks	10 - 26 days		fodder, fuelwood
<i>Delonix regia</i>	scarify	12-18 wks	12 - 20 days	2	ornamental
<i>Detarium senegalense</i>	scarify	20-24 wks	8 - 15 days	1	fruit, ornamental
<i>Dialium guinese</i>	Boil water, remove from heat, then soak	1 yr	15 - 24 days	1	fruit, timber
<i>Eucalyptus camuldulensis</i>	none	18-24 wks	4 - 15 days		windbreak, timber
<i>Euphorbia balsimifera</i>	cuttings	N/A	7 - 81 days	1	live fence
<i>Gliricidia sepium</i>	none	8-12 wks	9 - 15 days	2	live fence, fuelwood
<i>Gmelina arborae</i>	24 hr soak	12-14 wks	7 - 30 days	2	ornamental, timber
<i>Jatropha curcas</i>	none (plant white tip down)	10-12 wks	7 - 14 days	2	live fence, border planting
<i>Khaya senegalensis</i>	none	12 - 24 mo	7 - 18 days	2	shade, ornament, timber
<i>Leucaena leucocephala</i>	Boil water, remove from heat, then soak	12-16 wks	7 - 21 days	2	intercropping, fence, windbreak
<i>Manguifera indica</i>	remove hull	4-6 wks	7 - 21 days	1	fruit
<i>Moringa oleifera</i>	none	10-12 wks	5 - 12 days	2	food
<i>Parkia biglobosa</i>	Boil water, remove from heat, then soak	10-14 wks	7 - 15 days	2	fruit
<i>Parkinsonia aculeata</i>	Boil water, remove from heat, then soak	8-10 wks	2 - 10 days	2	windbreak, live fence, ornament
<i>Prosopis juliflora</i>	Boil water, remove from heat, then soak	12-14 wks	5 - 10 days	2	windbreak, livefence,
<i>Psidium guajava</i>	24 hr soak	7-8 mos	7 - 16 days	2	fruit
<i>Sesbania bispinosa</i>	soak 24 hrs	8-10 wks	5 - 10 days	2	fodder
<i>Sesbania sesban</i>	soak 24 hrs	10-14 wks	3 - 7 days	2	fodder, fuelwood
<i>Tamarindus indica</i>	Boil water, remove from heat, then soak	20-24 hrs	7 - 10 days	2	ornamental, fruit
<i>Ziziphus mauritiana</i>	crack, remove, soak stone	12-18 wks	7 - 45 days	2	live fence, fruit

Resource: Seed Collection and Observation Chart



State:	Zone:	Community:				
Observation Date	Growth Cycle State & Notes at Time of Observation (e.g. dormant, leafing, flowering, fruiting, seeding, etc.)	Tree Species				

Notes



Module 3: Outplanting Agroforestry Seedlings



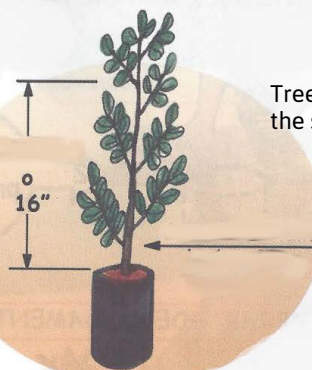
Outplanting from a Nursery



Water nurseries with 5 liters of water per square meter of seedlings. Water early or late in the day to avoid the hottest times. It is not necessary to water if it has rained or if the soil is very wet.



If roots extend more than twice the depth of sacks, prune roots equal to the depth of your planting pits.



Trees need to be tall enough to survive the shock of outplanting.



Transport the seedling bundles to the planting site carefully and place them in shade if possible. Plant within 2 to 3 hours.

How to Make an A-Frame



Making the A-frame

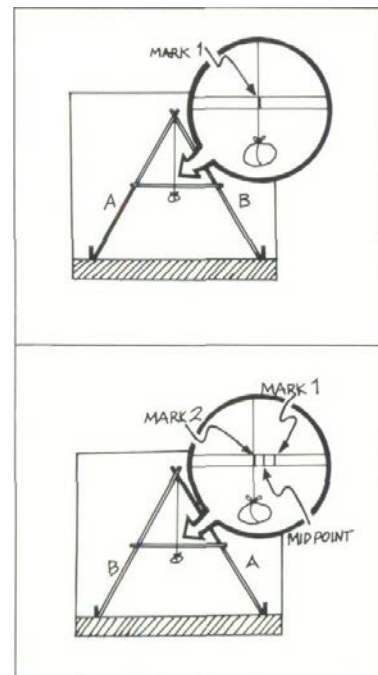
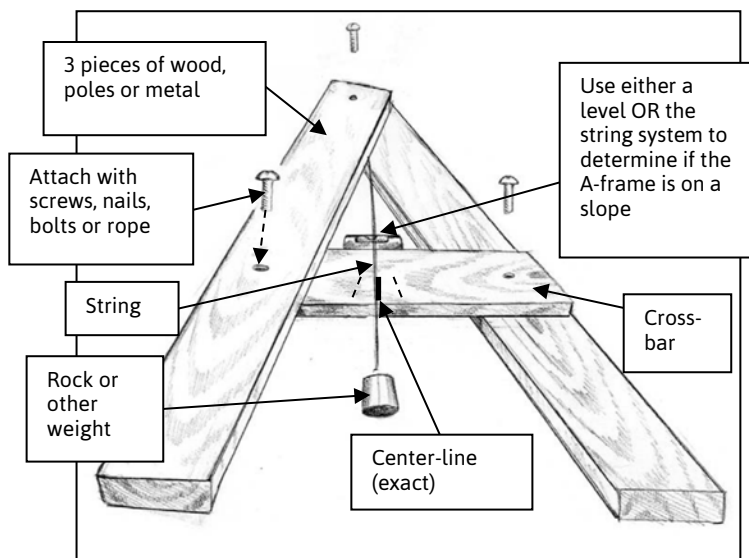
Join the three poles securely together, with the two longer poles bound together on one end with a nail or string, and the shorter pole bound across the two to form an 'A'. Tie a piece of string to the top of the A-frame, then tie the rock to the other end of the string. The rock must be heavy enough that it will not be blown by the wind. The rock should hang down about 15 to 20 cm below the crossbar.

