



# PLANT NURSERY



# 9. PLANT NURSERY

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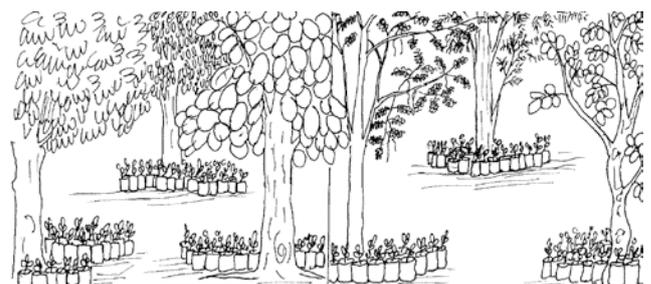
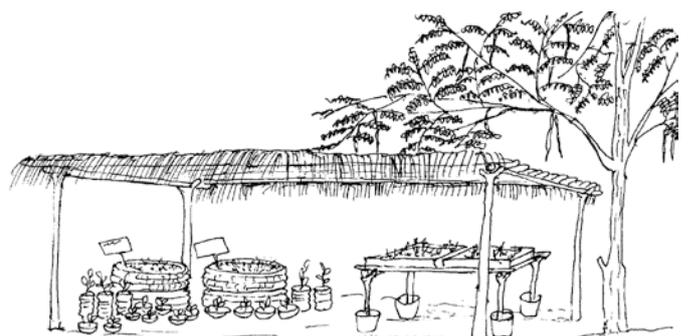
A plant nursery is an essential part of every farm and garden. It provides the best environment for plants when they are small and fragile. As children need special attention when they are young, so do plants. Healthy, strong seedlings grow into healthy, productive plants.

## PLANT NURSERY

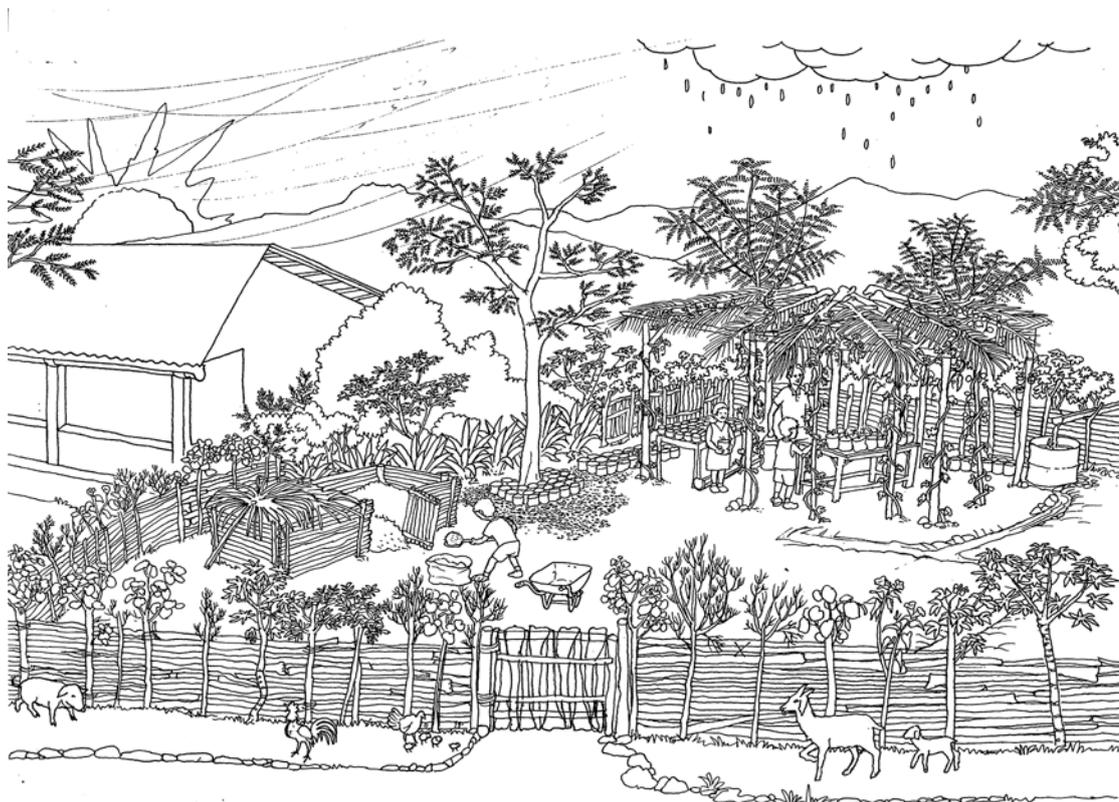
The early stages of a plant's life determine how well it will grow in the future. This is the same for all plants grown from seeds, cuttings, roots, and other methods of growing plants. A nursery can be as small or large as you need: e.g. it can be part of a garden bed with some coconut leaf cover or a large community nursery for growing reforestation and plantation trees. Small nurseries can be used to grow vegetable seedlings as well as plants, flowers, fruit trees, shade trees for animals and other trees.

### Important functions that nurseries provide:

- Easier planting, watering and maintaining seedlings because everything you need is in one place
- Shade from the hot sun
- Protection from heavy rains
- Protection from strong winds
- Protection from pests, such as rats, mice, goats, snails, and ants
- Water and fertiliser can be easily applied and checked
- Potting mix allows for fast and strong root growth, good drainage, and supplies enough nutrients
- Potting area including a table



In this section we explain all the steps necessary to create a good nursery.



## NURSERY LOCATION:

The nursery is the heart of the garden and requires daily attention. Locate it close to the house and/or close to the garden. A nursery requires water on most days, so it needs to be located close to a water supply.

Trees can be used to give shade to the nursery. However, too much shade will cause problems later on because the seedlings will be weak. Good shade trees for nurseries, such as sesbania, albizia, and eucalypts, will allow some sunlight through. Trees, such as mango and avocado, give too much shade.

The best situation will allow morning sunlight and provide shade during the middle of the day and mid afternoon when the sun is hottest. Some gentle wind is good for the plants, but exposure to strong winds will slow growth.

**Windbreak protection from strong winds will be needed. Trees can be used as long as they do not shade the nursery. Smaller trees, such as bananas, are great. Walls around the nursery made from vines, palm leaves or palm leaf stalks also help protect the small plants.**

**Small to medium trees around the nursery help to keep the air moist and create a good microclimate for growing healthy seedlings.**



No protection



Good protection

## NURSERY DESIGN AND CONSTRUCTION

Every nursery constructed will be different according to needs, land and constructions materials.

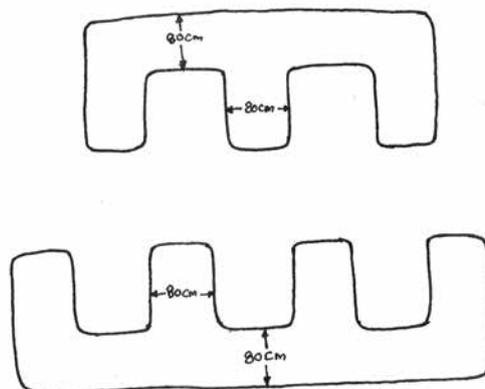
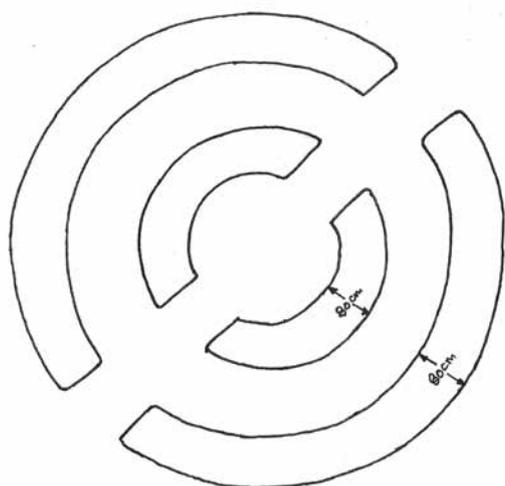
You can use the examples that we show or create your own design. Make the nursery as long lasting as possible. Nurseries should have areas with different amounts of sunlight: it is good to have three different areas.

**Area 1:** Small seedlings and delicate plants need good protection from the hot sun and from heavy rains.

**Area 2:** Larger seedlings need less protection and benefit from more sunlight.

**Area 3:** Have an area that allows full sun. This is for seedlings to “harden” before they are planted in the ground. To “harden” a plant is to prepare it for the conditions in which it will grow. Large tree seedlings need three to four weeks to harden, and vegetable seedlings need one week to harden before planting.

**Nursery shape:** The nursery design can be many different shapes. Choose the right shape to suit the land and your needs. Focus on the shape making the nursery work well with maintenance as easy as possible.



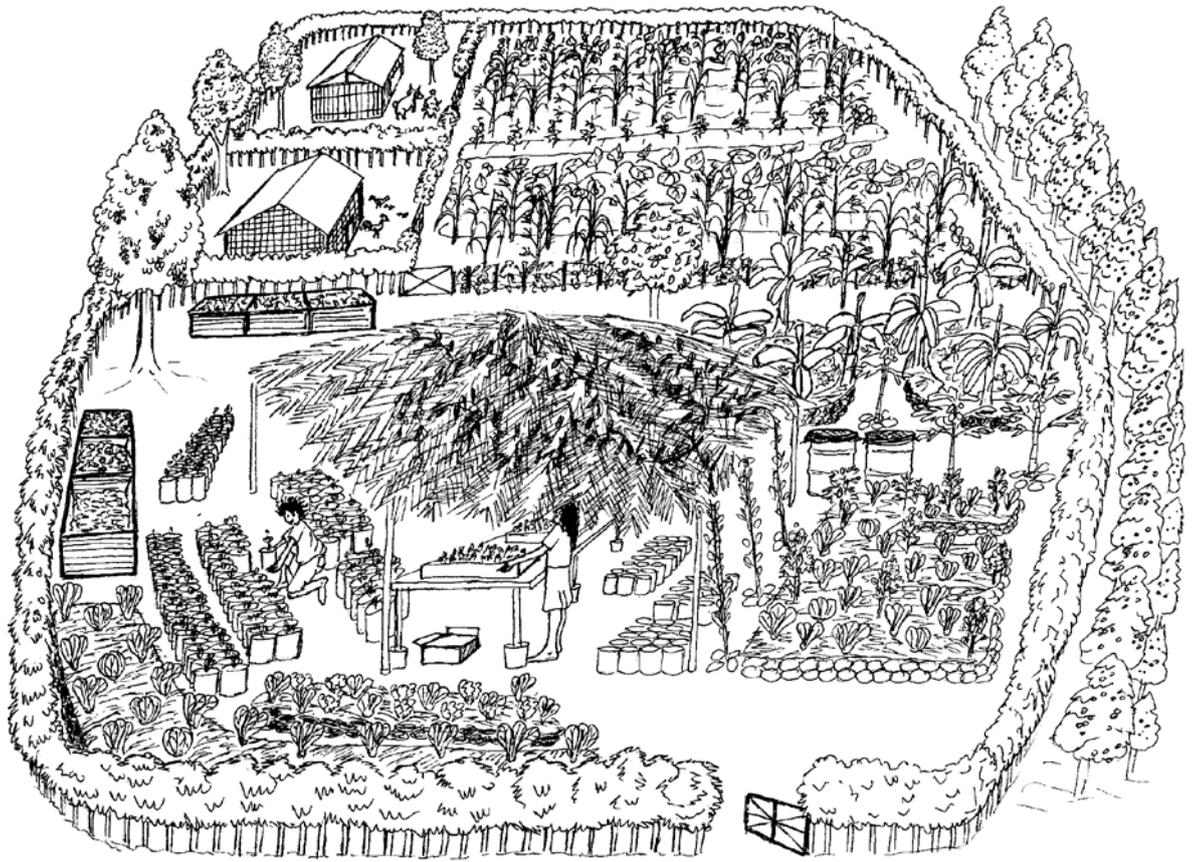
When designing and building a nursery, it is good to leave room for future nursery growth.

All nurseries need to provide protection from animals. Nursery tables that are waist high are easier to manage, provide animal and pest protection, and other benefits.

