

NURSERY PRODUCTION IN TANZANIA

General information

- Tree seedling production is a key step in the forestry value chain, just as you cannot produce bread with spoilt flour, you need good quality tree seed material to grow proper forests.
- The best tree seedlings are from professional tree seed orchards that produce improved tree seeds. These seeds come from known sources of plus trees that grow with full potential. Hence, use of improved tree seeds is always recommendable, as it guarantees better quality tree, higher growth rate and purity of seeds.
- There are two kinds of tree nurseries in Tanzania: plastic tube and seedling tray nurseries. A major benefit of a plastic tube nursery is robustness of seedlings, which makes them more tolerant for handling and transportation. However, this also makes them bigger and heavier, for example three times more tray seedlings can be loaded than tube seedlings during transportation.

Considerations before establishing a tree nursery

- An assessment of available markets is needed to ensure that you have enough buyers for your seedlings. This can be achieved by doing a pre-season marketing round to evaluate the demand. You can make a pre-order list of your clients, and if you want to be sure, you can negotiate with them on partial pre-payment and delivery dates.
- When establishing a nursery, you need to evaluate the land area that you need for your nursery. When evaluating your sales during pre-season marketing, you can calculate each acre of land that your clients want to plant requires about 600 seedlings. This means that if you establish a nursery of 400,000 seedlings, you can sell enough seedlings to plant about 700 acres of forest.
- The required area depends on the size of the nursery: approximately 1/2 acre is required for 400,000 seedlings.
- You need to also choose the correct species. When selecting the correct species, you should consider demand and the suitability of species for the planting regions that you are servicing, its climate, altitude and soil.
- When selecting the area for your nursery, make sure that the area is fairly level and well-drained and has a good quality, sustainable water source. See picture 4 for sloped construction.
- You need to choose between plastic tube or a tray nursery. Note that in a plastic tube nursery the seedlings can be on ground, but in a tray nursery the trays must be raised above the ground to facilitate root pruning. See pictures 1 and 2 below.

Nursery establishment

- The following structures and materials are required in a well-established tree nursery:
 - Germination beds, if used, with pathways between the beds for seedling management.
 - Seed beds (rows of seedlings either in trays or tubes).
 - Shed for tools, chemicals and administration.
 - Water source: either tank(s) or gravity feed.
 - Growing medium (porous structure): soil, coconut husks (cocopeat), charcoaled rice husks, pine bark or peat. Growth medium should be tested to ensure that it is clean, sterile (contains no diseases or other seeds).
 - Shade cloth (that provides 15% shade from the sun and any occasion of hail or strong rain).
 - Trained personnel. 1/2 acre nursery requires a team of about 10 people.
- Seedling beds can be sown either directly into the tubes or trays (recommended), or into a germination bed from which they are transferred to tubes or trays after germination.
- The use of improved tree seeds is strongly recommended, as this ensures good quality product for your clients! You can see the differences between village seeds and improved seeds in picture 2 below. The dark green seedlings are from village gathered pine seeds, whereas the light green seedlings are from PFP provided improved seeds.
- Irrigation can be organized by using a sprinkler system or it can be done manually with watering cans.
- Fertilising can start a month after sowing the seeds, with low rate of fertilizer that slowly increases over time as the seedlings mature.