Calibrating the A-frame

To find the center 'level' line on the A-frame crossbar, place the A-frame on nearly level ground. Mark the spots where the legs (A and B) touch the ground. Mark the crossbar where the weighted string passes it ("mark 1").

Turn the A-frame so that leg A is exactly where leg B was, and leg B is exactly where leg A was. Mark the crossbar where the string falls now ("mark 2"). If the two marks are the same, they are the midpoint. If they are different, the midpoint is halfway between them.

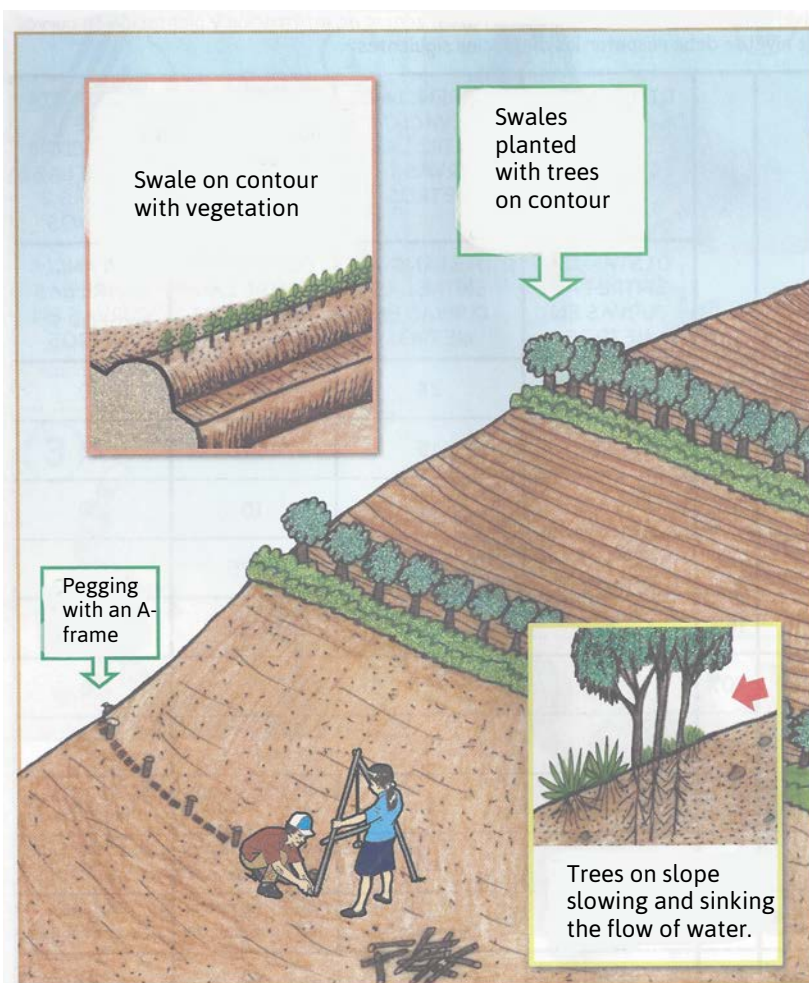
Check the midpoint by moving one leg until the string hangs at the midpoint. Mark the positions of legs A and B with stakes in the ground. Reverse legs A and B. If the string hangs at the midpoint again, the A-frame is level and the midpoint is accurate. Mark the midpoint clearly on the A-frame.



How to Use an A-Frame



1. Note: Pegging with an A-frame requires at least two people.
2. Go to the centre of the field and mark it with a peg. Place one leg of the A frame right next to the peg.
3. Hold this leg in place while slightly moving the other leg up and down the slope until the spirit level is dead centre. Mark this point on the ground with a second peg.
4. Pivot the first leg around while holding the other leg at the second peg. Move the first leg slightly up and down the slope until the spirit level is again dead centre. Again, mark this point on the ground with a third peg.
5. Continue like this until reaching the field boundary.
6. Return to the centre of the field where the very first peg was placed and move in the opposite direction to the other end of the field following steps 2-3.
7. Run lines from the first centre peg to all pegs on both sides of the field.