Larger nurseries are much easier to build and maintain if a group of people is involved. This could be family, neighbours, a community group, school or church. Everybody involved will benefit more from the work that they do and costs will be lower. Different people can choose to work in different areas in the nursery, or everything can be grown together and divided up when it is ready to plant, or a combination of both. Larger community and school nurseries are important for growing trees for reforestation work, and growing fruit trees and vegetables for family and school gardens.



Protect your plants from goats and other animals



Nursery with vegetable gardens, vines, animals, living fences, windbreaks and composts

## NURSERIES CAN ALSO BE MULTIFUNCTIONAL

- Grow vines, such as luffa, cucumbers, beans, and gourds, on the structure and the fences. They provide food as well as wind protection, and improve the nursery microclimate with increased humidity.
- The nursery can also be the liquid compost/compost-making area for the garden.
- It can be used for seed drying in the dry season.
- Move the excess water and nutrients from the nursery to vegetable gardens or to small fruit trees and vines. The edge around the nursery is a very productive area and should always be used.



## GOOD MATERIALS TO USE FOR CONSTRUCTION

Hard wood poles are good for the main frame because they are long lasting: e.g. eucalyptus, teak, ironwood, mahogany, coconut. Each region has its own hardwoods. Choose hardwoods that are common, not endangered and from plantations, not natural forest.

Bamboo can be used for poles, and are much more sustainable and easy to grow than hardwood. Some types of bamboo are borer resistant, but others will be eaten in one to two years. Correctly chosen, harvested and treated, bamboo will last for many years. Read Bamboo (CH 13) for details.

### Roofing materials can be:

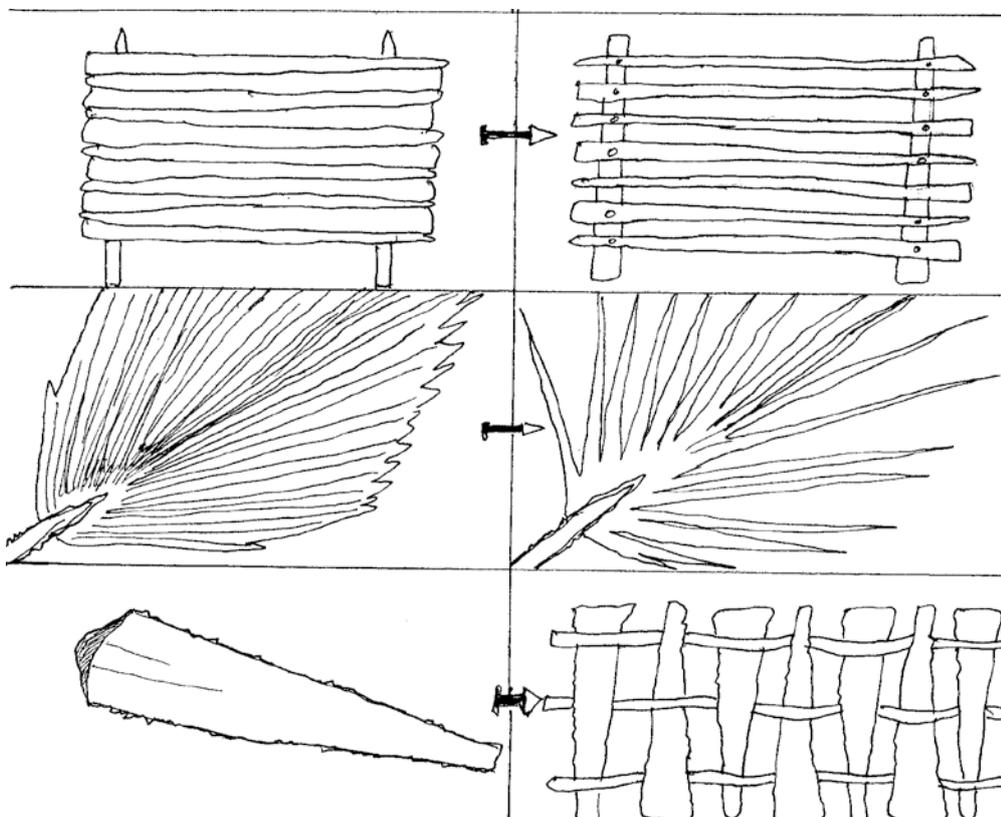
- A. Panels of split palm leaf stalks
- B. Split bamboo
- C. Coconut leaves
- D. Grasses tied up in bundles. Make a thin cover so that some sun can come through.
- E. Split palm leaves
- F. Cane grass

### Fence/wall/frame materials can be:

- A. Living fence e.g. gliricidia, leuceana, moringa
- B. Bamboo, split bamboo or wooden poles
- C. Palm leaf stakes
- D. Panels of palm leaf stalks
- E. Cane grass
- F. Whatever else you can find that will keep animals out!

### SMART IDEA:

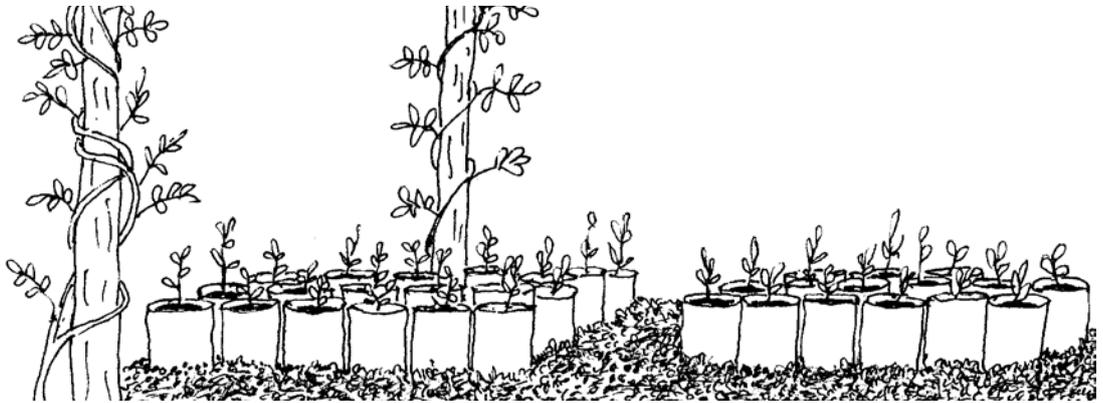
Plant hardwood trees for the future: plant more that you will use. They are valuable and can provide income.



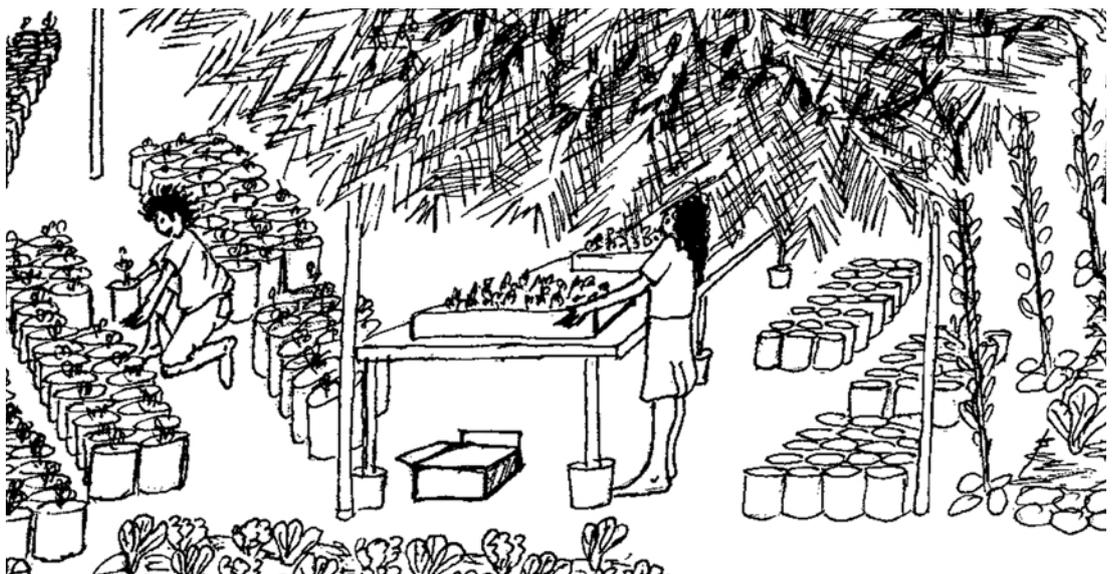
## NURSERY TABLES AND WORKBENCHES

There are many benefits to having the seeds and seedlings raised off the ground:

- All the nursery work of preparing, planting and maintenance is much easier.
- Your back will be much less sore! Remember – think smart!
- It is easier to observe the seedlings' health and pest damage.
- Prevent pests like snails, slugs and ants.
- Prevent roots growing out of the pot and into the ground. This creates big problems later on.
- Prevent weeds in the ground becoming a problem.
- Pots, potting mix, tools and other equipment can be stored underneath.
- In mountain areas, seedlings grow better and do not get damaged by frosts and cold air if they are raised off the ground. Waist height is best. At night the air temperature is coldest on the ground and less cold at waist height. Other plants and trees nearby also reduce cold temperature problems. A thick cover (10-15cm) of rice or coffee husks on the ground also helps. However, a layer of rice or coffee husks could promote fungus problems in hot areas.



Coffee husks covering the ground

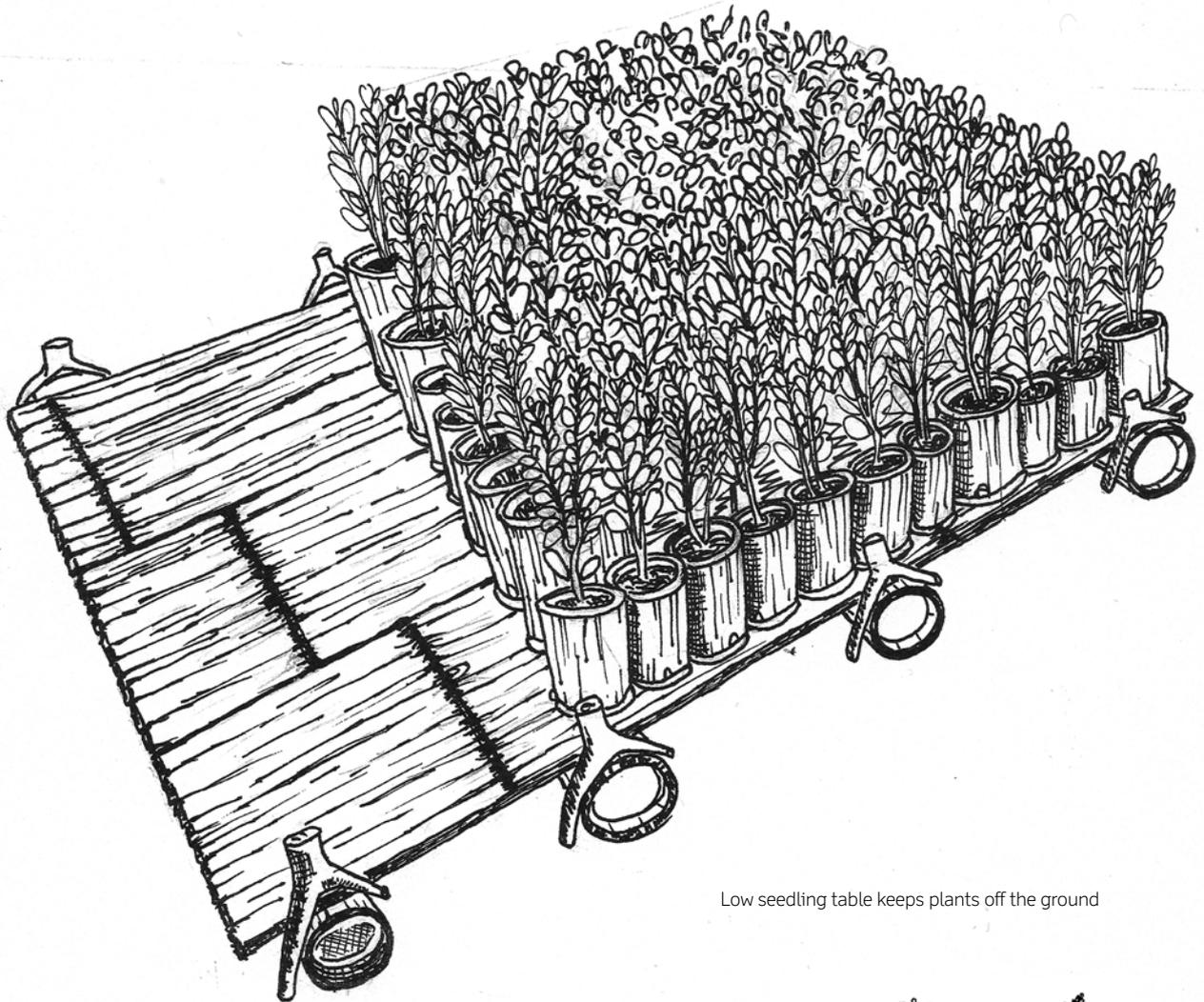


Nursery workbench with protection from ants, snails, and slugs

**Table/workbench materials can be:**

- A. Old tables
- B. Bamboo
- C. Wood
- D. Palm leaf stalks
- E. Anything that is suitable

For large nurseries and many situations, having tables and workbenches for all your plants is not possible. However, even one or two tables for your most fragile seedlings will help improve success rates a lot.



