

MALAI VEMBU (*Melia dubia*) - FOR FARM AND AGRO FORESTRY

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Melia dubia (Malai Vembu in Tamil) is a promising tree highly suitable for farm forestry and agro forestry for generating higher income in the semi-arid regions. Agro-forestry is a sustainable land management system which increases the overall yield of the lands; combine the trees and shrubs with agricultural crops and or livestock on the same unit of land, either simultaneously or sequentially. One of the main problems that farmers face today is decreasing income from an acre per year against sudden increase in the value of agricultural lands.

Planting certain tree varieties such *Melia dubia* which fetch a handsome price in the market, assured buyback, and require low maintenance expenditure may help in this regard. In addition, the trees also aid the planet by preventing temperature rise and checking gas emission into the atmosphere. *Melia dubia* is the fastest growing tree and the wood from this tree is used in Plywood Industry. *Melia* is a money spinning tree of short duration. Since there is a total mismatch between demand and supply for wood, block planting of 300 to 400 trees per acre can ensure a minimum profit of rupees one lakh per year from an acre.

Cultivation

It grows on a variety of soils; however, it grows well in deep, fertile and sandy loam soils. It has the unique feature of growing to 40 feet within two years from planting and can be mechanically pruned and harvested. It is commonly found in the hills at elevations ranging from 600 – 1800m. It does well in

moist regions, with a mean annual rainfall exceeding 1000 mm. However, it can be successfully grown in dry region also with supplemental irrigation. The rooted saplings are planted onset of the monsoon or during the monsoon. The suggested pit size is 2' x 2'-0.60 m Cube. Spacing of 3 m x 3 m is recommended. This will give better girth in shorter duration.

Straight pole fetches good price in the market. Under irrigated condition in fertile soil, the plant produces 3 to 4 branches at the height of 12-14 feet. Pruning of side branch should be done at this stage. When planted in dry lands and in drought prone areas, the tree branches at the height of 6-8 feet.

Case study in Ayalur Watershed

Demonstrations on incorporation of commercial tree growing into farming systems were carried out successfully by the Central Soil and Water Conservation Research & Training Institute (CSWCRTI), Research Centre, Udhagamandalam for increasing the farm income in Ayalur Model Watershed, Erode District, Tamil Nadu developed under Macro-Management of Agriculture (MMA-NWDPRA) programme of the Ministry of Agriculture, Govt. of India.

The area lies in the tropical zone characterized with scanty rainfall and dry climate. The average annual rainfall is about 600 mm. Most of the annual rainfall (about 51%) is received during the North-East monsoon (October to December) accompanied with high intensity storms. The watershed receives good rains

(30%) during South-West monsoon also. The uncertainty of North-Eastern monsoon and not too favourable contribution from the South-West monsoon make the plight of local agriculturists miserable.

Micro-site improvement

In Ayalur watershed where the soil poor in texture and nutrient, block plantation of *Melia dubia* was successfully established with micro site improvement technique. In this technique, pits of 0.45 x 0.45 x 0.45 m were dug at the spacing of 3 x 3 meter to accommodate 1100 seedlings per hectare in the farmer's field.



Micro-site improvement

After removing gravels and stones the pits were filled with top soil and farm yard manure (10kg pit⁻¹). To induce early and better growth of seedlings, bio-fertilizers (*Azopirillum*, *phosphobacteria* and VAM @ 50gm each pit⁻¹) was applied during the planting. *Neem* cake @ 200gm pit⁻¹ was applied to control root pests. Seedlings were planted during the onset of south west monsoon. Initially, irrigation was

given through drip @ 8-10 litres once in two days during summer. Branches were pruned periodically to get straight poles. In this technique, 92 percent survival was achieved



Eight months old Melia block plantation

with average girth of 12cm and height of 6.4 meter within one year. The tree attained an average height of 8.5 m with 13.5 cm girth two year after planting with supplementary irrigation.

Table 1. Growth of Melia tree

Age	Height (m)	Girth (cm)
Six months	1.8	7.0
One year	6.4	12.0
Two years	8.5	13.5

Grazing by cattle is the major problem when taking up any forestry intervention in the watershed. This problem was solved in the Ayalur watershed by planting this *Melia* tree as the leaves are less palatable.

Economics

To plant one hectare of land as block plantation, it cost around Rs 27500.

Table 2. Cost of plantation

Particulars	Cost(Rs)
Soil working	6000
FYM	3000
Bio-fertilizer	5000
Cost of plants	11000
Planting cost	2500
Total cost	27500

Each tree is expected produce 5-7 cu.ft. of timber and the farmers may get 15 lakh from one hectare of land after six years with current price of wood (Rs. 300 per cu.ft.) After seeing the successful establishment and good growth of this tree species, many farmers in the watershed came forward for taking up this tree as agro-forestry. Three thousands number of *Melia* were planted by the farmers on the bunds surrounding their field with 3 m spacing as single row. Many line department officials, WDT members and farmers visited the site and were convinced that this kind of farm forestry can be taken up on commercial basis.

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