Digging and Planting



Try to stand the seedlings upright and keep the soil moist when transporting them to the planting site.



Do NOT dig holes for a living fence too close to the wooden fence (left). Leave one (1) meter of space between the dead fence and the planting holes (right).

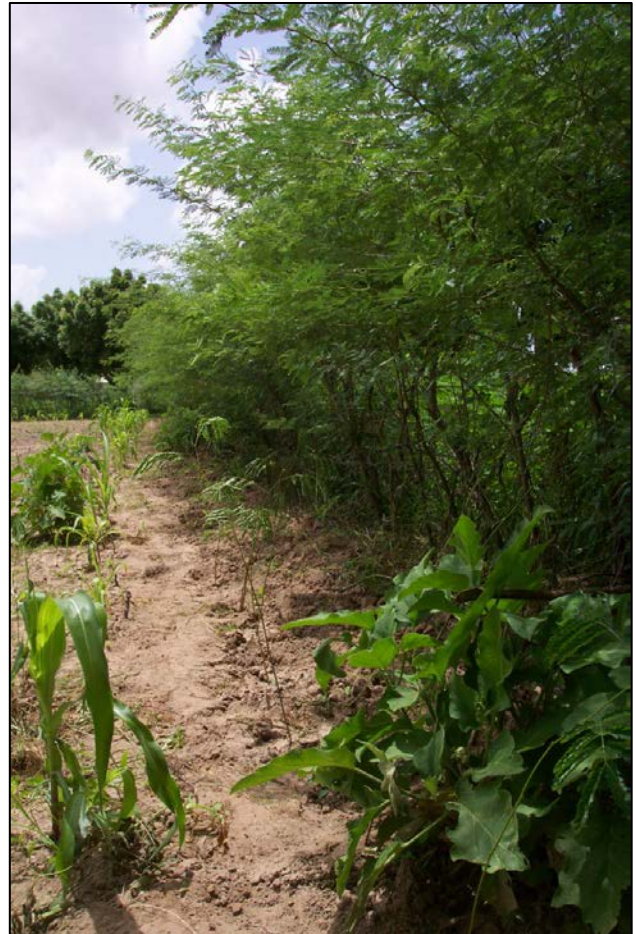


Adjust the hole size so the seedling is at the same level as the ground. Use a razor blade to remove the plastic without damaging the roots.



Pat the soil down around the base the seedling to remove any pockets of air in the soil around the roots.

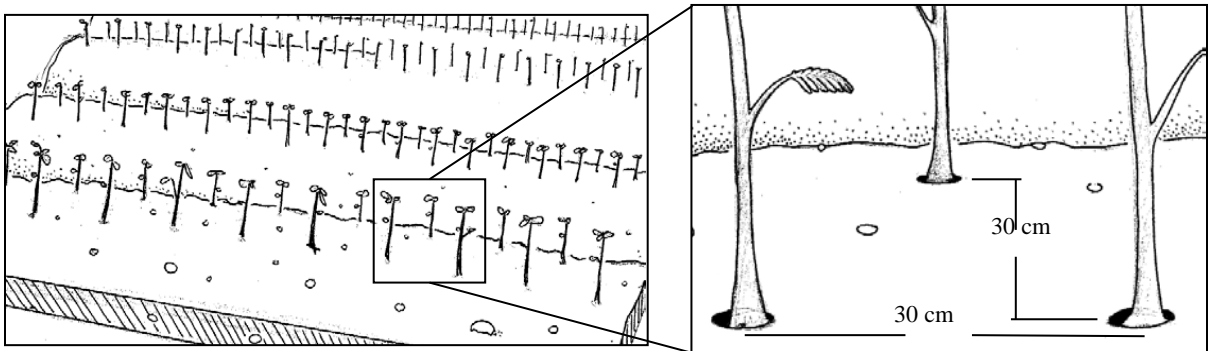
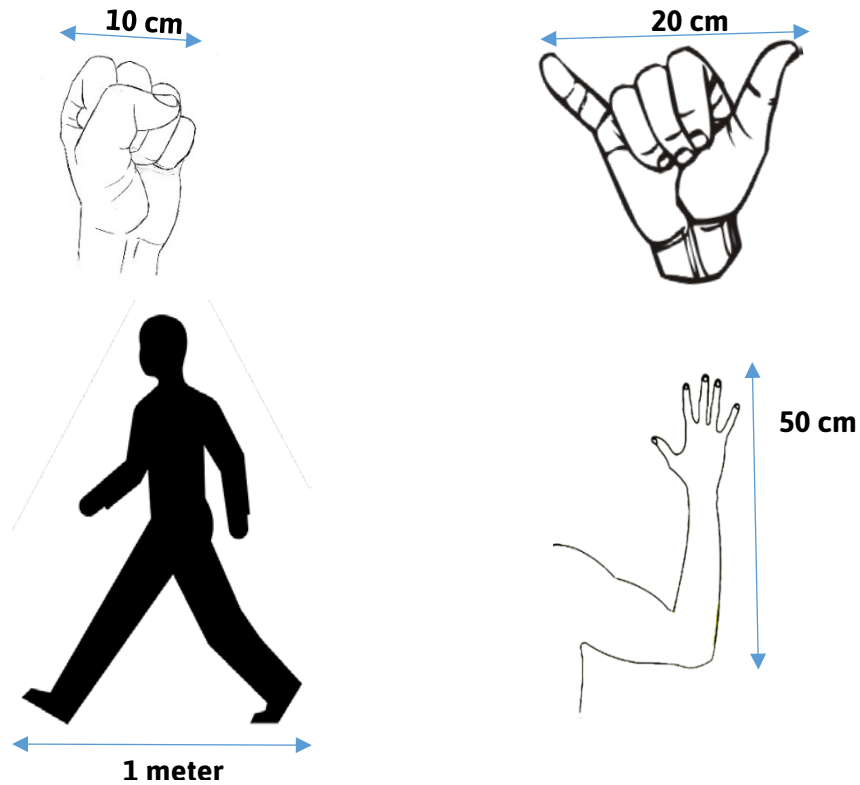
On the right you see a newly planted row of Leucaena trees planted inside the protection of a thorny living fence.