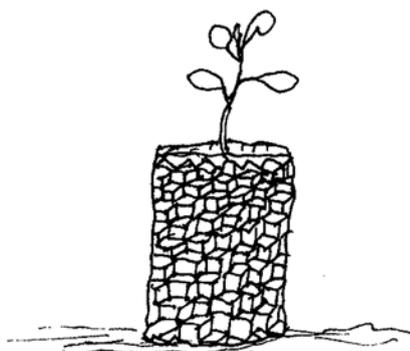
Low seedling table keeps plants off the ground

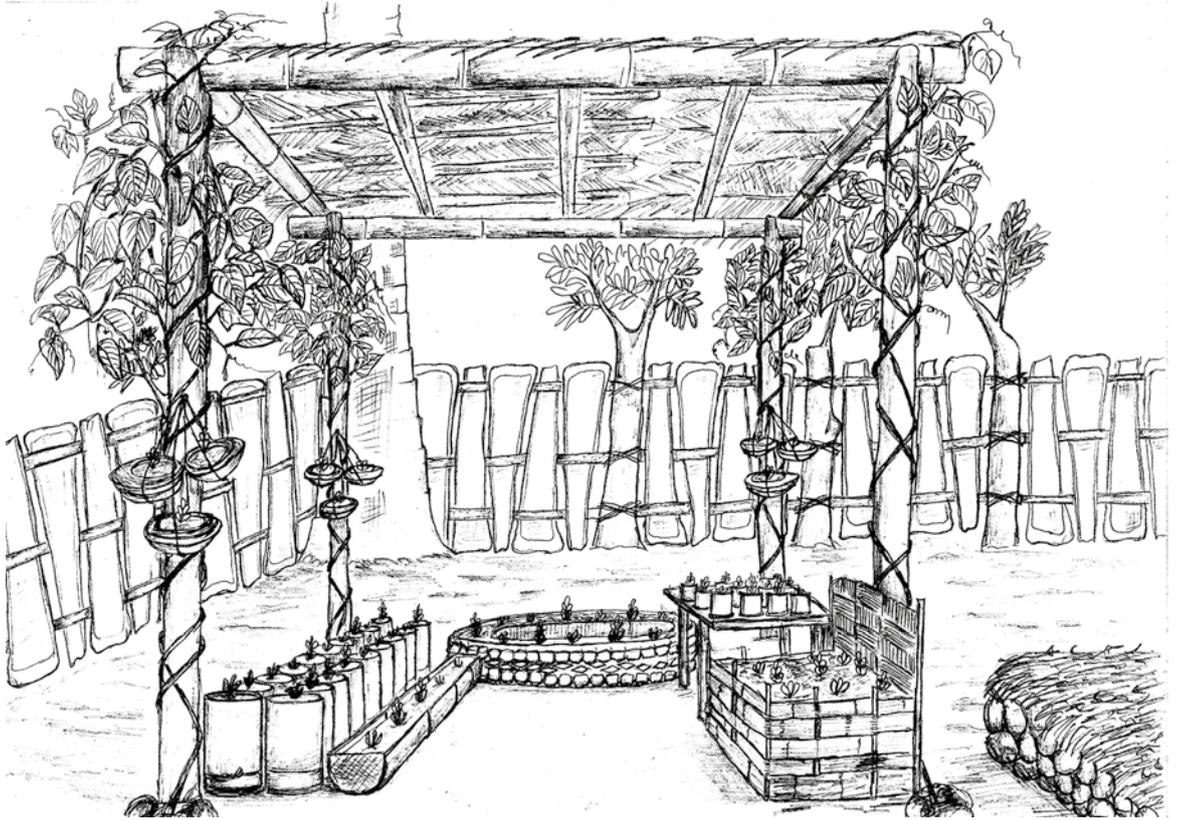


## SEEDLING BOXES AND CONTAINERS

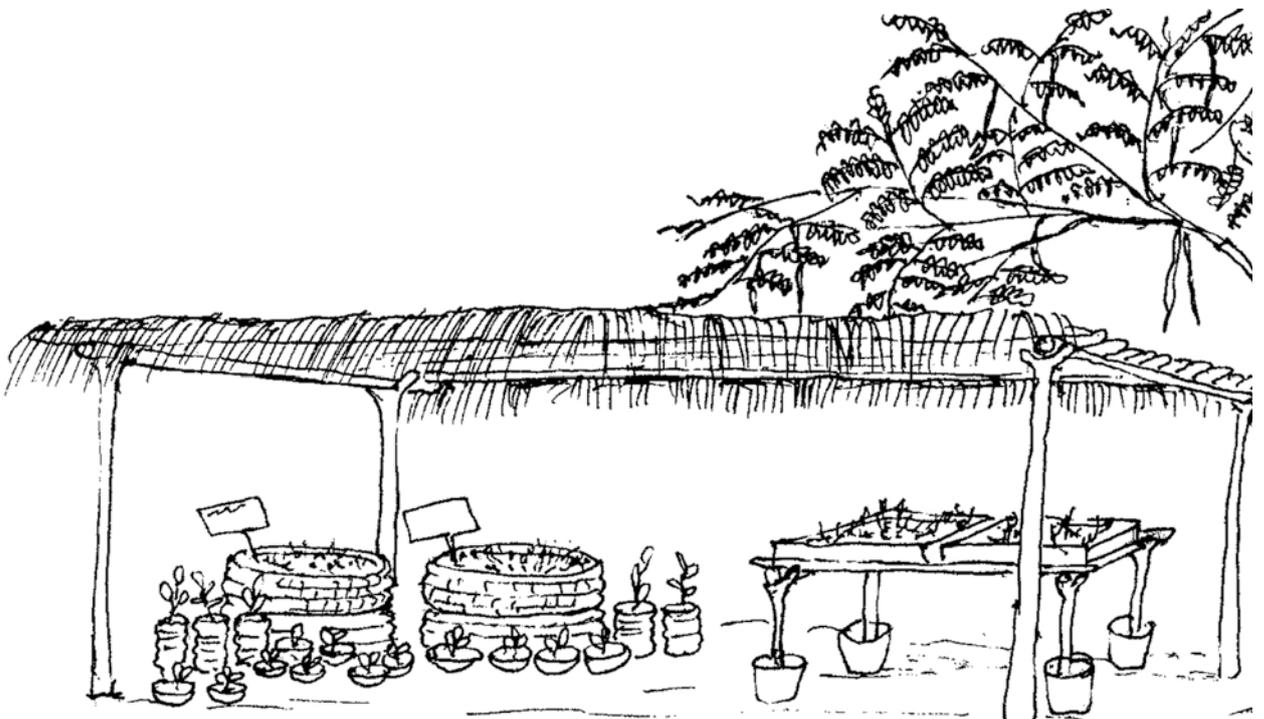
Seedling boxes and containers need to be deep enough for roots to grow long and not grow around in circles. This is especially important for tree seedlings, and it also makes transplanting much easier. Seedling boxes are easy to make, and they are good for growing many vegetable seedlings at once.

They are also good for planting tree and plant seeds, which are then planted into separate containers when they are about one month old or have four sets of leaves. Height and good drainage are important. Choose the size of the boxes to suit your needs and the materials you have. They can be made from any wood, old or new, including bamboo. If you use bamboo, place the bamboo skin on the inside of the container to give better water drainage and help it last longer.





Various seedling and plant containers

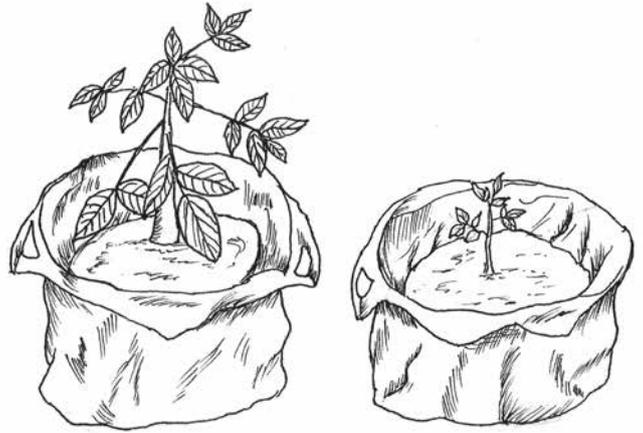


## DIFFERENT CONTAINERS

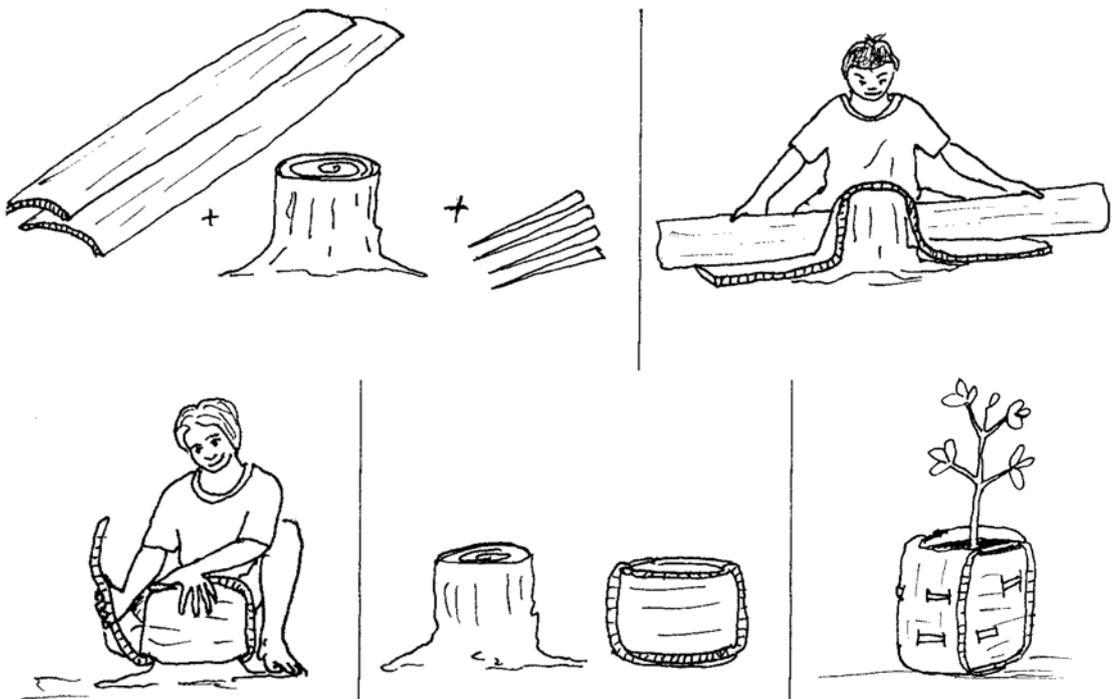
Many different containers and natural materials can be used for seedling and plant containers.

