


What is a Home Nursery ?



A **Home Nursery** is a nursery made in your own garden to grow plants that you need yourself. There is no single way to make a Home Nursery, nor is it made for just one type of plant. Vegetable, fodder, fruit, medicinal herbs, and other types of seedling can all be grown in the home nursery. Then, you can plant these seedlings on your own land, or distribute to your friends, or even sell them. For different species of seedling, there are different types of home nursery.

In this chapter simple methods are described for growing different types of plants for home use.



Belmaya Rana and her Home Nursery, Surkhet, Nepal



Why make a Home Nursery ?

- to obtain suitable seedlings when needed;
- to produce seedlings close to where they are needed;
- so seedlings can be cared for and protected at home;
- to grow the right species which are right for the local climate;
- to make use of domestic waste resources for water and compost;
- to improve productivity on your own land using trees and shrubs;
- seedlings can be exchanged or sold;
- by producing seedlings yourself you don't need to import them;
- you increase your skills



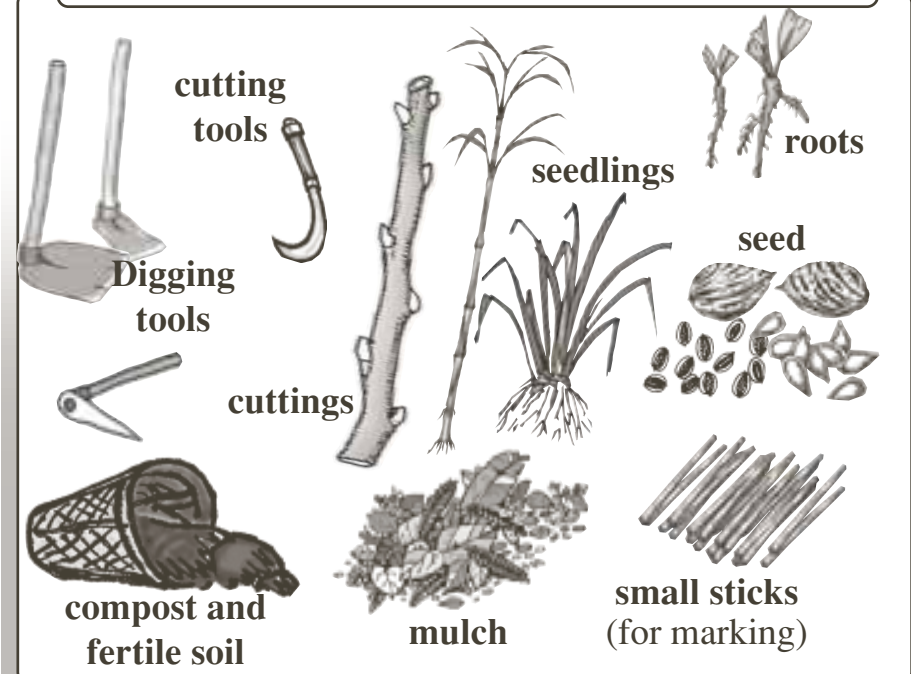
It may be that you don't have the resources in your village to build and manage a large nursery. In a big nursery more water, compost, and more maintenance would be needed. This means there is less time to spend working at home, and an extra person would need to be employed. In many villages it's difficult to make such arrangements. So, you can use local waste resources and simple methods to successfully raise seedlings, even if only a few, at home.

How to make a Home Nursery ?

There are many methods of growing plants, and many different types of nursery to do this. The fruit nursery, leaf pot nursery, hot bed, air nursery, etc. all have their own methods. They are described in more detail in other chapters.

In this chapter, at first information is given about things concerned with any type of nursery. After that, we give some examples of useful types of nursery.

Materials Needed to make a Home Nursery

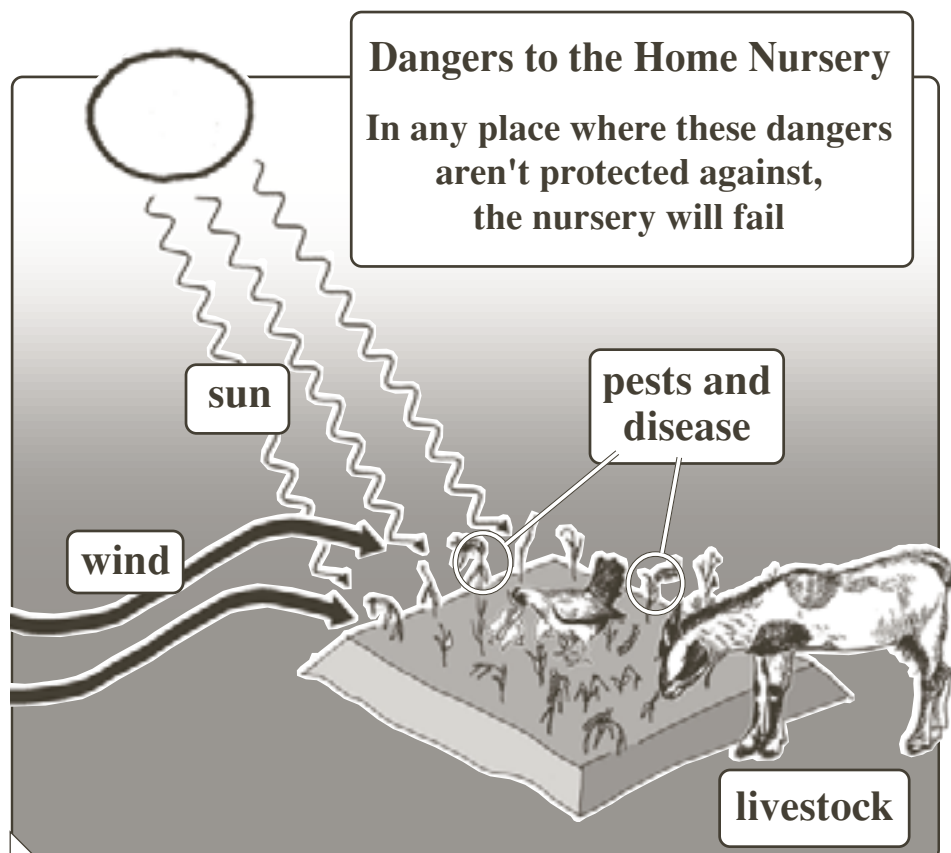


1. Things to consider when building a Home Nursery

(a) Site Selection

It's important to choose the right place for a nursery. A site is needed where watering, checking, protecting, mulching, composting and such daily maintenance becomes easier. Once the right site is chosen, we can start to build the nursery.






You can put different types of nursery in different places around the farm. But wherever they are, you need protection, compost, water and good seed or seedlings.