Measuring Spacing



Convenient spacing tools when you don't have a tape measure



This staggered spacing pattern is commonly used for living fences, alley cropping, and contour plantings.

Alley cropping and Contour rows





Seedling Care Checklist



Protection from Fire

- Does the field have a fire break?
- Has the farmer weeded around newly planted trees?
- Does the farmer start fires on the farm for:
 - Smoking tobacco?
 - Cooking? Distilling?
 - Honey?
 - Clearing areas of the field?

Protection from Pests

- Can the farmer identify common pests?
- Are any pests visible on the trees?
- Do trees have physical protections (thorny branches, sacks, sticks, etc.)?
- Are seedlings planted a far enough distance from the dead fence?

Protection from People

- Is the farmer sharing use of the field?
- If yes, has the farmer explained the importance of the new seedlings and where they are planted in the field?
- Has the farmer started pruning the green wall trees?

Protection from Wind and Water

- Did the farmer mulch around the trees?
- Did the farmer use earthworks to preserve water?
- Is the field exposed to fierce winds?
- Remind the farmer about best practices for watering seedlings

Notes



Module 4: Permagardening for the Family



Design Your Permagarden



Draw your vegetable garden

What to think about when designing your garden:

- **Location** – Does the site have easy access? Is it near the home so that family members can easily check on and work in it regularly and so that the products can be easily harvested for meals each day?
- **Sun** – Garden vegetables need lots of sun. Is there an open area that receives direct sunlight for a good part of the day? During a heavy rain, how will water flow through the garden? How can you reduce erosion?
- **Slope** – Is the garden area flat? Or does it slope?
- **Water** – Where will the family get water for the garden? Can rainwater be captured or guided underneath the garden beds from the roof of the home or nearby slopes?
- **Soil** – Vegetables need healthy soil to grow. Is the soil fertile? Is there any bedrock near the surface of the soil? How can you improve the soil?
- **Protection** – Is the area protected from wind, intruding animals and children?
- **Space** – Is there enough space to move around the garden? Where will the compost piles be located?
- **Sectioning** – Should you divide the garden into sections? Should you plant anything to separate the sections?
- **Guilds** – Which plants, trees, and crops help each other grow well together?