**All seedling containers must have drainage holes at the bottom:**

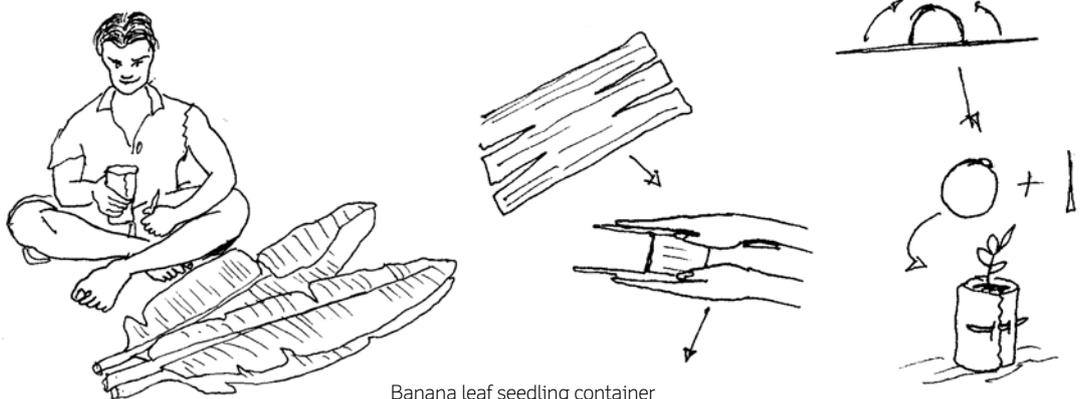
- Coconut shells
- Bamboo
- Woven palm leaves
- Banana trunks
- Banana leaves (should be one finger length wide at the base – it is better for water retention)
- Recycled strong plastic bags – two or three together is best.
- Plastic bottles, (washed) oil containers, metal tins, old buckets, old drink containers, food containers, old tyres, etc.
- Poly bags are the easiest to use for large nurseries with a lot of trees. They cost money, but they save a lot of time and work.



Old strong plastic bags make great plant containers



Banana trunk seedling container



Banana leaf seedling container

## POTTING MIXES

Do not dig soil from the ground for your potting mix! Good potting mixes for nurseries and containers are very different to the soil in the ground. When starting a nursery it is a good idea to make your potting mix first.

The most important part of making a good potting mix for seedlings is to make sure that the plant roots grow easily and water drains well. It is also important to provide a small but steady supply of complete nutrients for seedlings.

For the best results use different potting mixes for specific needs. Below we explain different potting mixes for different plants and different techniques. These specific potting mixes improve success rates and the plants grow faster and stronger too.

### GENERAL POTTING MIX

- 33% compost OR crushed and aged animal manure (e.g. goat, cow, horse, elephant) Sift the compost first to remove particles 1cm or larger. If you use pig manure add less as it is stronger than other manures. Aged manure means at least three months old. A mix of manures is best, and compost is better than manures if possible.  
Do not use chicken/duck/bird manure or fresh manure because it might burn the seedlings.
- 33% coarse sand (grains 2 to 4mm thick is best). Coarse sand provides good drainage and aeration for easy root growth. Fine sand is not good and will hold too much water. You can substitute some crushed charcoal for sand and it will improve the potting mix and your results.
- 33% organic material. Dried rice husks OR ground coconut husk, OR dried coffee husks OR a mix of the three. Coconut fibre can be scraped against a wire frame to grind it. Make sure that the coffee husks are well dried or even composted before using them because if they are fresh they are too acidic. They also take in nitrogen as they dry out as part of the decomposition process: if you add them fresh they will remove nitrogen from the potting mix.

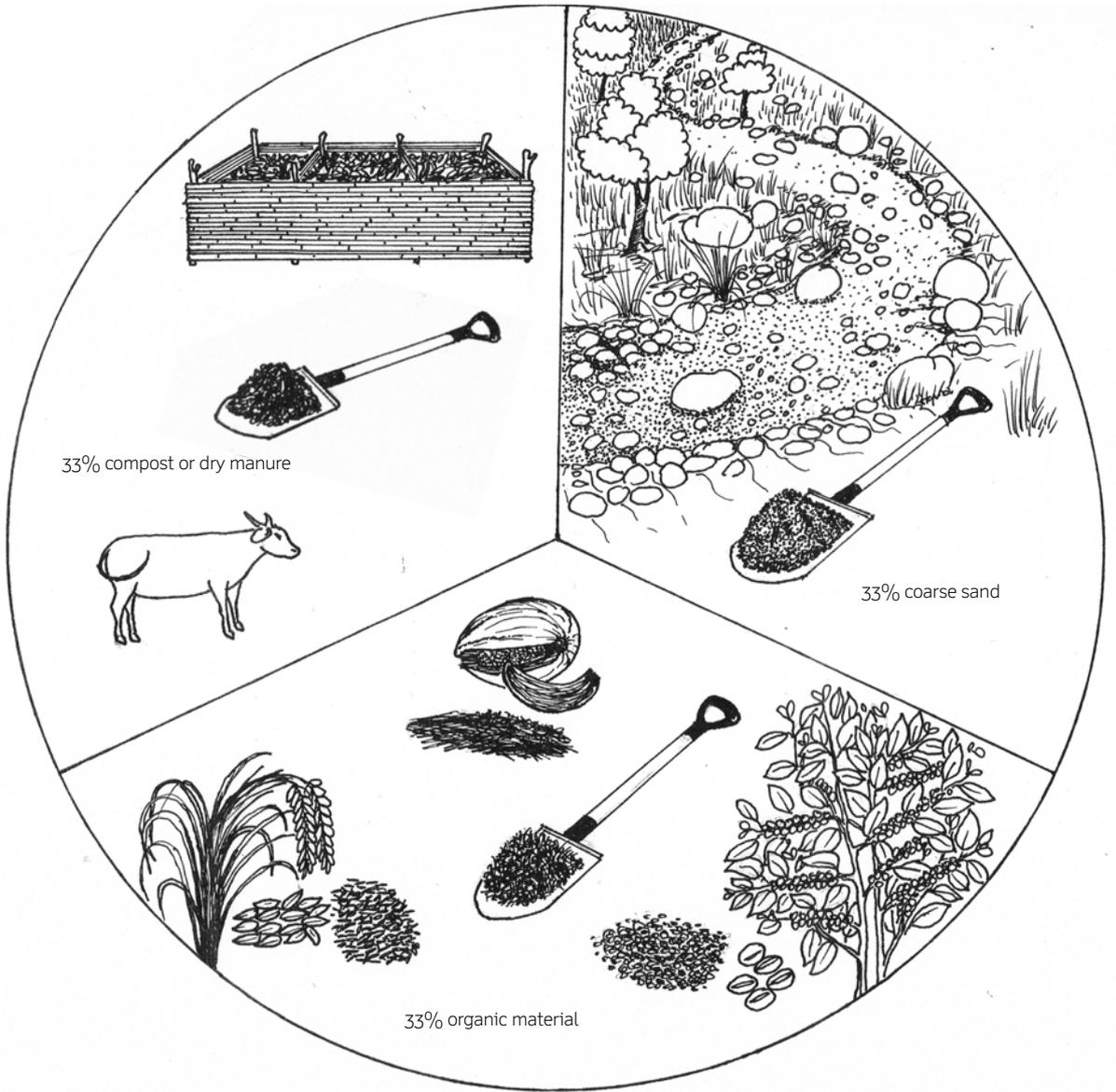
**Extras:** Add two handfuls of wood fire ash to 20 litres of potting mix to improve the potting mix and help balance the soil PH. Crushed charcoal is excellent material for potting mix, especially if it comes from bamboo. It can be part of the 33% coarse sand.



Dry compost



Fill containers



Ground coconut husk is great for potting mix

## POTTING MIX FOR SEEDS

Plant seeds need a steady supply of nutrients for the first month of growth, and it is best that it comes from the potting mix, not from added fertiliser. If your potting mix is good then extra fertiliser is only needed for plants that have grown in a nursery for more than one month.

Use the basic potting mix for seeds, as described on the previous page. Here are some examples of other potting mixes for seeds if you have less compost available:

- 25% compost/dry manure
- 25% soil
- 25% sand
- 25% ground coconut husk fibre, dry rice husks or dried coffee husks

OR

- 50% ground coconut husk fibre, sand or dry rice husks or dried coffee husks
- 25% compost/dry manure
- 25% soil

OR

- 25% compost
- 50% sand
- 25% rice/coffee/ground coconut husk fibre

## POTTING MIX FOR CUTTINGS AND PROPAGATION

Plant cuttings only need a small amount of nutrients for the first month of growth. Too many nutrients can cause problems.

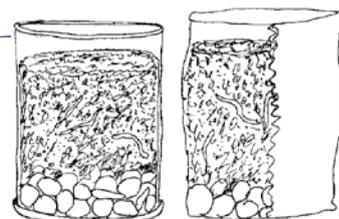
### Potting mix for cuttings

- 25% compost OR crushed and aged animal manure (e.g. goat, cow, horse, elephant)
- 75% sand

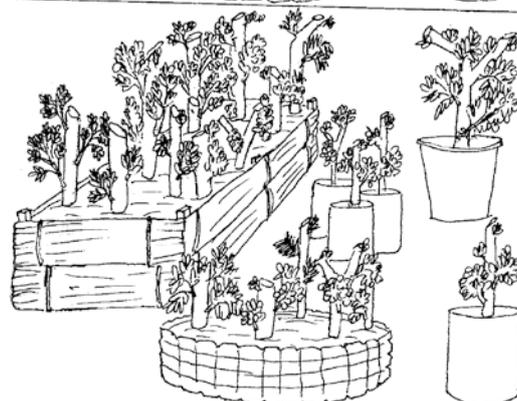
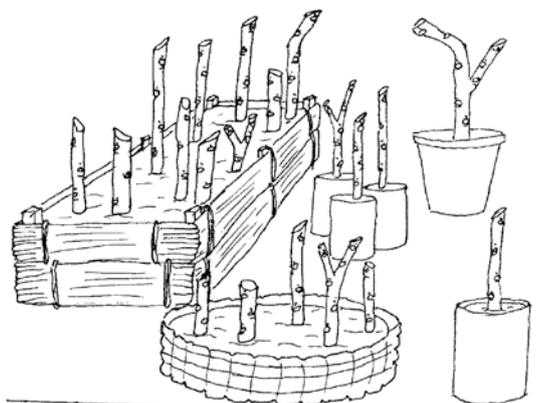
## SMART IDEAS:



- Soil from the ground does not make good potting mix for nurseries and must be mixed with other materials. It is only recommended if you have no other compost or dry manure available. Be careful when using soil in your potting mix as it may contain pathogens (organisms capable of producing disease) which can impact plant growth and even kill them. If possible sterilise the soil first to prevent this from happening. Put the soil in a bucket(s) and pour boiling water over it. Leave it until the water cools. This method is not 100% effective, but steam sterilisation is too difficult and expensive for most farmers. It may be possible if you are part of a nursery cooperative.
- Put 2cm of gravel at the bottom of the seedling containers before you put the potting mix in. This will improve the water drainage.
- A community nursery could buy a coconut husk shredding machine. This would not only save a lot of time but it could also make money by renting out the machine or selling shredded coconut husk fibre.