(b) Protection

To make a successful home nursery it's essential to have a protected area. If your home nursery isn't protected, chickens, goats, etc. will damage it and eat the plants there, and all your work will go to waste. Also, seedlings won't be available when needed.

What to protect against ?

Danger	Management	Resources needed
 Livestock	fence, live fence, watcher, community agreement	wormwood, thorny plants, <i>Crotalaria</i> , <i>Sesbania</i> , citrus, bamboo, etc
 Sun	thatch shades, water	straw, mulch, shade trees, green manures, etc.
 Pests & diseases	integrated pest management methods	healthy soil & plants, liquid manure, mixed crops, rotations, companion planting, ash, oil seed cake, cow's urine, neem oil, etc.
 Wind	mulch, thatch shades, wind-break	straw, mulch, trees (agro-forestry), green manures, etc.
 Hail	thatch shades, tree cover	straw, mulch, agro-forestry, green manures, etc.

(c) Soil and Fertility Management

To raise healthy seedlings in the shortest possible time, fertile soil is essential. If the forest is near, you can bring in good, fertile soil for making beds and filling pots. Otherwise, livestock manure is used for making compost to mix with the local soil. It is important that compost is well rotted, and raw or even half decomposed compost shouldn't be used in the top soil of the nursery. Compost produced from the sweepings pit is good to use. Information about this is given in the *Sweepings* chapter.

If the soil is clay type, mix one part sand with 2 parts soil and one part compost.

Soil from the Mother Tree

For many species of tree, if soil is taken from around the roots of the same species in the forest and mixed in beds or pots, growth in the nursery can be greatly improved. This is because the soil under the "Mother Tree" contains essential micro-organisms which help the young plants to grow, just like mother's milk helps a baby.

(d) Water Management

By using waste water from the household, enough water to irrigate the home nursery can be provided. So morning and evening, washing hands and face, or washing pots and

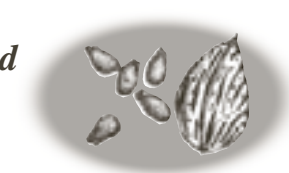


pans, get into the habit of saving the waste water for the nursery. More information about how to do this is given in the *Waste Water Pit* chapter. In the hot season, water the nursery in the evenings or at night, not during the day. By mulching the beds, or making a thatch shade, the water used to irrigate will last longer.



(e) Seed

Talk with other farmers to decide which species are wanted to be grown, and where the seed can be obtained. Many types of seed can be collected from the nearby forest or farmland. This seed should be collected at the right time, and stored well until ready for sowing. More information about this is given in the *Seed Saving* chapter.



Timely Seed Sowing

Most seeds can be sown in the nursery in the Spring. In lower, hotter climates this can start in the winter. At higher elevations it may be some months later. Here, using a **hot bed** can mean starting in the winter even at high elevations. Information about this is given in the *Hot Bed* chapter. Seedlings must always be big enough (at least 8-12 inches) to plant out in the planting season, whenever that is.

Species Selection

The method used in the nursery will depend on which plants you want to grow.

Type of nursery	Species grown
Seed sown direct into nursery beds	<p>Vegetables :- cauliflower, cabbage, tomato, aubergine, chard, broccoli, etc.</p> <p>Trees :- Persian lilac, neem, sea buckthorn, ash, coffee, oak, etc. (these can then be transplanted into pots)</p>
Seed sown into polypots	walnut, mango, soapnut, butter tree, etc.
Cuttings	mullberry, napier grass, willow, hazel, some <i>Ficus</i> , etc.
Root slips	comfrey, lemon grass, broom grass, etc.
Air nursery	<i>Lucaena</i> , <i>Acacia</i> , <i>Sisso</i> , <i>Bauhinia</i> , <i>Sesbania</i> , (most legumes) , papaya, tree cotton, etc.
Fruit nursery	wild peach, pear, citrus, walnut, etc.
Hot bed	pumpkin, tomato, gourds, chilli, aubergine, etc. for off-season growing
Leaf pots	pumpkin, gourds, cucumber, beans, peas, etc.

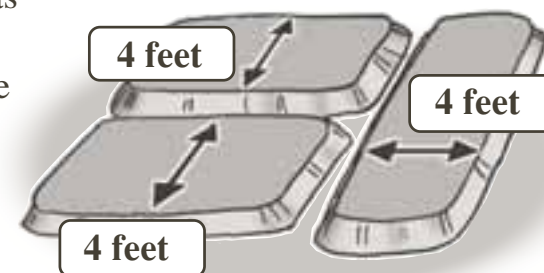
The air nursery, fruit nursery, hot bed and leaf pots are described in more detail in their own chapters.

2. Making nursery beds

After choosing a site with suitable water and fertility resources, you can start work on making the beds.

• Size of the beds

The beds should be 4 feet wide. This allows reaching to the centre of the bed from either side without stepping on the soil. The beds can be as long as you need. The shape and length of the beds depends on the number of plants you want to grow.

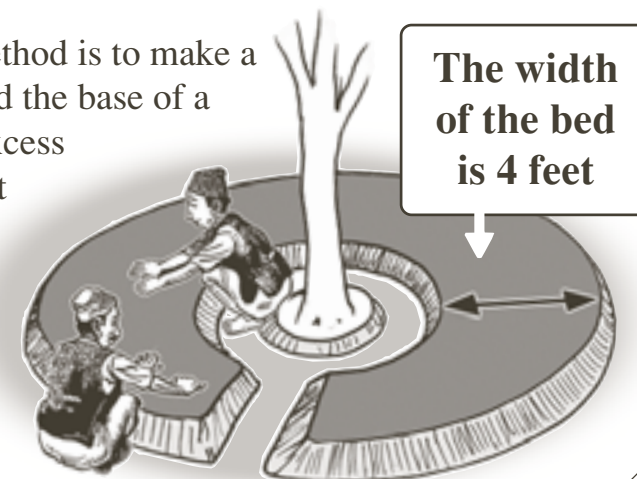


• Shape of the beds

If the nursery is on a slope, the beds should follow the contour, i.e. they should be as level as possible. Watering and access should then decide how to design the beds.

Circle nursery

One good method is to make a nursery bed around the base of a fruit tree. Then, excess water and compost put on the nursery will go to the tree, instead of going to waste.