Eat more red, orange, green and white vegetables



Red



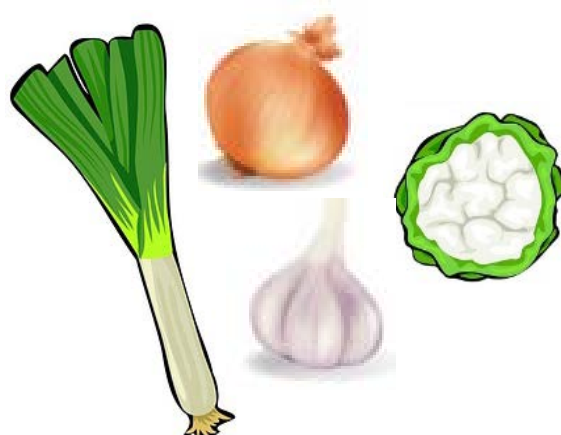
Orange



Green



White



Garden Design and Triangular Spacing



Figure A. Vegetables planted using traditional row spacing

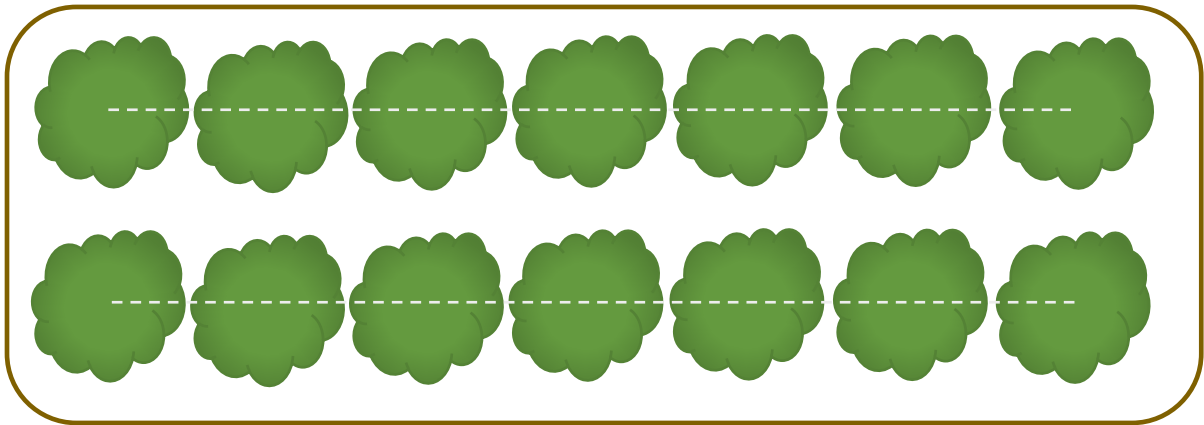


Figure B. Triangular seedling spacing in garden bed

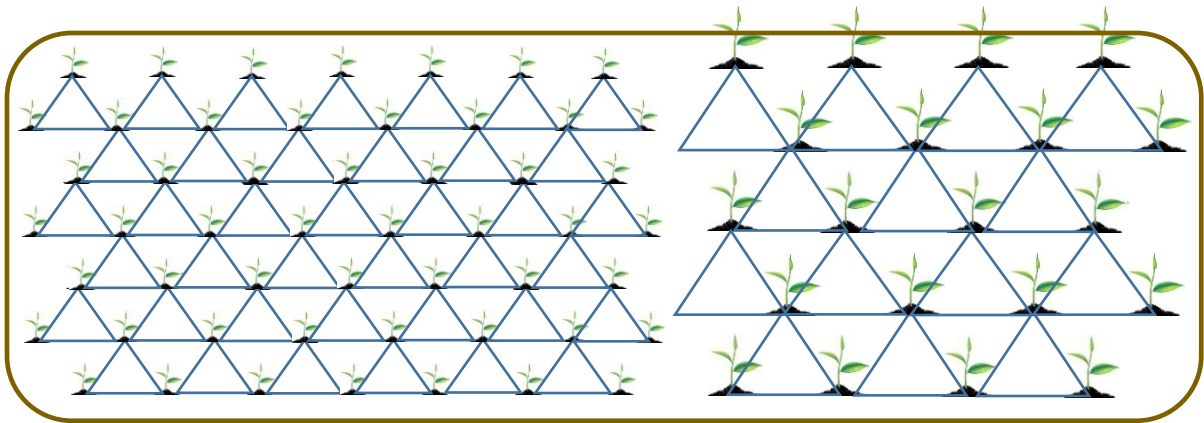
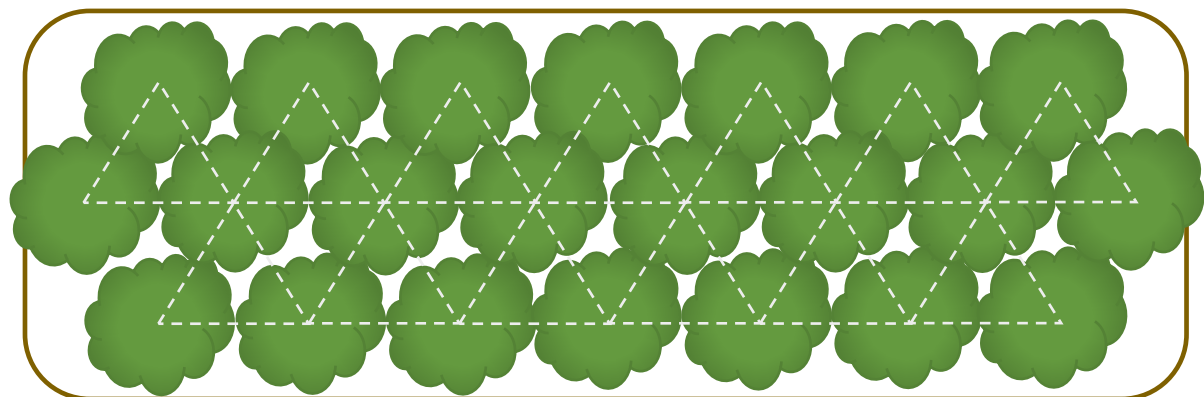


