

Plant
Melia volkensii
on your farm



Why *Melia volkensii*?

In its natural range it is common to find farmers grow the tree or leave it standing on their crop field for a variety of reasons:

USES OF MELIA



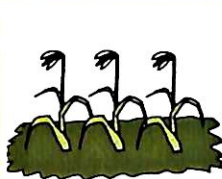
timber



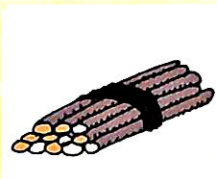
fodder



bee forage



green mulch



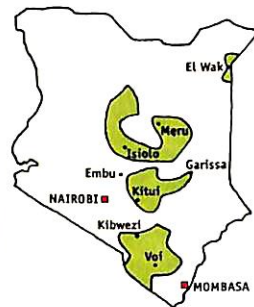
fuelwood



pesticides

Where do I find *Melia volkensii* ?

Melia volkensii is a tree species in the Family *Meliaceae* and known in different local languages such as Mukau (Kamba), boba (Somali), mpenda bure (Kiswahili). *Melia* is a deciduous tree with open crown and laxly branched. Mature tree range from six and 20 m tall. Trees with 25-cm diameter are common. *M. volkensii* is an indigenous species of the semi-arid to arid lands (ASALs) of East Africa from southern Somalia through east of Mt. Kenya and south area to Kenya.



Distribution of *Melia* in Kenya

Altitude: 350 – 1700 m above sea level

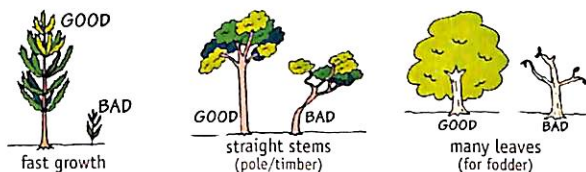
Rainfall: 300 – 800 mm.

Soil: sandy, clay and shallow stony soils, good drainage.

How do I collect my own seed of *Melia*?

Seed source: Kavisuni (Kitui), Yatta (Kitui) and Nuu (Mwingi).

Seed are collected between the month of July and August.



EXAMPLES OF GOOD MOTHER TREES

How to collect seed



Mature fruits can be collected from the tree directly. Care must be taken to ensure that the fruits are mature (mature fruits of melia are brown).



Collect fresh seed that have been eaten and dropped by goats around the goat shed or around the trees (such seed give better germination).



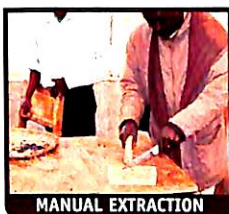
Seed storage

Mature and properly dried seeds (11-15% moisture content) can be stored in airtight containers at room temperature for several years without damage.



Seed extraction

- 1) Once ripe fruits are transported to the nursery, they are de-pulped by using a mortar and pestle (seed collected from goat droppings does not require go this process).
- 2) The dry seed (nut) is then cracked using knife and a plunk of wood. KEFRI/JICA have developed a simple device, which can be used to crack the nut more efficiently and reduce damage to the seed inside.



Note: On average there are 200-extracted seeds/kg

How to propagate Melia

Pre-germination treatment

Melia seed need pre-germination treatment before sowing. The following steps are followed:



Nip the seed.



Soak in cold water for 24 hours.

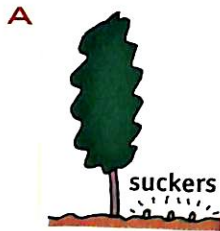


Slit the outer cover longitudinally.

Note: Use a sharp razor. Any slight damage to the cotyledon will result in fungal attack.

Vegetative propagation

Vegetative propagation using root cutting can be used to produce seedlings. The following steps can be used:



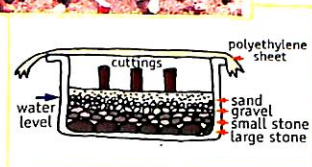
Roots of trees growing on farmland injured during ploughing will produce suckers which can then be uprooted and put in pots in the nursery.



Roots are cut and planted in a non-mist propagator.



The propagator is kept moist throughout the duration.



Once rooting takes place, the rooted cutting is transferred into a pot filled with nursery soil.

Seed sowing



- 1) Fill germination box (water bucket can be used as germination box) with sterile sand (sterilize sand by heating).
- 2) Sow seeds into the sand-filled germination box.
- 3) Water thoroughly once (you do not need to water again until the germination is complete).
- 4) Cover with a polyethylene sheet to maintain high humidity in the germination box.

Nursery management

Pricking out

- 1) Pricking out is carried out as soon as germination is spotted.
- 2) The pricked out seedlings are planted into potting tubes filled with good nursery soil.



- 3) The potted seedlings should be kept under shade for at least two weeks before exposing them in the open nursery.



Nursery operations

- 1) Watering should only be done when the pots are getting dry (Melia seedlings must not be over watered, as seedlings are sensitive to water logging).
- 2) Remove weeds from the pots when necessary.
- 3) Hardening-off is necessary before planting (this is done by reducing watering regime).

Establishing *Melia volkensii*

Natural regeneration

In its natural range, it is common to find melia regenerating from the injured roots on farmlands. If this happens then:

- 1) Uproot some of the seedlings to remain with the number required and at the spacing required.
- 2) Protect the remaining stems from browsing animals by putting a fence around every stem.
- 3) Weed, when required, to reduce competition from unwanted vegetation.



Artificial regeneration

Artificial regeneration use seedlings raised in a tree nursery or wildings. The following stems are necessary:

- 1) Clear the site of all existing vegetation.
- 2) Plough the planting site either by hand tillage or oxen ploughing.
- 3) Mark the points (using pegs) where planting is to be done (staking out).
- 4) Dig pits for planting. The size of the pits depend on the mean annual rainfall for the area. Size ranging from 45 cm x 45 cm to 60 cm x 60 cm may be ideal. The drier the site the bigger the pit size should be.
- 5) Construct water harvesting structure to harvest runoff water.
- 6) Re-fill the pits with the top soil just before the on set of rains.
- 7) Once there is enough moisture build up in the soil, plant the seedling. Planting should be done in such a way to avoid water logging of the young plant (melia is very sensitive of water logging).
- 8) Protect the planted tree against browsing animals.
- 9) Weed to reduce competition from unwanted vegetation.
- 10) Trees established using this technique attain up to 2-m in one year and produce seed in 4 years.



Management

A



Trees that are to be used for timber are pruned; side branches are removed to produce a clean and straight pole, free of knots.

B



Trees in cropland are pruned heavily at planting time to reduce competition with crops, particularly for light.

C



Pruning is also done to coincide with time when fodder is scarce to provide fodder for livestock.

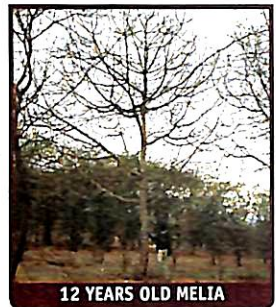
D



Some farmers pollard their trees, believing that this induces an increase in diameter.

Harvesting and marketing

When well managed melia timber can be used from the year seven after planting. Melia logs are sawn and sold in the local markets for door frames and timber for furniture. The value of melia timber is high and market is readily available. The local supply can not meet the demand.



Melia log



Sawn timber



Furniture



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