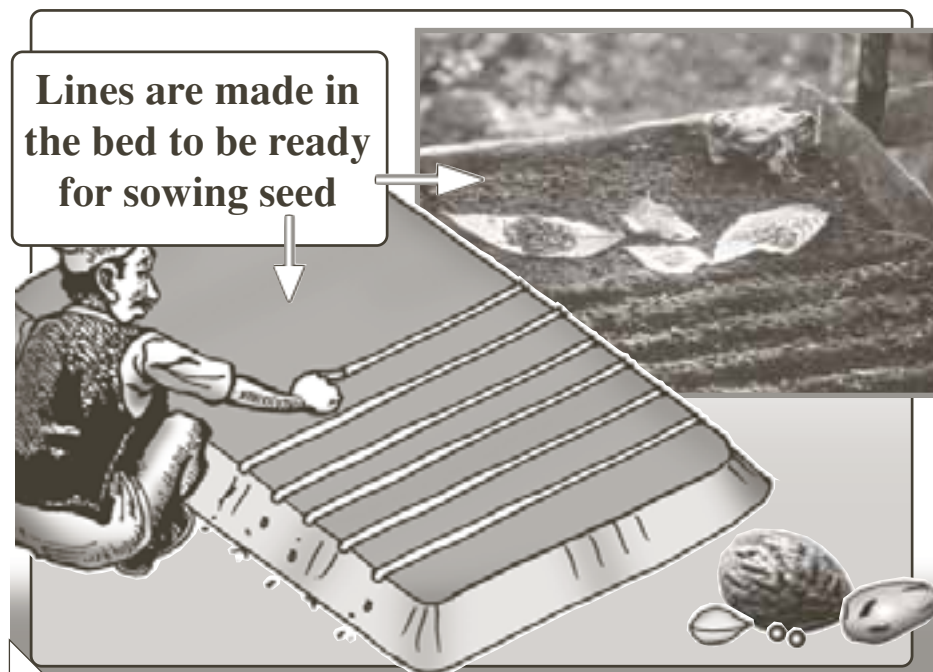


• Preparing the nursery soil

Dig the nursery bed to a depth of 50 cm (18 inches) and add compost, forest soil, sand, etc. as needed. After making the soil fine and loose, the beds are ready for sowing seed. Tree, shrub and vegetable seed can be sown. Beds for planting cuttings and root slips are made in the same way.

3. Sowing and Planting in the home nursery

Now, information is given about planting in different types of nursery. First, how to sow seed, then plant cuttings, and after that examples are given of how to plant napier grass, lemon grass and comfrey.



(a) Sowing seed in the beds

This method is dependent on the shape and size of the seed.

• Small seed :-

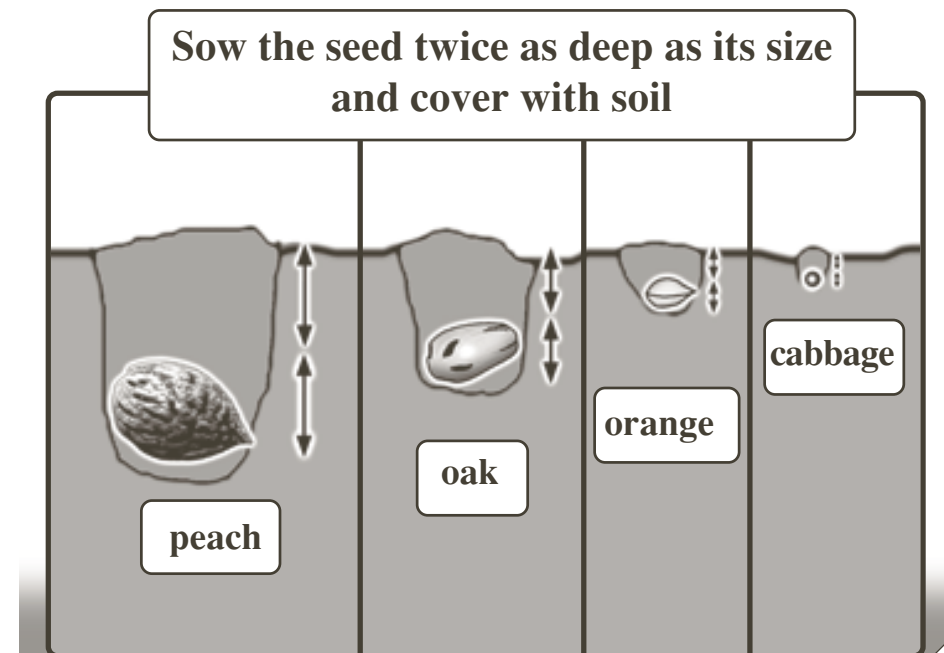
alder, eucalyptus, etc. This seed is very small and needs mixing with sand or soil to help sow evenly. Mix one part seed with 2 parts sand or soil. Make small lines across the bed with your finger, and sow the seed mix into this small trench. Then cover with a thin layer of fine soil.

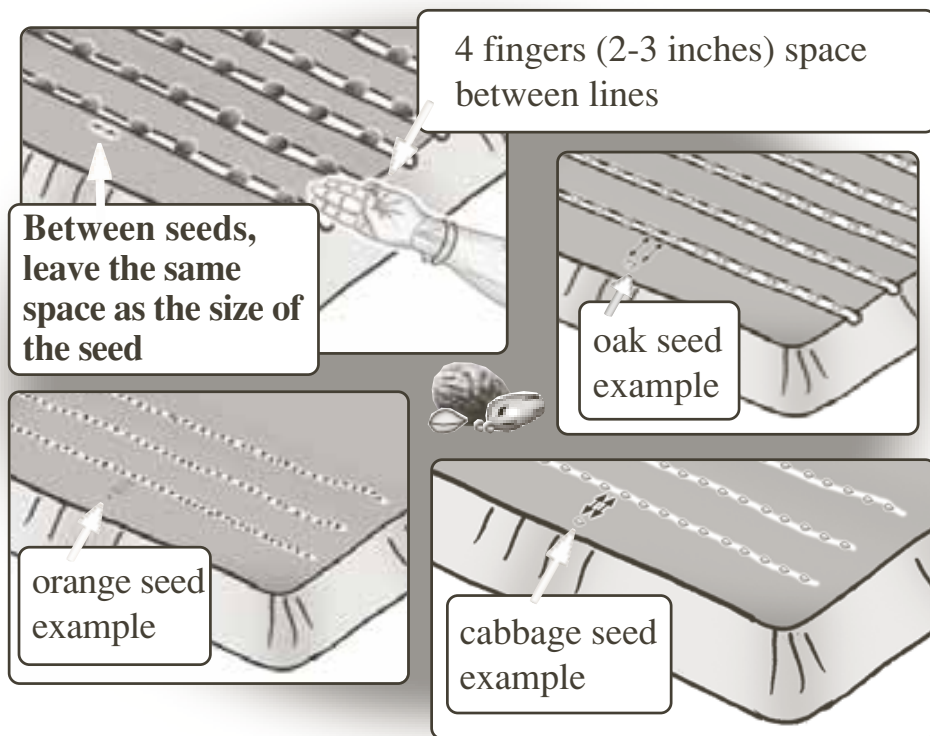
• Large seed :-

make a deeper trench across the bed. Seed is planted at twice the depth of the seed's thickness.