Figure C. Vegetables or fruit trees planted using triangular spacing



List of Companion & Antagonist Crops



Crop	Companions	Antagonists	Remarks
Spinach	Beans, Lettuce, Peas, Strawberries	Potato	Beans and Peas provide shade for spinach
Leaf Lettuce	Mint, Beans, Beets, Carrots, Maize, Marigold, Onions, Peas, Radish, Strawberries	Parsley	Mint repels slugs, which feed on lettuce
Kale, Swiss Chard, Collard	Beets, Carrots, Marigold, Radish, Turnips	-	
Tomato	Beans, Basil, Carrots, Spinach, Broccoli, Cauliflower, Celery, Marigold, Peppers, Melons	Cabbage, Kale, Maize, Peas, Potatoes, Rosemary, Broccoli, Cauliflower, Dill	Growing basil 25 cm from tomatoes increases tomato yields. Marigolds repel hornworms and nematodes.
Eggplant	Beans, Peppers, Potato		
Carrot	Beans, Garlic, Lettuce, Onion, Parsley, Peas, Rosemary, Dill, Tomato	Dill, Parsnip	
Radish	Cabbage, Maize, Cucumber, Eggplant, Lettuce		Radish can be used as a trap crop against some beetles and aphids
Turnip	Peas		
Onion, Leek, Garlic	Beets, Cabbage, Carrots, Lettuce, Rosemary, Strawberry, Tomato, and each other	Beans, Peas	Repels aphids, carrot fly, and other pests
Celery	Bush beans, Cabbage, Dill, Leeks, Tomatoes	Potato, Parsnip	
Beets	Broccoli, Cabbage, Cauliflower, Collards, Garlic, Onion, Lettuce, Sage	Pole and Runner Beans	Beans and beets compete with each other. Beet leaves add magnesium when composted.
Cabbage	Beets, Bush beans, Celery, Mint, Onion, Potato, Oregano, Rosemary, Dill, Sage	Pole and Runner beans, Peppers, Strawberry, Tomato	Celery, onion and herbs keep pests away. Rosemary repels cabbage fly.
Broccoli, Cauliflower	Basil, Bush beans, Cucumber, Garlic, Lettuce, Marigold, Mint, Onion, Potato, Radish, Rosemary, Dill, Sage, Thyme	Mustard, Oregano, Strawberry, Tomato	Rosemary repels cabbage fly. Dill attracts wasps for pest control
Sweet Pepper, Hot Pepper	Basil, Onions, Spinach, Tomato	Beans, Cabbage, Kale	
Squash, Zucchini, Watermelon	Flowering plants (for pollination)	Sweet Potato	
Peas	Beans, Cabbage, Carrots, Celery, Corn, Cucumber, Lettuce, Potato, Sage	Onions, Leeks, Garlic	

Beans	Beets, Cabbage, Cauliflower, Kale, Cucumber, Celery, Swiss chard, Spinach, Maize, Eggplant, Peas, Potatoes	Onion, Leeks, Garlic, Peppers	Maize is a natural trellis and/or shelter beans and beans provide nitrogen for the maize.
Groundnut	Beets, Cabbage, Carrots, Celery, Maize, Cucumber, Eggplant, Lettuce, Marigold, Pea, Potato, Radish, Rosemary, Strawberry	Basil, Onion	
Pumpkin	Beans, Maize, Radish	Potato	Maize, Beans and Pumpkin are an age-old companion group, called <i>The 3 Sisters</i>
African Yams	Beans, Oregano, Basil, Dill, Marigolds		
Cassava	Beans		
Irish Potato	Beans, Cabbage, Corn, Eggplant	Celery, Cucumber, Pumpkin, Rosemary, Strawberries, Tomato	Cucumber and tomato attract pests that can attack potatoes
Sweet Potato	Beets, Okra, Dill, Thyme	Squash, Zucchini, Watermelon	
Maize	Beans, Cucumbers, Peas, Potatoes, Pumpkin, Squash, Zucchini	Tomato	Tomato worm and corn earworm are attracted by both plants.

<http://www.vegetablegardeninglife.com/companion-planting-charts.html#sthash.hf620aAn.dpuf>



COMPANION PLANTING

IN NATURAL ECOSYSTEMS, PLANTS PERFORM FUNCTIONS THAT CAN EITHER HELP OR PREVENT OTHER PLANTS TO GROW. THE SAME IS TRUE IN OUR GARDENS. CERTAIN PLANTS GIVE NUTRIENTS BACK TO THE SOIL, WHILE OTHERS NEED TO TAKE UP NUTRIENTS. PLANT AROMAS AND FLOWERS CAN ATTRACT POLLINATORS OR DETER PESTS. BELOW IS A CHART TO HELP YOU UNDERSTAND WHICH PLANTS GROW WELL TOGETHER AND WHICH TO PLANT FAR APART!