Cross-section showing 2cm gravel at the bottom



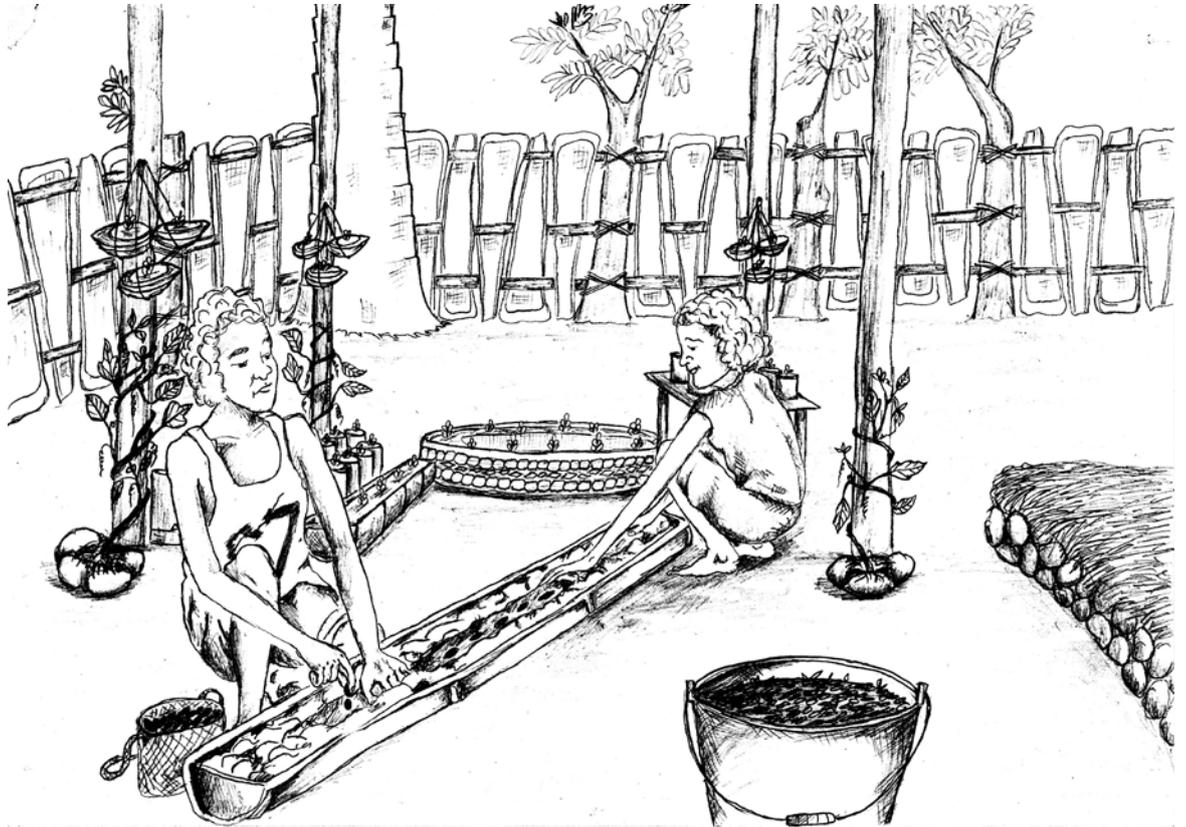
## POTTING MIX FOR LONG-TERM PRODUCTIVE TREES AND PLANTS

Trees and plants that have been planted into containers or poly bags need more nutrients to grow well. It is important to add more compost or dry manure to the soil mix and use liquid compost for fertiliser. Here are some examples of potting mix for long-term trees and plants:

- 30% compost/dry manure
- 30% sand
- 40% organic matter

OR

- 25% sand
- 25% organic matter
- 25% dried manure/compost
- 25% soil

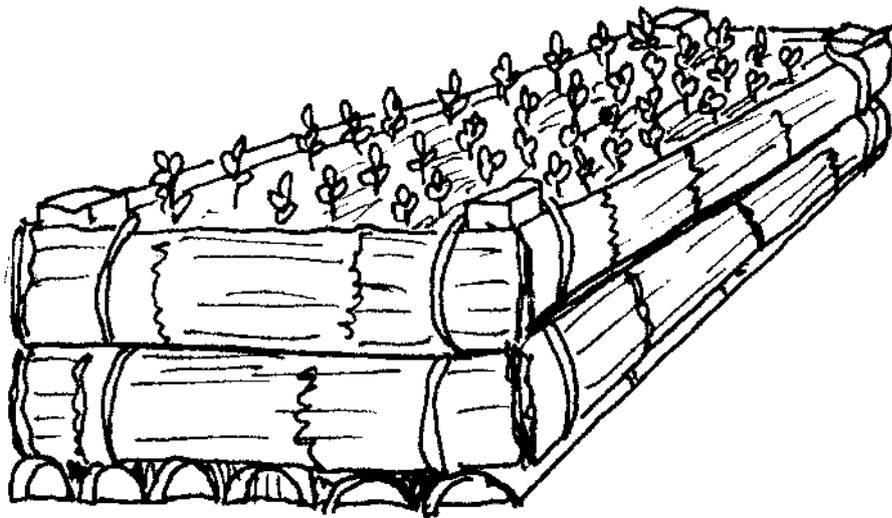


## POTTING MIX FOR NATIVE TREES

Native trees do not need as many nutrients as productive trees and often like more sand in the potting mix. If you add too much manure and compost to potting mix for native trees they grow faster at first, but they will not be as strong or healthy when you plant them in the ground.

Try this mix:

- 25% compost/soil
- 50% coarse sand
- 25% rice/coffee/ground coconut husk fibre



## PROBLEMS OF TOO MANY NUTRIENTS AND FUNGUS

Too many nutrients cause plants to grow too fast. This gives them weak stems and makes them vulnerable to pest and disease. When you plant them in the ground they are much more stressed and can die. Never add chemical fertilisers to potting mix. Read in the nursery maintenance section about adding fertiliser.

In the wet season, the seeds and seedlings may become affected by fungus in the potting mix.

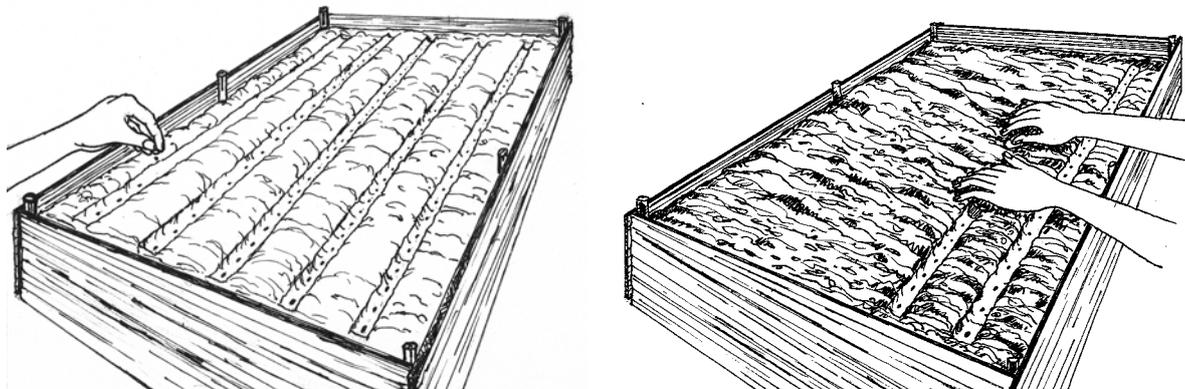
This is a common problem that stops seeds from growing and makes young seedlings rot.

**If this happens to your seeds, there are four solutions you can use to stop this problem:**

1. Put more coarse sand in the mix.
2. Add up to 10% crushed charcoal to the mix.
3. Check the planting depth of seeds: placing them too deep can cause fungus problems.
4. Stop giving liquid compost for at least two weeks.

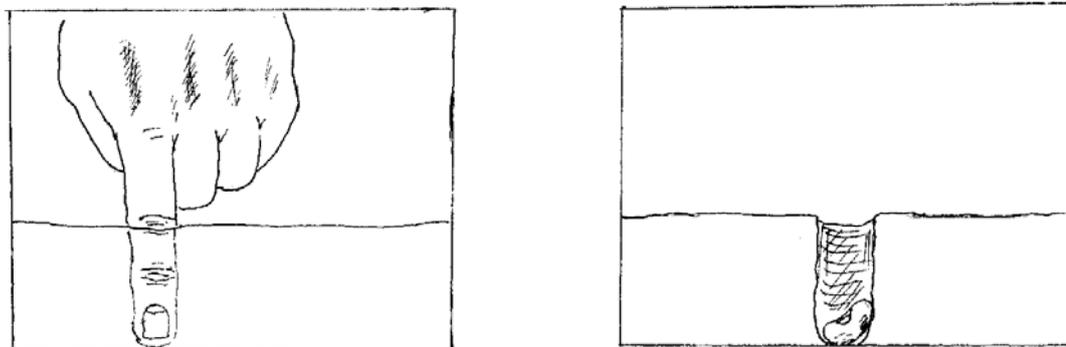
## PLANTING SEEDS

- Small seeds should be planted about half a finger knuckle deep in the potting mix, and are most easily planted in furrows. Make sure the potting mix is firm, and make half a knuckle deep furrows in the potting mix. Sow the seed into the furrows and lightly cover the seeds with potting mix. Press down on the potting mix with a board making the area firm again.



Small seeds

- Large seeds should be planted about one finger knuckle deep and can be planted individually or in deeper furrows.



Large seeds

- Vegetables that grow better when the seeds are planted in a nursery are cabbages, tomatoes, green-leaf vegetables, spinach, eggplants, capsicums, onions, chilis, cucumbers, peas, okra, lettuces, and mustard.
- Vegetables that grow better if the seeds are planted straight into the garden are pumpkins, corn, beans, peanuts, radishes, sunflowers, luffas, squashes, gourds, and melons.

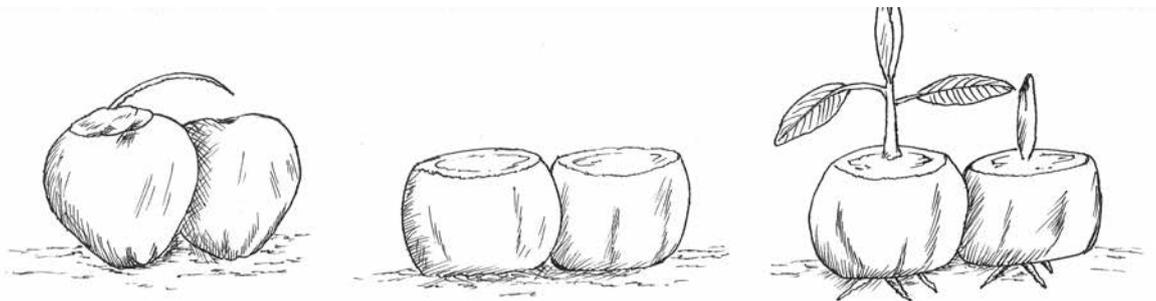
Most tree seeds need to be planted in a nursery. In some situations legume trees and papaya trees grow better if they are planted straight into the ground: e.g. living terraces, living fences, pigeon peas, sesbanias, and papayas in a mixed tree system.

Any time that seeds are directly planted, the area must be protected from animals.

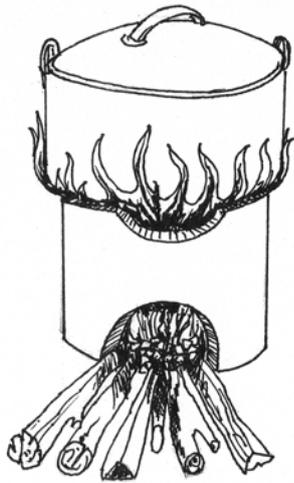
**It is good to label each type of seed and plant. Write the name and date when they were planted. This is very important for large nurseries and community nurseries.**

## IMPROVING THE SEEDS SUCCESS RATE

- Most vegetable seeds and legume tree seeds should be soaked overnight before planting; 18 hours is best. This will increase the amount of seeds that grow and the seedlings will grow faster.
- Some hard-coated tree seeds you can soak in hot but not boiling water, and leave them overnight. This will help soften the outer skin and the seedlings will grow much sooner. If you boil 1 litre of water and leave it to cool for ten minutes, it will be ready for the seeds.
- Another method for hard-skin seeds to grow faster is to scratch the skin on cement or sandpaper. Do not scratch through the outer layer, just the surface.
- Some big seeds with very hard shells like candle nut, macadamia, and casuarina can be opened using a burning technique. In the nursery dig a shallow hole (5cm deep), and place the seeds in it. Cover the hole with sand, place some dry grass on top, and burn the grass. When the burning has finished sprinkle water onto the sand and seeds. The water causes the shells to crack. When the seeds sprout and are a few days old, remove them and replant into pots.
- Coconuts – cut off the top and bottom to help the roots and shoot to grow easily.



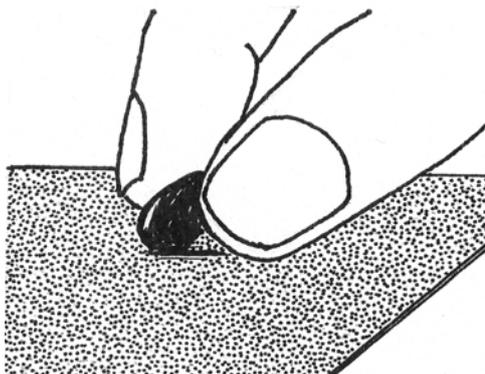
Improving success rate for coconuts



Improving success rate for hard-skin seeds **1a**: Boil water



**1b**: Leave 10 minutes then pour over seeds



OR **2**: Scratching the skin of hard-skin seeds



**3**: Leave overnight for all seeds

## WHEN TO PLANT

- Vegetables usually take about three to four weeks from seeds to planting in the garden.
- Fast growing trees take two to three months.
- Slow growing trees take three to five months.