• Seed planting distance :-

leave a distance between seeds which is the same as the size of the seed.





- **Benefits of planting in a line :-** after seeds planted in a line have germinated, they can be recognised from weeds that germinate around them. This means that the bed can be weeded without damaging the new seedlings.



Let's See

how to make a Home Nursery



Belmaya's home nursery in Gumi VDC, Surkhet, Nepal, with various plants shaded by thatch.

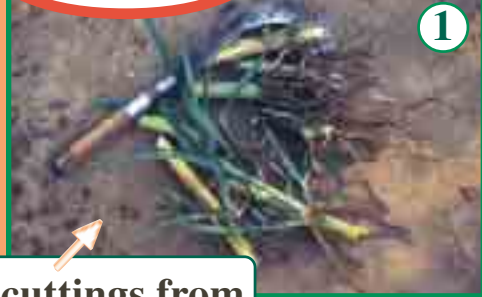
Coffee seedlings in a home nursery sheltered by nearby shrubs.

2



How to plant Napier grass, comfrey and lemon grass in the Home Nursery

Napier grass



cuttings from one stem



planting the cuttings



Lemon grass



Trim leaves & roots of large clump



separated and cut into small plants (slips)



small slips made from large clump



slips planted in a bed

Comfrey



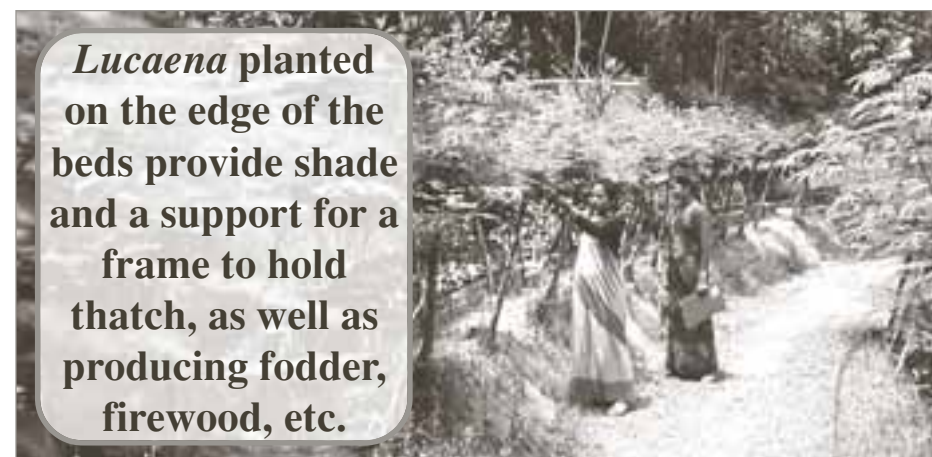
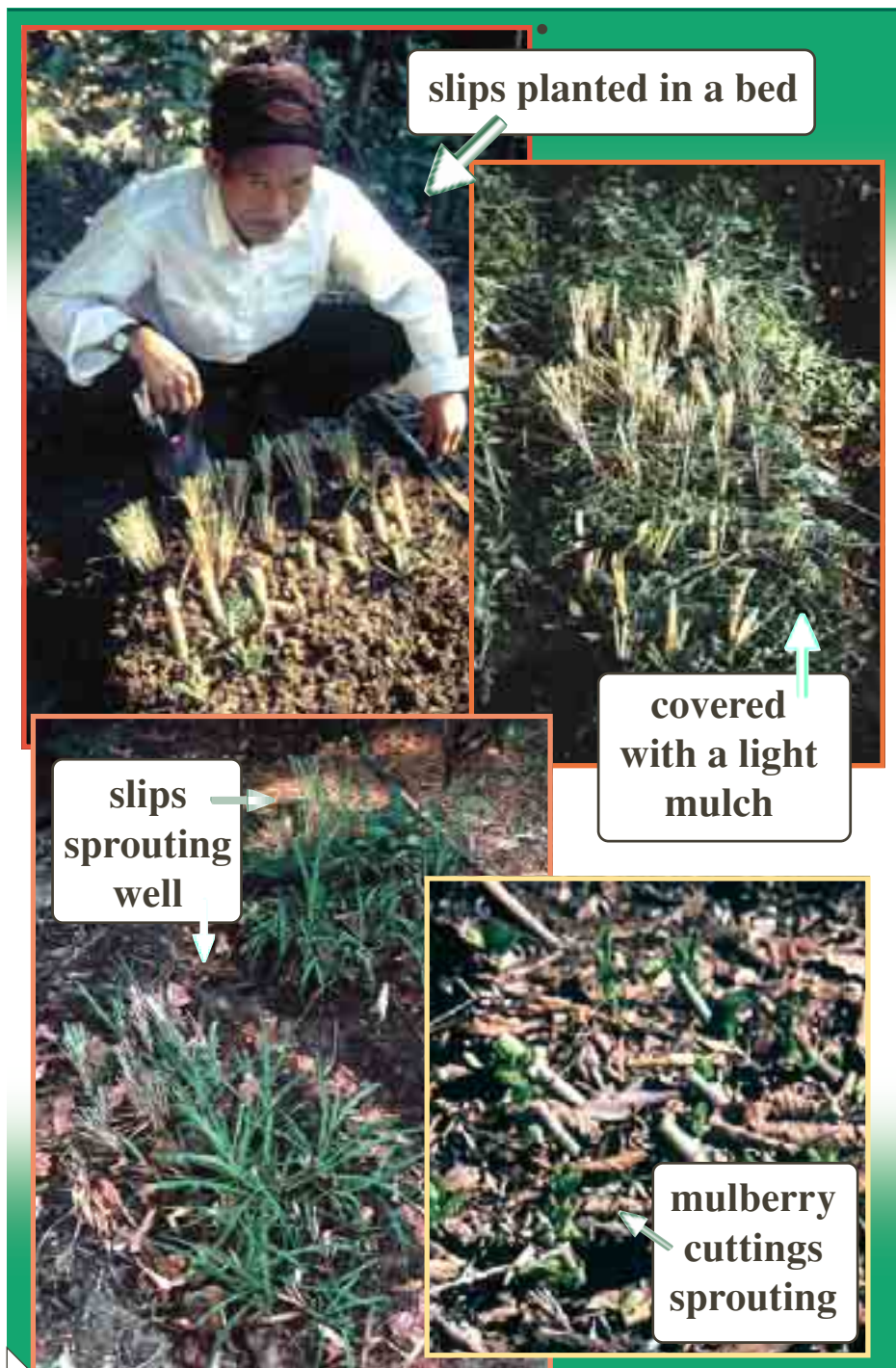
comfrey roots



ready for planting



small "slips" planted in a bed



(b) Planting cuttings

Some species are more successful and grow faster from cuttings than from seed.