PLANT	GOOD COMPANIONS	BAD COMPANIONS
BEANS	MAIZE, SUNFLOWERS, LAVENDER, CABBAGE, CUCUMBER, STRAWBERRIES, BRINJAL	ONION, GARLIC, FENNEL
BEETROOT	BEANS, ONIONS, GARLIC, LETTUCE, CABBAGE	
BRINJAL	CALENDULA, MARIGOLDS, MINT, PEAS	
BROCCOLI, CABBAGE, CAULIFLOWER, KALE	AROMATIC PLANTS, DILL, SAGE, ROSEMARY, POTATOES, BEETROOT, CELERY, GARLIC, ONIONS, GERANIUM	TOMATOES, POLE & RUNNER BEANS, PEPPERS
CARROTS	LETTUCE, CHIVES, LEEKS, ROSEMARY, SAGE, PEAS, WOODWIND	STRAWBERRIES, FENNEL, CABBAGE
LETTUCE	CARROTS, RADISH, STRAWBERRIES, CUCUMBER, BEANS	CELERY, PARSLEY
MAIZE	SUNFLOWERS, AMARANTH, BEANS, PEAS, & OTHER LEGUMES, PUMPKIN, SQUASH, CUCUMBER, MELONS, & OTHER CUCURBITS, PARSLEY	CABBAGE, TOMATO, CELERY
ONION/ GARLIC	CARROTS, BEETROOT, STRAWBERRIES, TOMATOES, LETTUCE, CABBAGE	PEAS, BEANS, PARSLEY, LEEKS
PEAS	LAVENDER, CARROT, TURNIP, RADISH, CUCUMBER, MAIZE, BEANS, GROWS WELL WITH MOST VEGETABLES & HERBS	ONION, GARLIC
PEPPERS	TOMATOES, GERANIUM, BASIL, CARROT, ONION	BEANS, KALE, CABBAGE FAMILY
POTATOES	CORIANDER, MARIGOLD, BEANS, MAIZE, CABBAGE FAMILY, BRINJAL	PUMPKIN, CUCUMBER, SQUASH, MELONS, SUNFLOWERS, TOMATOES
SPINACH	STRAWBERRIES, BROAD BEANS, PEAS	POTATOES, FENNEL, CABBAGE FAMILY
TOMATOES	BASIL, OREGANO/ PARSLEY, CHIVES, NASTURTIUM, ONIONS, CARROTS, CELERY, CALENDULA, GERANIUM, BORAGE	GENERAL PEST DETERRANT, PLANT THROUGHOUT GARDEN
CALENDULA	TOMATOES - REPELS TOMATO WORM!	COMPOST ACTIVATOR. USE LEAVES TO MAKE COMFREY TEA FERTILIZER!
COMFREY	FAST-GROWING NUTRIENT ACCUMULATOR. PLANT ALONG EDGES & USE LEAVES FOR MULCH	REPELS CABBAGE MOTH. PLANT ON BORDERS TO KEEP FLYING PESTS AWAY!
CHILE PEPPER	CABBAGE, MAIZE	USE MARIGOLD LEAVES TO MAKE AN ORGANIC GENERAL INSECTICIDE SPRAY!
MARIGOLD	PLANT FREELY THROUGHOUT THE GARDEN - REPELS SOIL NEMATODES, APHIDS, BEAN BEETLES & MANY MORE.	REPELS WHITE FLIES & SPIDER MITES
NASTURTIUM	TOMATOES - IMPROVES FLAVOR!	DETERS CABBAGE WORM
THYME	CABBAGE	DETERS CABBAGE MOTH, BEAN BEETLES & CARROT FLY!
ROSEMARY	CARROTS, CABBAGE, SAGE, BEANS	KEEPS ANIMALS OUT! ALSO REPELS WHITE FLY
WORMWOOD/ ARTEMESIA	AROUND GARDEN EDGES	PLANT NEAR AROMATIC HERBS TO ENHANCE ESSENTIAL OIL PRODUCTION
YARROW	PLANT FREELY THROUGHOUT THE GARDEN. REPELS SOIL NEMATODES, APHIDS, BEAN BEETLES, AND MANY MORE!	

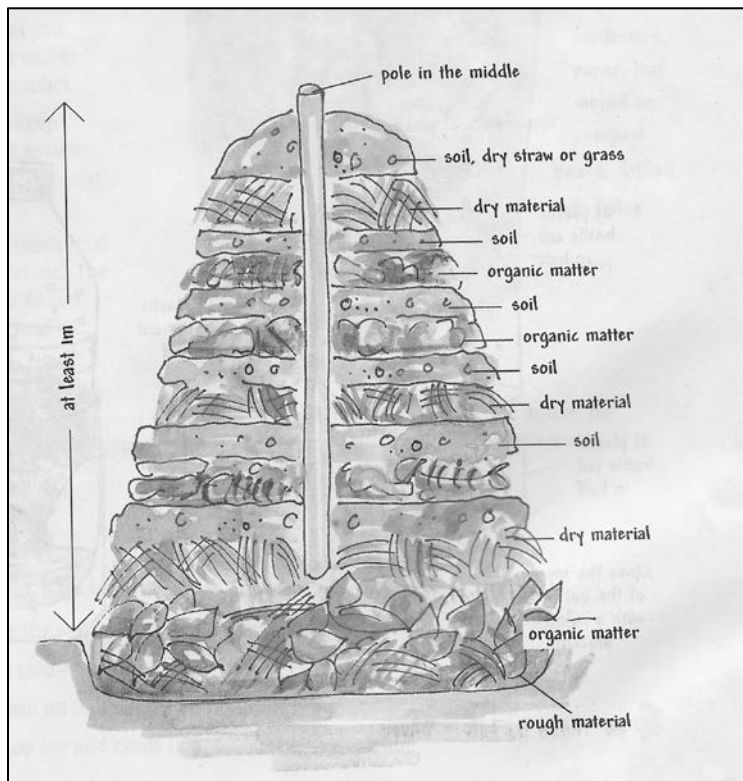
A DIVERSE GARDEN IS AN ABUNDANT GARDEN. HAPPY PLANTING!



