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Melia dubia – A Money Spinner for the Agrarian Community

Abhilasa Kousik Borthakur

Krishi Vigyan Kendra, Assam Agricultural University,
Darrang, Assam (784 125), India



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Corresponding Author

Abhilasa Kousik Borthakur
e-mail: avilashakoushik@gmail.com

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Abstract

M*elia dubia* belongs to Meliaceae family and is a fast growing species of tropical deciduous tree that attains maturity in four to six years. Being anti-termite in itself, these softwood trees are suitable for plywood production and paper pulp industry, which makes it beneficial for the farmers to cultivate them in agro-forestry systems. This tree has a myriad of purposes starting from plywood industry to pharmaceutical uses. It is a low maintenance crop and ratoons can be used for cultivation in the subsequent years. Intercropping with *Melia dubia* can also fetch a good income to the farmers.

Introduction

Agriculture sector has shown a growth rate of 3.4% in the first quarter of 2020-21 despite the recent downfall in the overall GDP of the country which clearly signifies that this sector holds a promise to show positive growth momentum in the recent years too. At a time when the whole world is reeling under a pandemic and the economist are anticipating a post pandemic economic crisis, it is very essential for the farmers to grow certain species of crops which can fetch money at a shorter span of time. *Melia dubia* or Malabar Neem is one such tree that grows upto a height of 20 m in four to six years and can be used for reforestation purpose in fallow land; and it should be noted that India has 24,848 thousand hectares of fallow land (2017). Apart from helping to reduce the carbon footprint, it is a tree which is highly demanded in the plywood industry. When harvested beyond 7 to 15 years it ensures good quality timber that can be used for construction purpose. The alkaloids and the silver nano-particles in the leaf extracts of *Melia dubia* make it a contestant in the pharmaceutical industry too. About 400 trees can be planted in an acre which fetches Rs. 10-12 lakhs in 6-8 years.

Origin

It is an indigenous species of India, South East Asia and Australia. It grows really well in the Indian states of Kerala, Karnataka, Sikkim, North Bengal, Assam, Khasi Hills, Hills of Orissa, Deccan and Western Ghats at altitudes of 1500-1800 m. It can be grown in regions with elevation ranging from 600-1800 meters and grows well in places having annual rainfall between 625-875 mm.

Soil

It grows well in well drained fertile soil with ample amount of moisture. Sandy loam soils are considered to be the best for Malabar neem cultivation. It requires alkaline

soil condition for better growth, while a pH of 5.5 to 7 is considered ideal.

Cultivation Practices

If seeds are chosen for propagation the drupes should be graded in water to sort out the floating seeds. About 6-7 kg of dried drupes containing about 1500 Nos. seeds are required for one standard nursery. March-April is the best time of sowing seeds. An open raised nursery bed with soil-FYM in the ratio of 2:1 is considered ideal. Germination occurs within 90 days under ample temperature and daylight conditions. There have been reports claiming poor germination of the seeds of *Melia dubia* with germination percentage as low as 10%. Hence vegetative propagation using stem cuttings are viable. Stem cuttings of pencil thickness and coppice shoots responds better to rooting and rooting can be fostered with the application of 1000-2000 ppm IBA. The substrate used should be sand and care should be taken for watering as well as drainage.

Planting

The rooted saplings should be planted on the onset of monsoon in pits of size 2 ft × 2 ft. Before planting the pits should be filled with 2-3 kg FYM and should be covered for a week. After 10 days, the pit should be slightly opened by around half feet to add biofertilizers and biopesticides, adding 40 grams of *Phosphobacteria*, *Azospirillum* and *Trichoderma viride* will help in healthy growth of the sapling. The recommended spacing is 3×4 m but 3×3 m spacing was also found to be conducive.

Intercultural Operations

The plant starts to produce 3-4 side branches under suitable growing conditions at the height of 12-14 feet which should be pruned as the straight poles fetches better price in the market. The tree will grow erect with a single trunk up to 10 ft. height or more without branching when side shoots are pruned or the nodal buds are nipped. The sapling requires ample amount of light during the initial years. Growth is enhanced by the application of fertilizers once in every three months for three years and irrigation once in every 10-15 days interval during the non-rainy season. Under rainfed condition growth dwindles and the tree starts branching at a height of 8-10 m.

Intercropping

In order to utilize the space between the trees intercrops like groundnut, chilli, green gram, black gram, turmeric and papaya can be raised successfully in the first year of planting. Growing leguminous crops will also enhance the

soil nutrient status. Banana and lemon can be included as an intercrop crop, if *Melia dubia* is planted for timber purpose with wider spacing of 5 to 6 m. Intercropping with trees is generally not advisable as it could slow down the growth of *Melia dubia*. It is also grown along with other trees such as Teak, Nutmeg and coconut trees to fill the inter space advantageously between trees in a garden. The tree can also be planted on the bunds of the field where it attains harvestable size within four years.

Plant Protection

Regular monitoring of the saplings in the nursery is very essential to check the infestation and spread of pest and pathogen. As a prophylactic measure, application of 5% NSKE in every 10 -15 days of intervals is effective against insect infestation. Roguing out infected plants and use of *Trichoderma viride* and *Pseudomonas fluorescens* is also found to be effective against root rot caused by *Fusarium* spp.

Harvesting and Ratooning

The trees can be harvested after 5 years for better returns. It should be cut just above the ground level leaving the side suckers emerging from the basal region of the stem. Only one sucker from the tree clump should be as a ratoon crop. Ratoon crop grows faster than the newly planted saplings and attain maturity in a short period of time. Moreover the cost of field preparation and planting can be avoided by using ratoons. But one should remember that the yield of ratoon crop decreases after each cycle and hence should be repeated only up to three years for optimum production and returns.

Conclusion

At a time when agriculture has lost much of its sheen and looks jaded, it is very much essential to boost the farmers with cultivation practices that requires low maintenance and is remunerative at the same time. A huge demand- supply gap can be seen in the plywood, pulp, patch stick and packing case industry and *Melia dubia* serves these myriad of purposes. It also supports a variety of crops as intercrops throughout its growing period so that a farmer can benefit from that very piece of land.

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