Species growing from cuttings :- mulberry, willow, many *Ficus*, drumstick, grape, honey locust, etc.

Timing of cuttings

Cuttings are usually made in the cold, dormant season. Deciduous plants lose their leaves in winter, and 2-3 weeks before sprouting new leaves in the Spring is usually the best time to plant these cuttings. So if plants sprout in late February, plant the cuttings in early February. If they sprout in mid March, plant the cuttings in late February, etc.

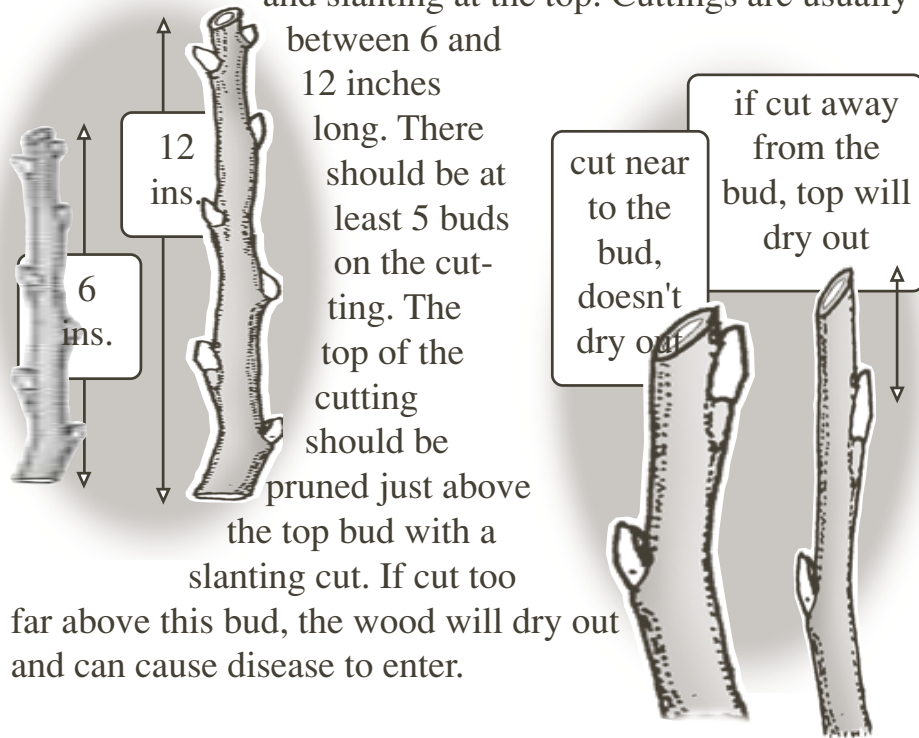


Selecting cuttings

When selecting branches for making cuttings, always choose healthy, undamaged and disease-free branches from last year's wood. Cut the branch cleanly into short lengths, and plant quickly in the nursery.

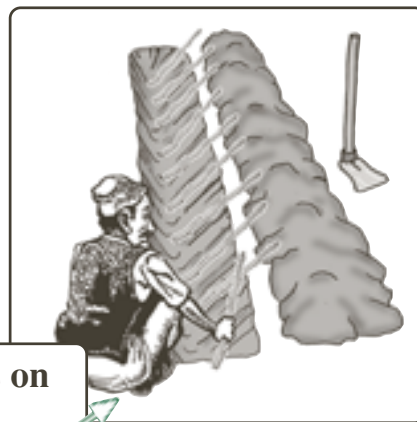
Things to consider when preparing cuttings

Cuttings are prepared after bringing to the nursery, and when preparing should be cut straight at the base and slanting at the top. Cuttings are usually



Preparing a bed for planting cuttings

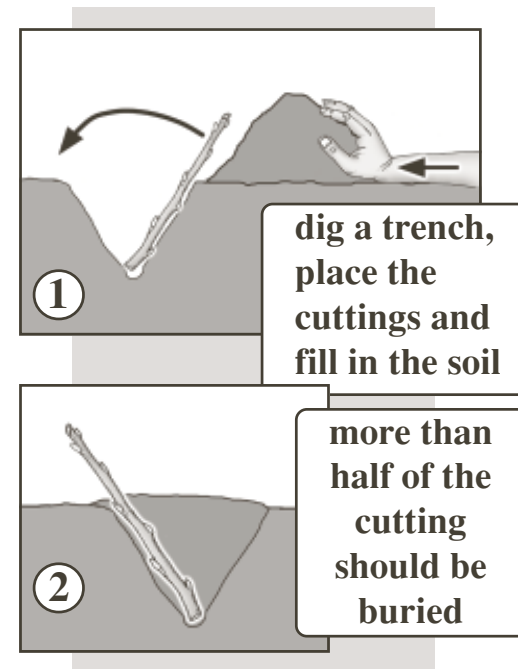
The bed is dug and made fertile as for a normal nursery (see p.6 and 10). It's most important that the soil is light and loose, not compacted like clay.



Dig a trench, place cuttings on one side, and fill in

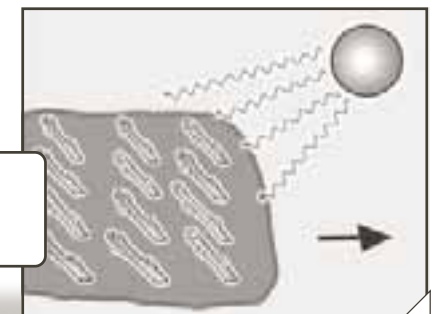
Planting the cuttings

After cutting the branch from the tree to be propagated and trimming it into short lengths, the cuttings should be



planted quickly into the bed to prevent them from drying out. Make a trench in the bed about 4-6 inches deep. Place the cuttings upright about 3 inches apart against the side of the trench. Then refill the soil into the trench, covering more than half of the cuttings. The cuttings should be left at an angle, as in the drawing. Plant the rest of the bed in lines like this. The cuttings should be left with the