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Making Compost



Finished compost piles in the shade. Healthy compost is dark, black, and moist



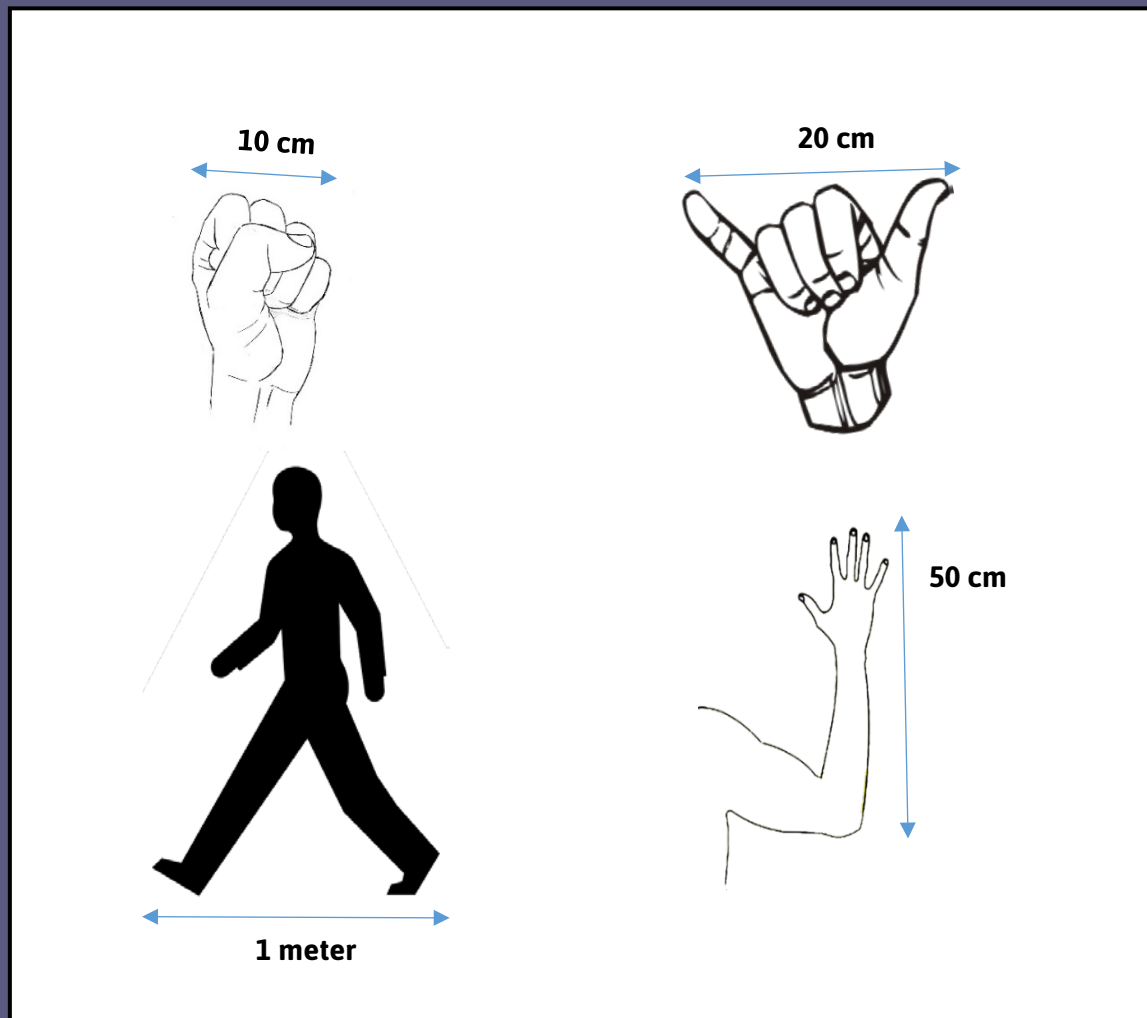
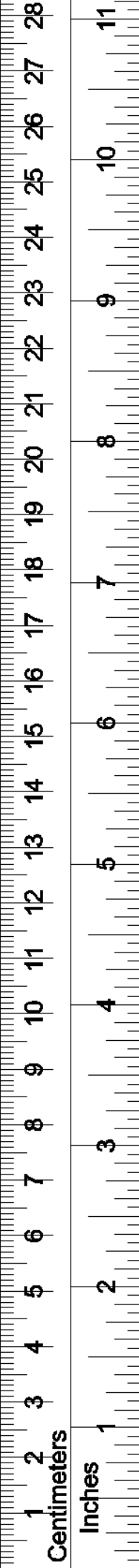
Design Your Permagarden



Notes

Notes

Notes



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TOPS
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