Plant the tree seeds so that the seedlings are ready to plant in the ground at the beginning of the wet season.

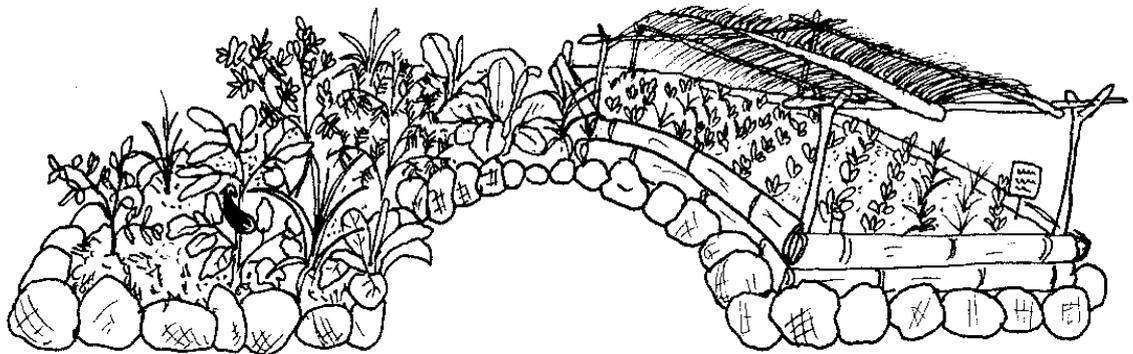
## ROOT PROPAGATION PLANTS

All vegetables and plants that are grown from dividing roots or stems can be planted in a nursery, but they grow better when they are planted straight into the ground and mulched well: e.g. sweet potatoes, potatoes, cassava, water spinach, watercress, taro, garlic, onion bulbs, yams, ginger, and bananas.

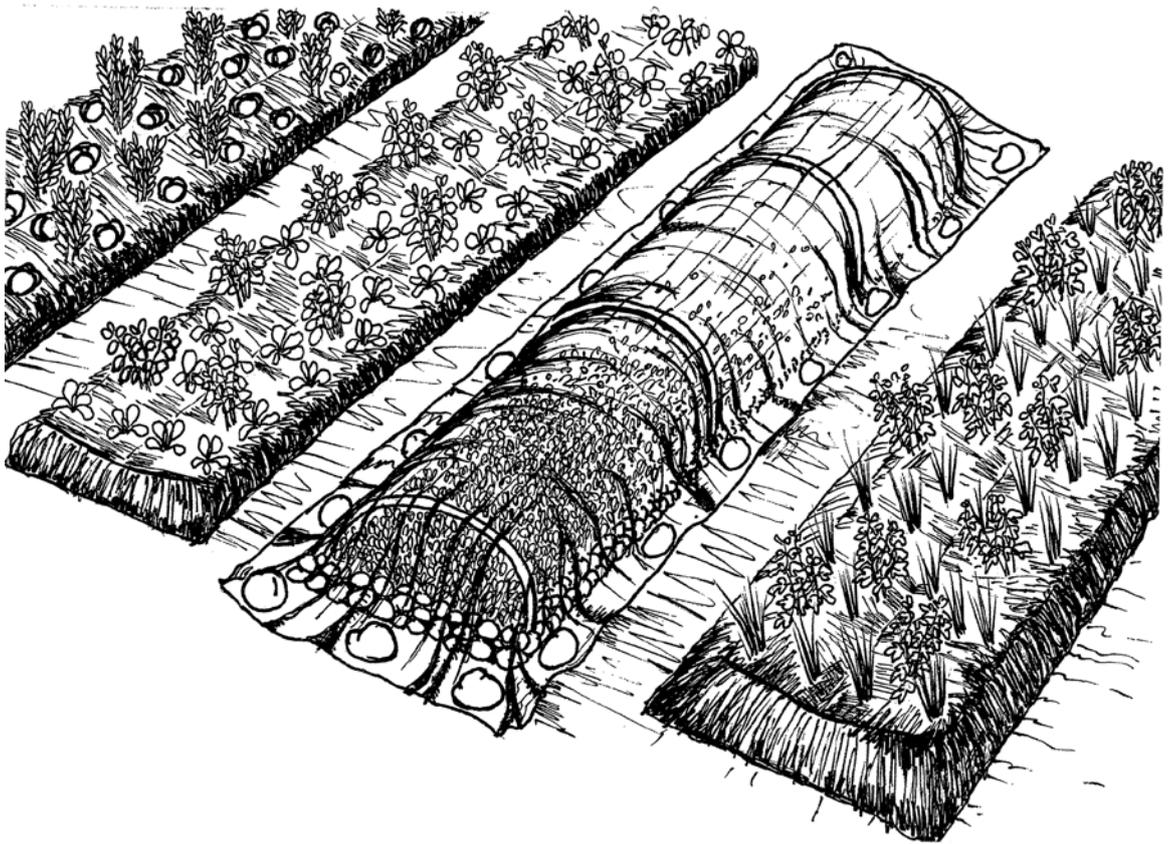


## GARDEN PLOT NURSERIES

Sometimes it is easier to grow vegetable seedlings in the vegetable garden by converting a garden plot or two into a small nursery. As most large seed plants are best planted directly into the soil, these nurseries are for small seeds. Add some sand, shredded coconut husk/rice husks and some compost/dry, crushed and aged manure to improve the soil quality and remove all the sticks and stones. It should be raised about 15 cm above the surrounding area. Use a flat board to make the soil firm and dig half knuckle deep furrows in the soil. Sow the seeds into the furrows and lightly cover the seeds with soil. Make the soil firm by putting the board on the soil and standing on it. Finally, put a thin layer of mulch on the soil and water the seed bed.

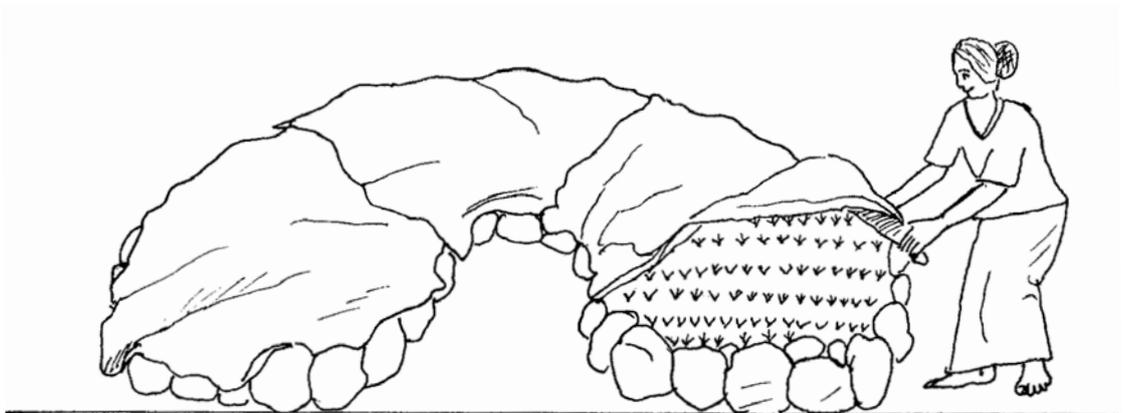


Provide shade from the midday sun with a simple structure using split palm leaves or coconut leaves.



**Carrots are a special case.** They grow much better if they are planted straight into the ground, but they need special attention to improve germination and growth.

1. Dig up the soil very well before planting. Add some sand (if possible) if the soil is clay.
2. Water the ground.
3. Plant the seeds very close to the surface and spread a thin layer (1/2cm) of sand or fine soil on top.
4. Press down on the soil firmly with a board.
5. Water again and cover the ground with old material or sacks for about a week to keep the ground moist.
6. Water a little each day if there is no rain.
7. Check the seedlings daily. When they first start to grow, remove the cover and keep watering every one to two days for two weeks.



You could try fresh rice husks instead of sand/soil and cover the area with some material, but make sure you keep it moist.

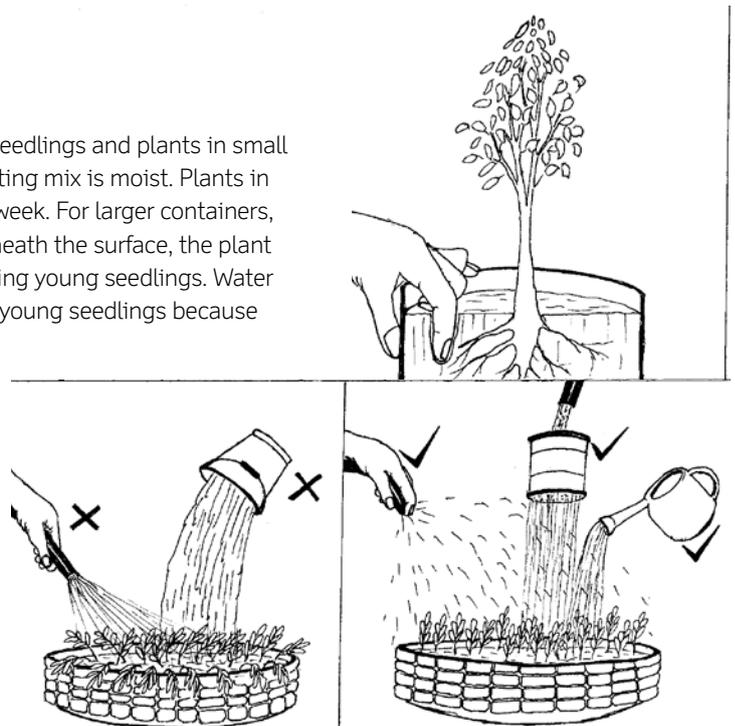
# NURSERY MAINTENANCE

It is important to check the nursery every day. The more attention you give to the young seedlings the better they will grow, and the more they will produce. Research shows that plants react well to being cared for and even grow better when music is played to them! This could become part of your nursery maintenance!



## WATERING

Plants in a nursery need watering regularly. Seedlings and plants in small containers need water every day until the potting mix is moist. Plants in larger containers need water once or twice a week. For larger containers, if the potting mix is dry one knuckle deep beneath the surface, the plant needs water. Be very, very careful when watering young seedlings. Water them gently! Too much water at once can kill young seedlings because they are very fragile.



## FERTILISING

Seedlings grow stronger and faster if they have enough food (nutrients). It is BEST if the nutrients come from the compost included in the potting mix. This will lead to stronger and healthier plants later on. They do not need a lot. Use a supplement of liquid compost if needed, especially if the seedling leaves show yellowing or slow growth. Liquid compost is good because you use it as often as is required and it has a wide variety of nutrients. Refer to the Soil Chapter (CH 5) for details on making liquid compost. Dilute at 75 – 100ml per litre of water, and use it once every two to three weeks. Do not use liquid compost on new seedlings until they are a month old. Fruit trees take longer to mature and will require regular liquid fertilising.

Plants in containers will suffer if you use too much manure in the potting mix or use too much liquid fertiliser. It is better to give the plants only a small amount of fertiliser in the nursery and more when they are planted into the ground. This is especially true for native trees that will be used for reforestation.



### SMART IDEA:

For tree seedlings, add a handful of soil from under a mature tree to the water when you are watering seeds/seedlings of the same variety: e.g. from a mango tree for mango seedlings, pigeon pea bush for pigeon pea seedlings, mahogany tree for mahogany seedlings. This adds good microorganisms that are beneficial for that particular tree, and is especially good for legumes to make sure they have the bacteria needed for producing nitrogen. You only need one application, as early as possible after germination. Add a handful of soil to a bucket, fill it with water, stir well and apply; a small amount for each seedling is enough.

### SMART IDEA:

Instead of watering the new plants, a smart idea is to have buckets of diluted liquid compost into which you can dip the containers with the newly planted seedlings. Dip until the liquid covers the potting mix surface for about ten seconds. This will remove air pockets, add fresh nutrients and good microbes, and help settle the new plants.