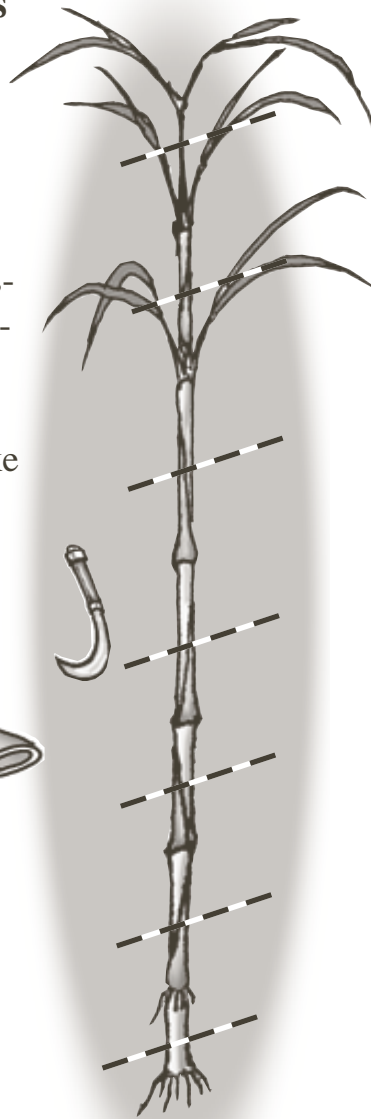
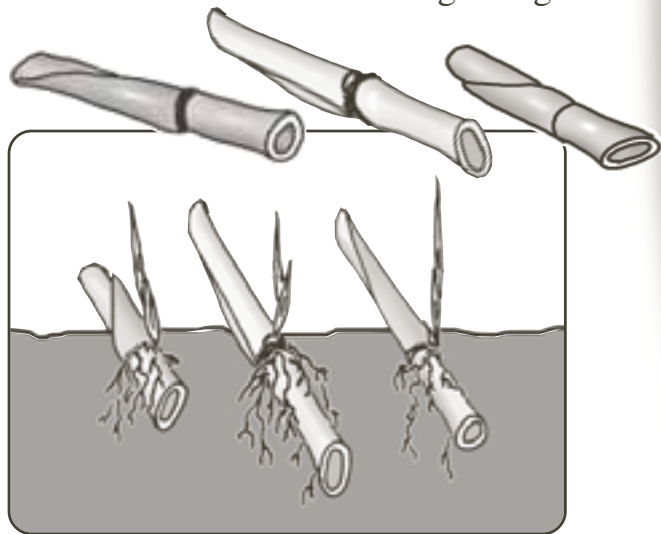
slanting top cut at a vertical angle, and facing away from the sun. By doing this water cannot settle on the top, and the sun will not dry out the cut surface. Place a light mulch between the cuttings and make thatch shades over the top. This will conserve moisture and protect from frost, hail, etc. The nursery should be well protected, as the cuttings should not be touched or moved.



plant the cuttings at an angle pointing away from the sun

(c) Planting Napier grass cuttings

The nursery for Napier grass is prepared in the same way as for other types. The Napier stem should be mature and slightly woody. If there are small aerial roots and leaves sprouting from the internodes, these can be planted in a nursery, or directly onto their permanent positions in the fields. To make the cutting, make a slanting cut mid point between 2 nodes. When planting in the nursery make sure the node on the cutting is buried in the soil. If successful, roots will sprout from this node and the cutting will grow.

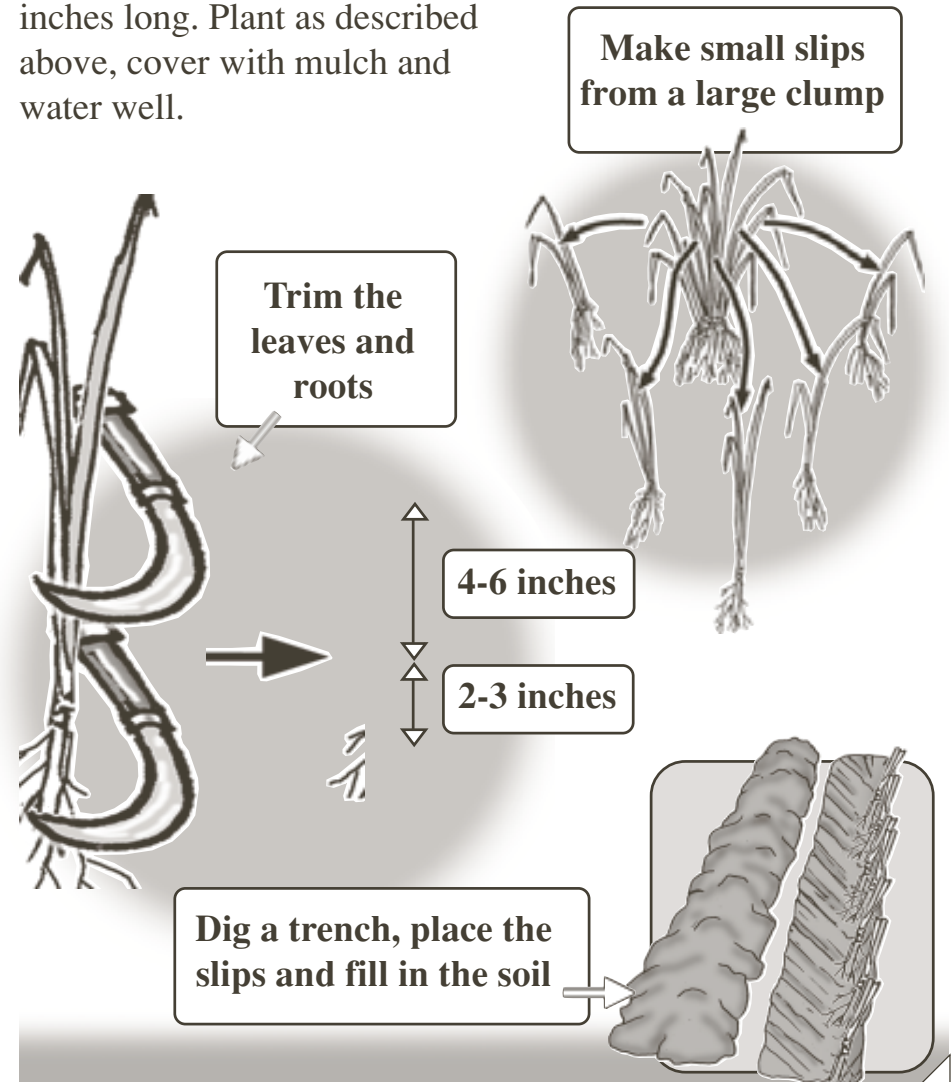


Many types of cutting can be planted in the rainy season as well. At this time, cuttings can be made and planted direct into farmers' fields.

Broom grass can be planted in a nursery in the same way, but this is done in the Summer.

(d) Planting Lemon grass slips

To propagate lemon grass, carefully dig out a large clump and divide into small plants, or *slips*. These can then be planted in the nursery. In the rainy season the small slips can also be planted out directly into the fields. Before planting, the leaves should be trimmed to about 4-6 inches and the roots trimmed to about 2-3 inches long. Plant as described above, cover with mulch and water well.