Picture 1. Tray nursery



Picture 2. Tube nursery



Picture 3. Shading

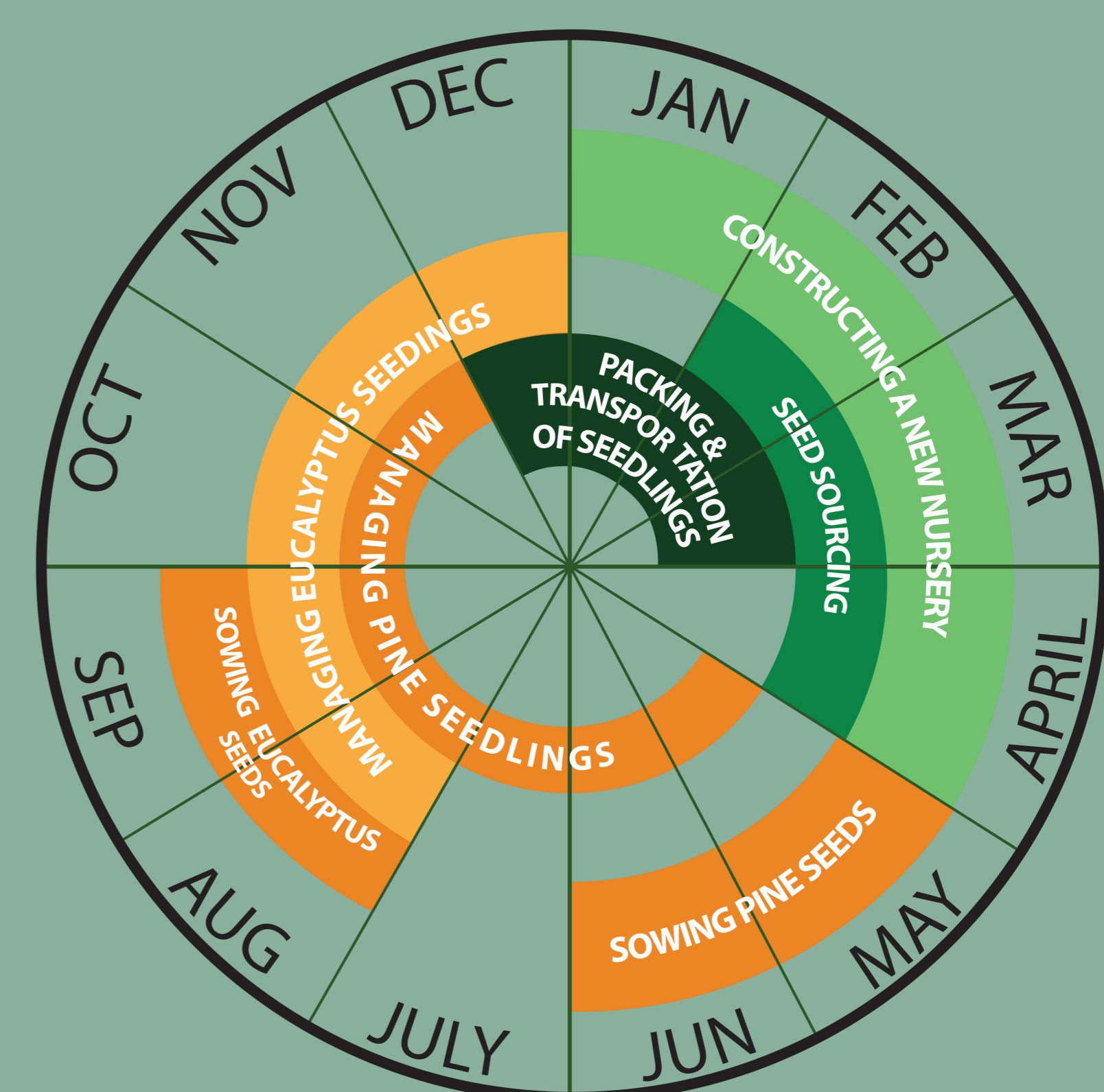


Picture 4. Slope constructions and active management

Nursery management

- Active maintenance, including good hygiene and weeding are critical to the success of seedling growing.
- Dangers are over- or under-watering, plant diseases and overfertilization.
- In the case of fungus, mould or pest infections, measures such as throwing away and destroying the sick plants and the use of fungicides and insecticides should be taken. If you detect diseases, destroy the diseased plants away from the nursery, not on site.
- In the case of diseases, also throw away the growing medium of diseased plants, do not reuse it (as it contains pathogens and can cause the problem to re-emerge).
- Record keeping and labelling of seedlings is crucial; always label seedling batches well in order to provide customers with the correct product.
- Even with good and active management, problems such as diseases can arise. Expect (and calculate in your production figures) a loss of 5–10% before starting production. This also means raising seedling prices accordingly to cover your losses.
- Seedlings must leave the nursery well watered!
- Treat seedlings with care so that the root ball does not fall apart.

Nursery activity calendar



Services related to tree nursery activities at FWITC

- Demonstration services for stakeholders
- Tree seedling production for Tanzanian tree seed orchards
- Training tree nursery entrepreneurs on nursery establishment and management

PFP's support for Tanzanian tree seed orchards

At the moment the national good quality tree seed orchard capacity is limited and services mostly government needs.

To answer the needs of private tree nurseries and small-scale tree growers, the Private Forestry Programme (PFP) is developing in total 150 hectares of tree seed orchards in collaboration with the Southern Highland Tree Growers' Associations. It is expected that these orchards will be able to answer to the needs of the entire country within a decade.

Contact and how to get there

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Driving instructions: Junction of CF Madibira Rd., drive straight about 1,5 km. The junction to FWITC is opposite to the briquetting factory, on the left side of the road.

About the Private Forestry Programme (PFP)

The Private Forestry Programme (PFP) supports private forest ownership, particularly the establishment and management of plantations by smallholders, as well as the wood industry and the development of mature timber markets that would benefit all stakeholders. The programme operates in four regions: Iringa, Njombe, Morogoro and Ruvuma.

The Programme is supported by the Ministry for Foreign Affairs of Finland and the Ministry of Natural Resources and Tourism of Tanzania.