## TRANSPLANTING

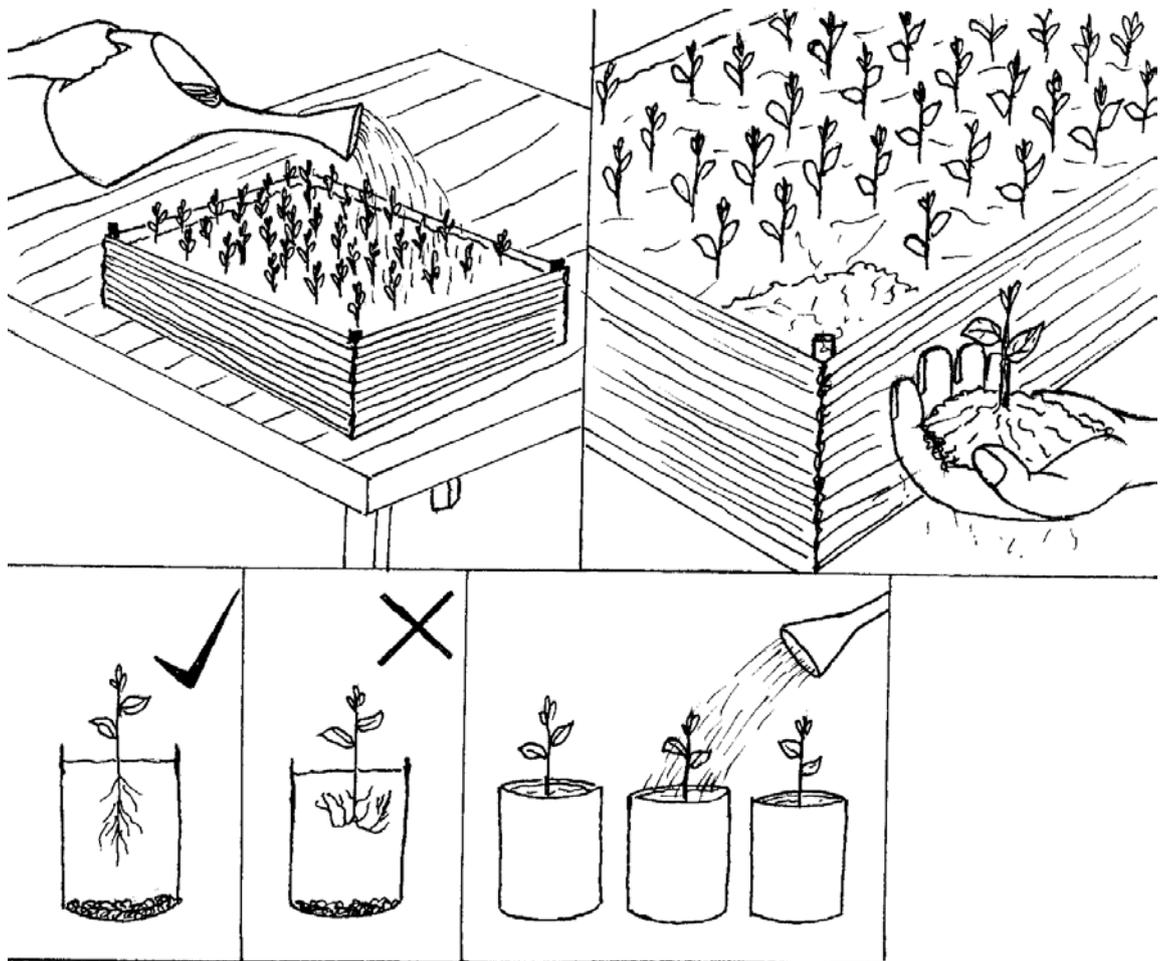
Sometimes young tree seedlings need to be transplanted into a larger container in the nursery.

**STEP 1:** Water the seedlings well.

**STEP 2:** Dig up the seedlings with a small shovel, digging bar or by hand. DO NOT pull up the seedlings by the stem!

**STEP 3:** If there are many seedlings together, separate the roots very carefully.

**STEP 4:** Immediately replant the seedlings into new containers. Fill the container to a quarter full, hold the seedling where you want it to be and very gently add the rest of the potting mix. This helps to pull the roots down into position. Firm the soil and water well.



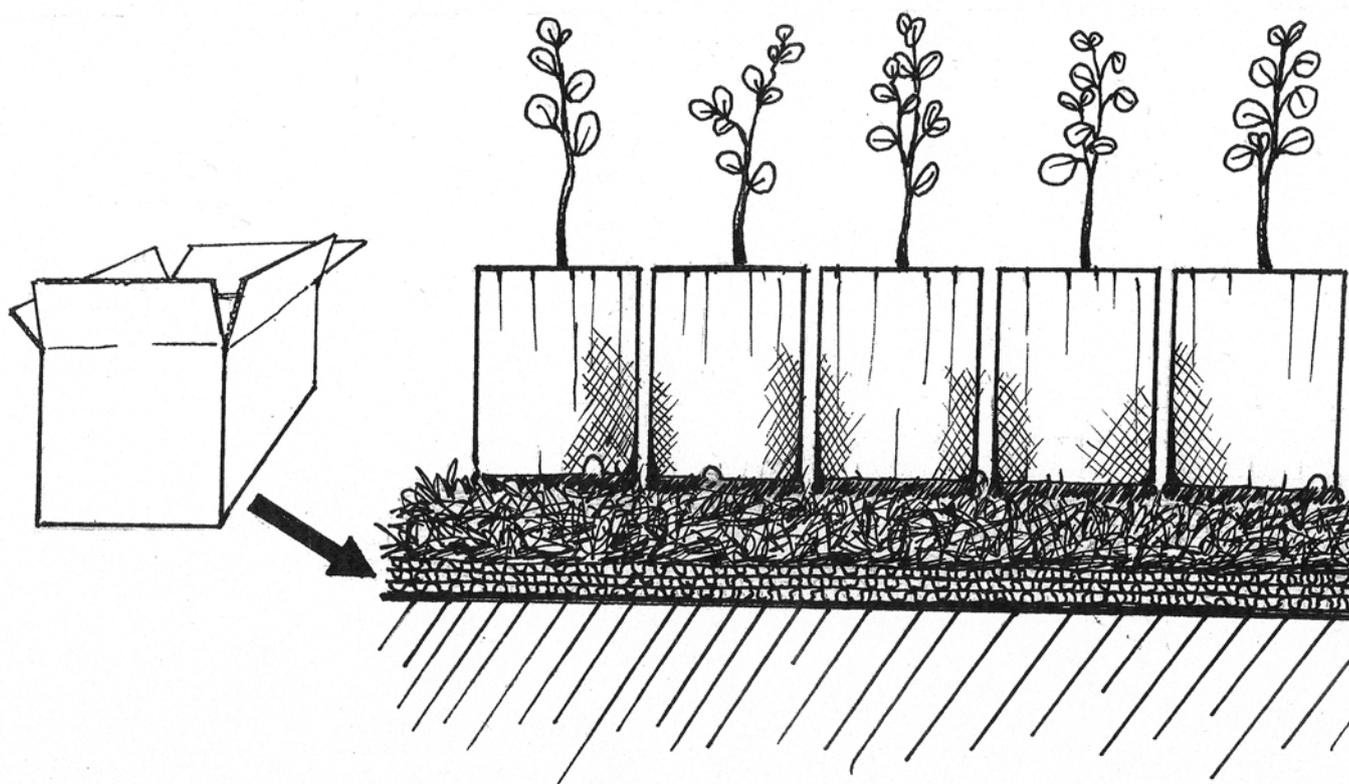
## WEED CONTROL

Weed control is very important in nurseries.

Continually remove any weeds that grow in the seedling containers. They compete with the seedlings and slow their growth, which decreases productivity, especially for vegetables.

Benches and tables in the nursery will reduce weed problems because the plants are off of the ground.

If the pots are on the ground first put a layer of newspaper or cardboard then coffee husks, rice husks, sawdust or grass. Then put the pots on top. This prevents weeds growing up from the ground into the pots.



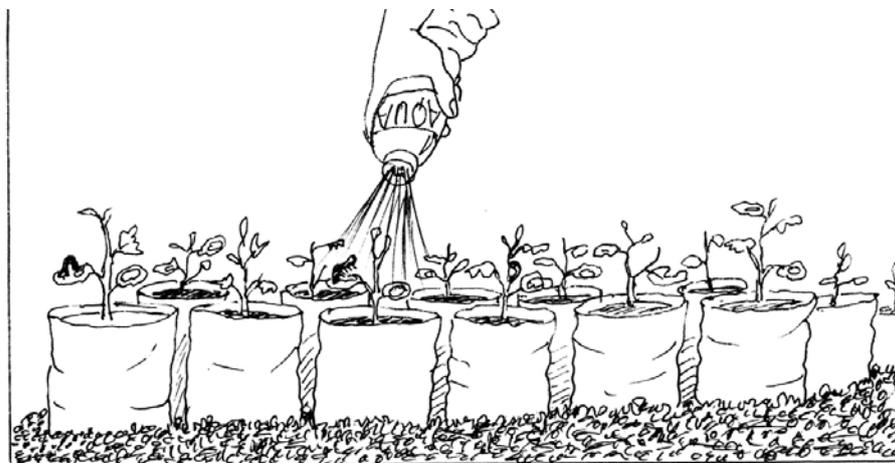
## PEST AND DISEASE CONTROL

Always look out for pests and diseases in a nursery because they can spread very easily. The best solution is to prevent problems before they occur:

- Reduce plant stress as much as possible by shading from the hot sun and allowing gentle winds through the nursery.
- Use good potting mix.
- Give enough water.
- Provide enough fertiliser.
- Raise the containers and boxes off the ground.
- Place the table legs in containers with water to stop ants, snails, and slugs.

You can reduce the chances of pests or disease spreading from plant to plant by mixing the different varieties of plants together or putting them in small groups instead of large groups. If your plants are sick or attacked, you can:

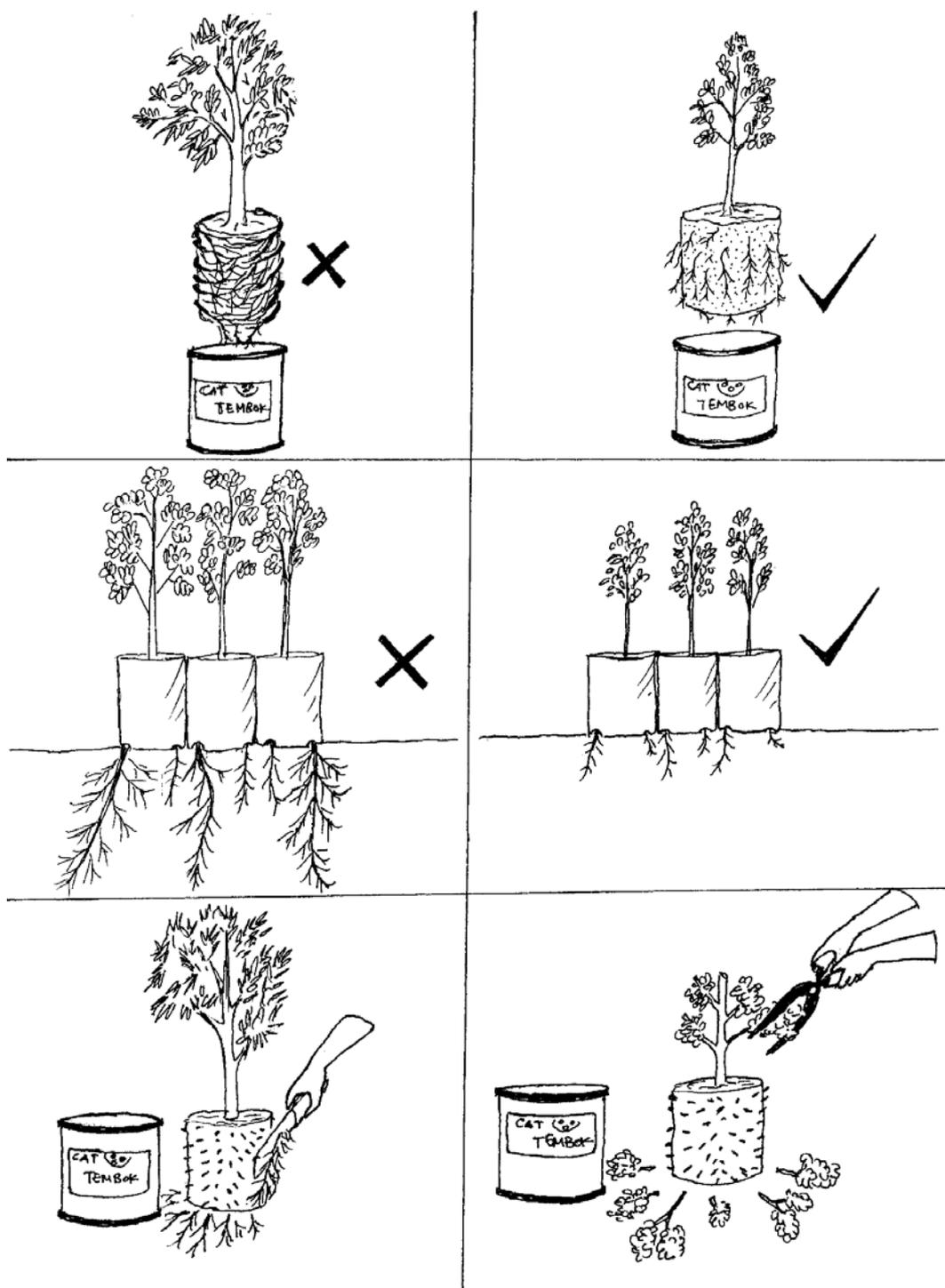
- Spray with a natural pesticide. (See I.P.M Chapter (CH 11) for details). Do not use chemical pesticides.
- Change the climate conditions: e.g. if a plant is suffering from fungus or mildew try giving it more sunlight and wind. This can help for some pest problems as well.
- If other solutions do not work, remove and burn diseased plants.