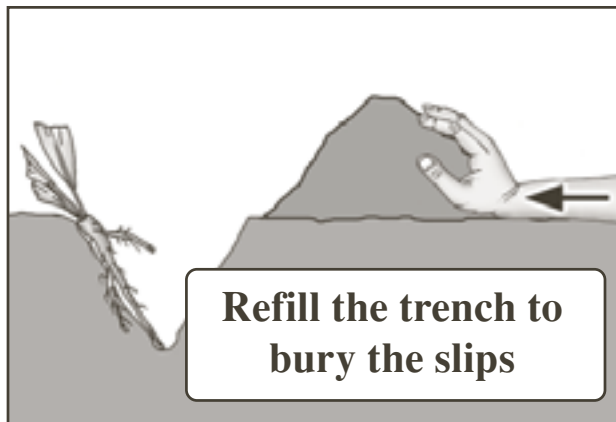
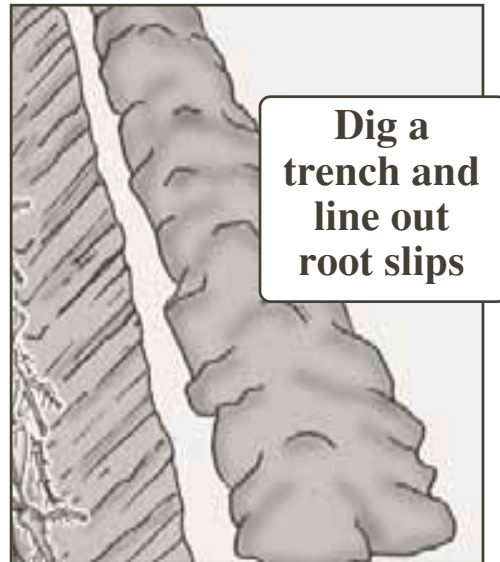
(e) Planting root slips

Some plants will grow from planting sections of root, or root and shoots. By planting these in a nursery, many useful plants can be produced in a small space. Plants which will grow from root slips include comfrey, lemon grass, broom grass and cardamon. Preparation of beds to plant root slips is the same as other methods described above.



Planting method

The method for planting root slips is the same for planting cuttings. Dig a trench and line the root slips along one side, then fill in the soil again. Leave a small shoot sticking up from the soil surface. Then cover with mulch and irrigate. At first the bed should be well watered, and then give water as needed. Add a thatch shade as required.

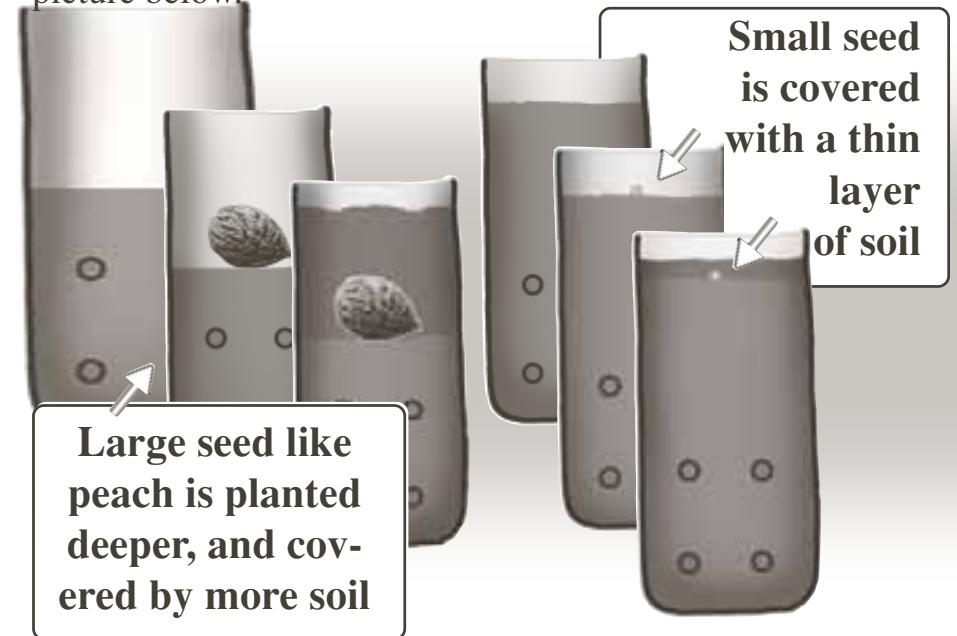


(f) Using Polypots

Many seeds can be planted directly into polypots. Others planted into beds can then be transplanted into polypots after they have germinated.

Planting seeds in polypots

When planting seed in polypots, the seed is buried by the same depth of soil as is the thickness of the seed. When filling the pots with loose, fertile soil, leave enough space to place the seed, then cover it with the remaining soil, as in the picture below.

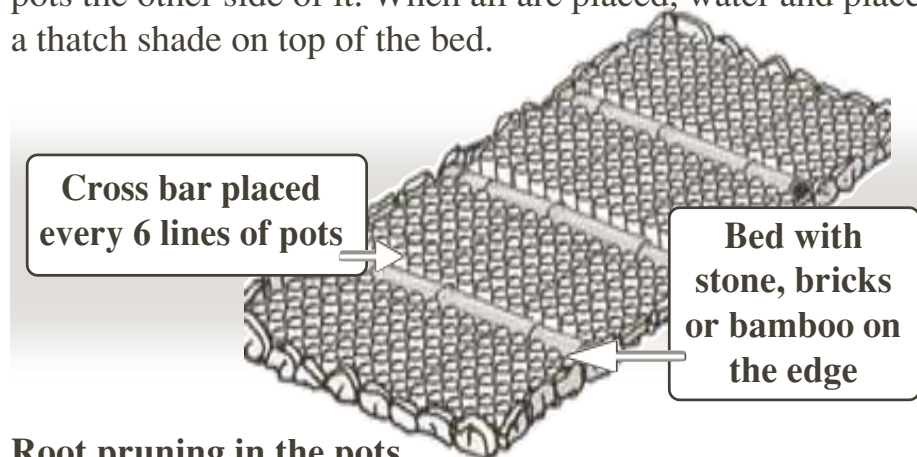


Placing the polypots in the nursery

After seed is sown in the pots they are put into the nursery beds. A bed width of 1 metre is enough, the length is according to the number of pots needed. It's not necessary to prepare the soil of the beds as the good soil is already filled into the pots. It is better if the floor underneath the pots is made of stone or gravel.

