

RAISING TREES

A guide for small-scale farmer groups

What is a nursery?

A nursery is a place for raising or handling tree seedlings until they are ready for permanent planting. Raising seedlings in a nursery increases the chances of survival. It allows for the selection of seedlings to produce good quality trees in the field.

Guidelines for nursery establishment

Consider the following when establishing a tree nursery:

► **Tree species selection** – as a farmer you need to know why you are growing a particular tree species. This understanding will affect your level of care and management. Ask your lead farmer or camp extension officer about the benefits of the different tree species. Don't plant a tree just because the project or neighbor says so.

► **Number of seeds and seedlings required for your land:**

- Consider different sites for future tree planting: Next to your house, in your garden or in your fields.
- Consider which tree species to plant on which site. Assess the land available.
- Assess your ability to later transport and plant seedlings in one or in several of these sites.
- Inform your lead farmer about your demands.

Step-by-step procedure of establishing a tree nursery



1 Site preparation – the site should be: (i) in a shade; (ii) easily accessible; (iii) near a water source; (iv) protected from animals (fenced); (v) on bare soil, without grass, shrubs or termite mounds.



2 Seed collection – seeds should be collected from disease free, ripe or mature fruits or pods. Seeds should be stored in a dry & dark environment before being used for planting.



3 Preparation of growth medium – mix together 3 parts fertile soil, 2 parts clay, 1 part manure and 1 part river sand. Wet the mixture lightly the day before putting it into planting bags.

4	Pre-treatment method
Gliricidia	Soaking overnight planting in the morning
Mango	cut seed slightly with a knife, soak for 3 -4 days and peel off seed coat.
Lemon	Soaking overnight and peeling off the coat in the morning
Paw paw	Soaking overnight, planting in the morning
Moringa	Soaking overnight planting in the morning
Khaya (Mubaba)	Peel off the seed coat, soak seed overnight
Tephrosia	Direct planting (not to establish in nursery)
Pigeon pea	Direct planting (not to establish in nursery)
Neem	Plant direct when fresh or few days after harvesting

Seed pre-treatment – Each species needs a different treatment as shown in the table above.



5 Planting - plant seeds at a depth of about 1 to 2 times the width of the seed. Only plant one seed per pot. Start filling the planting bags in September. Plant tree seeds of slow growers early October. Plant fast growing seeds such as pawpaws or Gliricidia in late October or early November.



6 Mulch, watering & weeding - mulch the planting bag after seeding. Water at least twice a day - in the morning and evenings. The frequency of watering in a week should be based on the moisture content of the soil in the planting bag.



7 Protection of young seedlings:
 (i) against livestock – use a fence
 (ii) against fire - no dry grass near the plants to fuel a fire. Make a fire break around the nursery.
 (iii) against termites - use natural insecticides such as snake beans, tephrosia or ash. Sprinkle any of these natural remedies where seedlings are raised.



8 Root pruning: this is the process of controlling the growth of roots so that they don't outgrow the planting bag. This is done to: (i) avoid roots growing into the ground; (ii) stimulate the growth of feeder roots; (iii) slow the growth of the seedling. Root pruning can be done by placing seedlings on polythene sheet (A); or cutting roots that come out from the bag using a scissor or knife (B); or placing the planting bags on a raised rack (C).



9 Hardening off – this is the process of helping the young seedlings to adjust to field conditions gradually. This avoids damage or death for plants by making a slow transition to field conditions. Seven to ten days before transplanting, reduce water supply by watering once a day and later once every two days.

Seedling distribution: distribute seedlings among the members of your farmer group when the rains are well established. This gives the trees a good chance of survival and establishment. If one member refuses to take up a particular species, that species should be shared equally among the rest of the members.

Note on root pruning: root pruning should be avoided two weeks before transplanting as seedlings may not be able to recover from the stress. After cutting the roots, the seedlings should be watered as they may be stressed.