## PREVENTING ROOT PROBLEMS

Plant roots are the **MOST IMPORTANT** part of a young plant. Healthy, happy roots will lead to a healthy and productive plant or tree. There will always be more roots than leaves when the plant is young

All trees that you grow should be planted out in the ground before the tree roots grow too large for the container. If the roots grow too large they will start growing around in circles and get tangled. This is called being "root bound". This will slow down plant growth a lot and may even cause the plant to die later on.

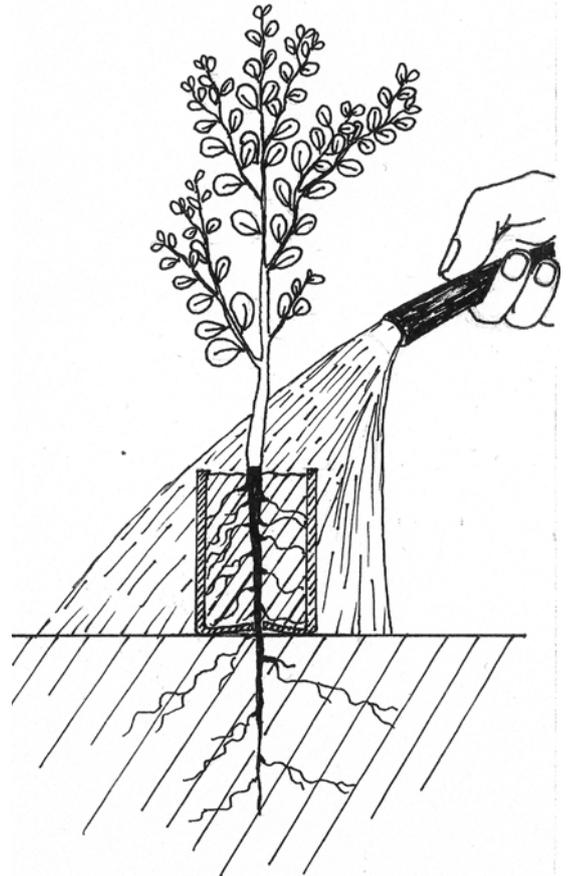


Good management for root bound plants

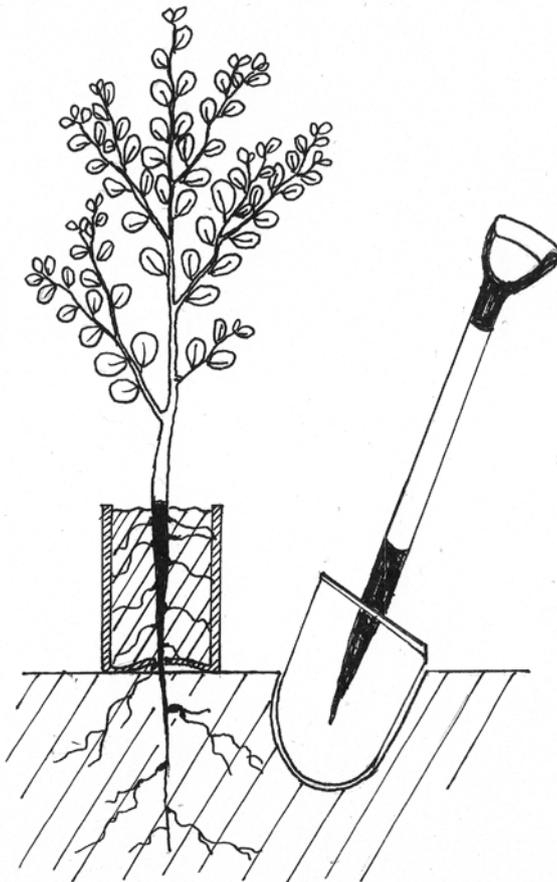
It is also important not to let plant roots grow out of the container into the ground. A small amount is not too bad. However, if a lot of roots grow into the ground and you have to break the roots before planting, the plant will be damaged and might die later on.

Grow the plants so that the roots are only just starting to fill the containers at the beginning of the wet season. This is usually two to three months for fast growing trees and three to five months for slower growing trees. It will help if you put all tree boxes and containers above the ground, on old tin, wood, bamboo, etc. Then their roots will not grow out of the container into the ground.

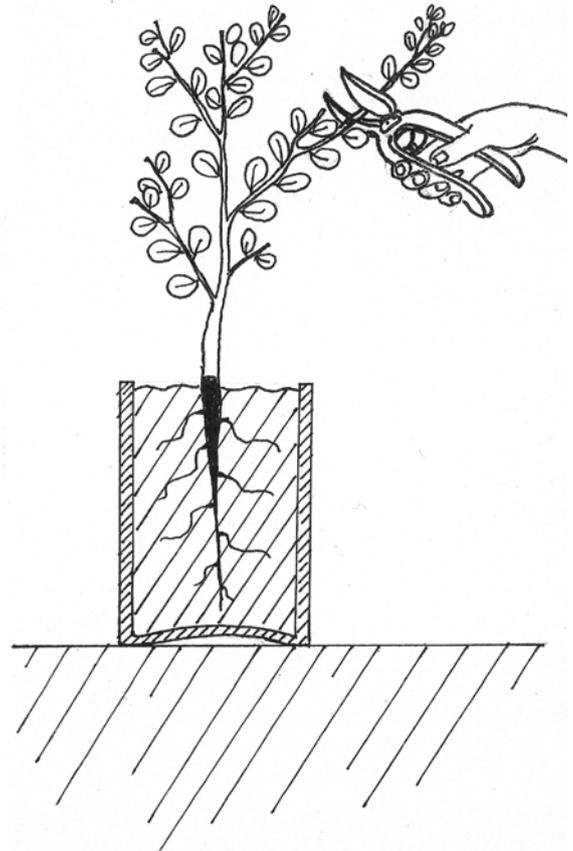
If a plant does get root bound, you need to trim off the outside layer of roots to encourage new roots to grow. If you do have to cut roots or a main root has grown into the ground and broke off, you must prune back some branches as well. Always prune more from the branches and leaves than you prune or lose from the roots.



1: Water plant and ground well



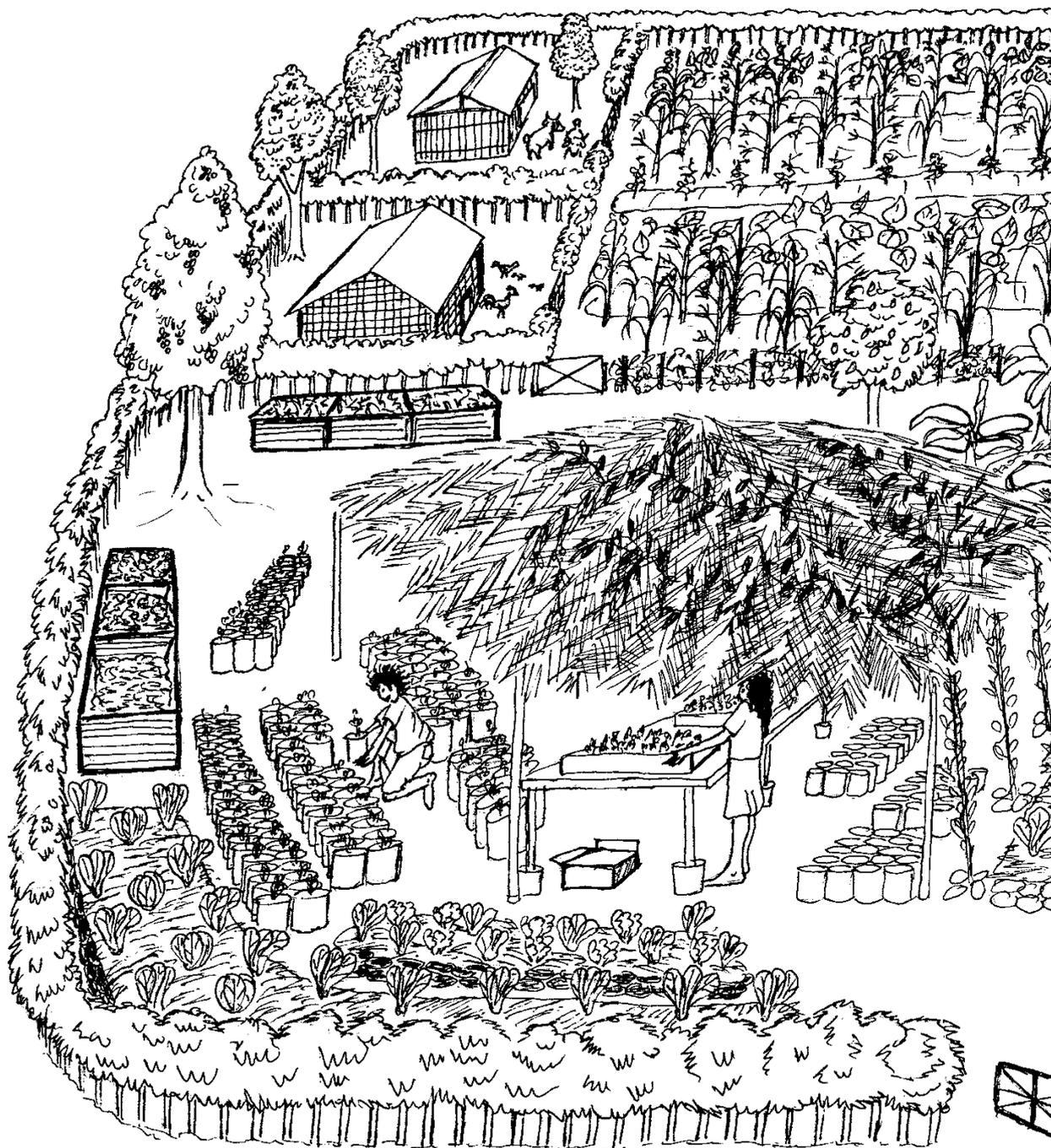
2: Carefully dig up plant retaining as many roots as possible



3: Replant in bigger pot and prune branches

## HARDENING PLANTS BEFORE PLANTING

All plants that are grown in a nursery need to be “hardened” before they are planted in the ground.



Full sun hardening area

All plants that are grown in a nursery need to be “hardened” before they are planted in the ground.

This means to prepare them for where they will grow. Most plants need to be placed in the sun.

Only plants that are to be planted in the shade, like coffee and vanilla, can remain in shade.

- Trees need three to four weeks to “harden” before they are planted out
- Vegetables need a week

“Hardening” a plant is very important because it reduces the stress on the plant when planting it. If a plant is not hardened it will stop growing for a few weeks, many leaves will fall and the plant even might die from the stress.

Another technique for reducing plant stress is to give it midday shade for up to a week after it is planted.





The less stress plants have, the better they will grow: it is the same as people!