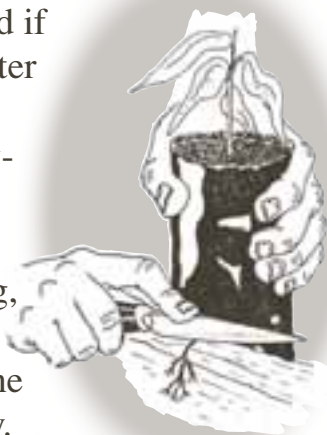
To keep the pots upright in the bed, place stones, bricks or bamboo around the edge. In a 1 metre wide bed, you can fit 18-20 regular small sized polypots (2 inch diameter) filled with soil. If large size, (4 inch) 8-10 pots will fit in one line.

To allow more space in the bed, place a cross bar made of bamboo every 6 lines of pots, and continue to place more pots the other side of it. When all are placed, water and place a thatch shade on top of the bed.



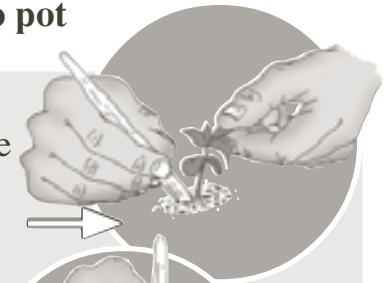
Root pruning in the pots

As the seed germinates and the plant grows, its roots will grow down into the soil in the pot. If the roots are allowed to grow too long and thick out of the holes in the pots, lifting the pots will be difficult and if the roots break the plant may die. So after the first month of growing, the pots should be lifted to check for roots growing out of the holes. If found, they should be cleanly cut and the pot returned to the bed. After the first pruning, pots should be checked every 2 weeks. Pruning the roots like this is good for the plant and means it can be planted easily. Not pruning can cause the plant to die.



Transplanting seedlings from bed to pot

If plants are to be transplanted from bed to pot, the seedling is ready at the 4 leaf stage. First, water the bed well and then carefully lift the seedlings with the help of a small stick.



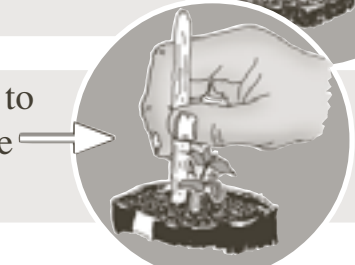
Using the stick, make a hole in the soil of the pot for the roots.



Making sure the roots of the seedling are pointing downwards, place the seedling into the hole. The roots must all be in the hole.



Finally, use the stick or fingers to press the hole closed around the roots, and give water.



For some days afterwards keep a shade over the bed, as the seedlings need to be protected from the sun.

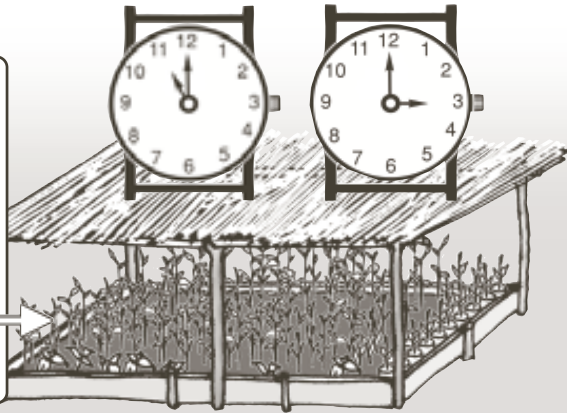
(g) Irrigating in the nursery

Seedlings need the right amount of water to grow well. With too little water seed will not germinate, and growing seedlings will dry out. Too much water and they will rot, and the water is wasted. Mulch and shading reduce the amount of water needed by conserving the moisture. In the cold season it is best to water in the morning, and in the hot season water in the evening or at night.

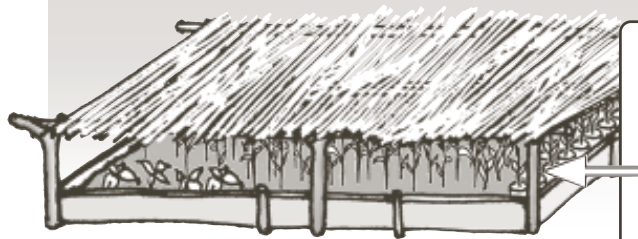
(g) Thatching over the nursery

Small seedlings need protection against heavy rain, strong sun, frost and hail, etc. On hot, sunny days shades should be placed over the beds from around 11am to 3pm. The shade should be about 50cm high. In the winter, or whenever frost is likely, shades are needed at night, and should be about 25cm high.

To protect from the sun in summer, high shades are needed in the daytime.



To protect from frost in the winter, low shades are needed at night



(h) Weeding in the nursery

Various weeds will grow in the nursery. These need continuous removal. Sometimes it's difficult to distinguish weeds from sown plants. By sowing in straight lines, seedlings can be recognised after they germinate. Everything else will be weeds and can be carefully pulled, dried, and mulched back on the beds.

Farmers' Experience

Mrs Devi Gurung

From Nepal, Surkhet district, Gumi - 3, Shera village, and a member of "Chintan" Women's Group, Mrs Devi Gurung has made her own home nursery. Now let's read about her experience.



Mrs Devi Gurung

“ I learned about making a home nursery from the Homestead Programme (JPP) and my local Women's Group. Now, in my nursery I have seedlings for producing fruit, firewood, fodder and the like. I have tree cotton, coffee, *Bauhinia*, bamboo, *Acacia*, papaya, *Lucaena* and so on. Some seedlings are in beds, some are in polypots, according to the species of plant. So now it's easy to plant them on my land. For fertility in the nursery and the vegetable garden I used the compost in the sweepings pit. And the waste water pit provides enough water for irrigation. All together there are 5 to 600 seedlings. Mainly I'll be planting them at home, but I will also swap some with friends in the group, and give some away as well. ”





Read On !




Subjects Related to Home Nursery

 **Liquid Manure chapter :-** Use local plants to make a liquid for fertilizer and pest control from information in this chapter.

 **Integrated Pest Management chapter**

There are many types of pest and disease which affect farm crops. In this chapter information is given about preventing these problems using local resources.


 **Waste Water chapter :-** If you need extra water for the home nursery, find information in this chapter about how to make use of household and tapstand waste water for irrigation.

 **Kitchen Garden and Mixed Vegetable Growing chapters**

How to make and manage a home vegetable garden for permanence, ease and simplicity ? Information on doing less work for more production while also being able to produce a wide range of fresh vegetables is given in these chapters.

 **Four chapters on how to make various other nurseries :-**

Different types of plants need different types of management to grow them successfully. Information on how to build and manage the fruit nursery, air nursery, hot bed and leaf pots is given in these chapters.

 **Agroforestry chapter :-** information about how to integrate trees and crops by planting and managing trees on farmland without decreasing farm yield and producing a range of other useful products is given in this chapter.
