



IFGTB NEWS



Quarterly Newsletter on societal applications of research **Interventions in Forestry, Genetics and Tree Breeding** from the Institute of Forest Genetics and Tree Breeding, Coimbatore.

(A national institute of the Indian Council of Forestry Research and Education, Ministry of Environment, Forest & Climate Change, GOI)

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From the Director's Desk

ICFRE-Institute of Forest Genetics and Tree Breeding is mandated to work on forest genetic resources and tree improvement, its silvicultural aspects, protection from pest and diseases etc. and also to take the research outcomes to the stakeholders. 'IFGTB News' is trying to reach out to all stakeholders by providing capsules of information about such outcomes.

The present issue discusses the cultural linkages of plants by taking example of *Madhuca longifolia* var. *longifolia*, introducing image analysis as a new tool for morphometric analysis, news on book "Trees suitable for Agroforestry Systems" and celebration of International Day for Biological Diversity.

I hope this issue of the newsletter will be both informative and interesting to all readers and stakeholders. As always your suggestions and comments are welcome.

Dr. C. Kunhikannan
Director, ICFRE-IFGTB



Iluppai (*Madhuca longifolia* var. *longifolia*) as Depicted in Tamil Literature of Sangam Period

D. Thangamani*, S. Poopathi Rajan, R. Vasudevan, O.M. Md. Nawas, S. Lalitha and P. Chandrasekaran

Forest genetic resources are the heritable materials maintained within and among tree and other woody plant species that are of actual or potential economic, environmental, scientific or societal value. An important aspect of societal value is how a particular plant species is culturally connected with people. Understanding the cultural history of plant-people relationships helps in conservation efforts. *Madhuca longifolia* var. *longifolia* (L.) J.F. Macbr. (Sapotaceae) grows throughout India and is variously called as *Iruppai*, *Iluppai* (Tamil), *Ilupa* (Malayalam), *Vippa* (Telugu), *Mahua* (Hindi), Honey tree, Butter tree (English) and *Illipe* (French). It is a multipurpose forest tree that meets the needs of timber, food, fodder, and fuel. As a case study the depiction of *M. longifolia* var. *longifolia* in the Tamil literature of Sangam period (300 BC to 300 AD) is briefly discussed in this article.

Food for animals

The first of eight anthologies of Sangam literature, *Natrinal* mentions that fruit bats prefer the sweet-tasting *Iluppai* fruits over the neem fruits that have a radiant colour (279). *Akanānūru*, another anthology says that Sloth bear with killing strength, that rises up for daytime hunting, hates eating the sweet fruits on the tall branches of *iluppai* (*Akanānūru*: 81). Another poem describes the colour of the *Iluppai* tree's trunk as granary-like and talks about how a male stag abstains from eating the sweet flowers of *Iluppai* and calls out its mate to have them instead (*Akanānūru*: 321).



Morphology of *Iluppai* tree

The form and anatomy of *Iluppai* flowers was beautifully drawn in many lines of the same anthology. 'Bears that have given birth eat clusters of hollow *Iluppai* flowers that look like hailstones, growing on trees with rough, cracked trunks' (*Akanānūru*: 95). The conical shape of flower is described as 'white flowers with pointed petals from swaying *Iluppai* trees drop on boulders below, looking like dice that have been made from drilling conch shells' (*Akanānūru* 135). The

Iluppai buds were likened to toes of wild cats, the white flowers look like as though carved from ivory and they get eaten by groups of bears' (*Akanānūru* 267).

Other *Akanānūru* poems describe the topography of *Iluppai* habitat as that one 'surrounded by mountains' (275), and the flowers on black branches breaking the red termite mounds in the harsh forest (171, 247). Another master class description on floral phenology of *Iluppai* is found in *Kurunthokai*, another anthology of the *Ettuthokai* series. 'Attacked by fierce winds in summer, the white flowers on tall branches of forest *Iluppai* trees have dropped off their stems and blanketed the narrow paths where elephants walk, hiding them completely' (329).

Undoubtedly, literature helps us to understand the various domains of human knowledge. Over the period of two millennia, several environmental and climatic changes have taken place. The depictions of flora and fauna in literature can provide insights for



better understanding of their biology and relations with human and help in drawing up efficient utilization and conservation strategies. Through surveys conducted throughout Tamil Nadu, ICFRE-



IFGTB has located *Iluppai* groves that are estimated to be centuries old with large trees some of which measure as much as 32 m tall with 9.7 m girth qualifying to be conserved as heritage trees.

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Morphometric Variability Studies of *Aegle marmelos* using Image Analyzer

Vineetha, M.V., Vineeth Deva,V., Suresh Kumar, K., Sathish, A. and Anandalakshmi, R.*

Seed shape and size are important characters that help seed or species identification. These traits are expected to be unique for each seed source. In *Aegle marmelos*, quantitative evaluation of seed size and shape was carried out in 10 Candidate Plus Trees (CPTs) of Tiruppur population using image analysis. Manual measurement of seed size is cumbersome and restricted only to parameters such as length and width, whereas image analysis provides a more rapid and accurate evaluation. In the present study, morphometric parameters such as area, length, width, aspect ratio, perimeter, roundness, equivalent circular diameter, convex area, convex perimeter and fullness

ratio were measured. For the analysis, a photograph of the labelled specimen was taken with a scale and measurements were calibrated using the Leica LASX software. The results showed significant variations for fruit and seed parameters among the CPTs within the population.

Very high intra specific variation in *A. marmelos* indicates that Tiruppur population is diverse and also implies that it is quite safe and does not require immediate conservation measures. However, the wide variation present in *A. marmelos* provide good scope for tree breeding of this species for desired characters of utility.



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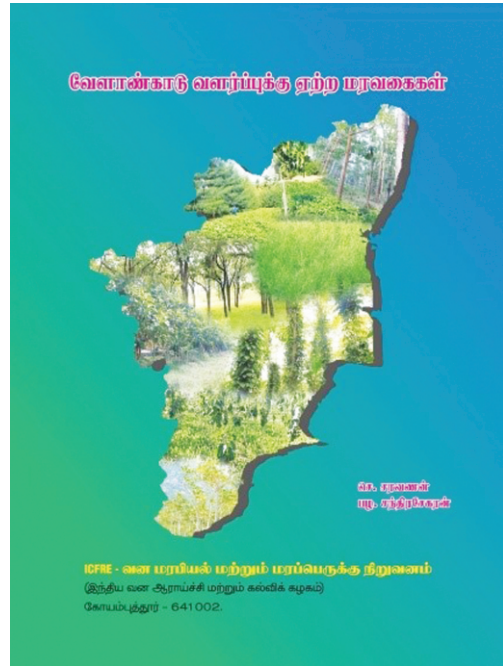


Book Release: Tree Species Suitable for Agroforestry Systems in Tamil Nadu

S. Saravanan

ICFRE-Institute of Forest Genetics and Tree Breeding released a book on 'Tree Species Suitable for Agroforestry Systems in Tamil Nadu'. All information needed for cultivation of agroforestry species have been compiled by Scientists specializing on those species. The comprehensive information provided in the book include: weather and climatic requirement for good growth, seed processing and germination techniques, quality seedling production, planting techniques like spacing, weeding, irrigation pattern, fertilizer application, pest and disease control and expected growth and yield. Many economically important tree species like Casuarina, Sandalwood, Teak, Red Sanders, Mahogany, Ailanthus, Gmelina and others have been dealt in the book. This publication was brought out following a request from the Tamil Nadu Biodiversity and Greening Programme of Tamil Nadu Forest Department

(TNFD) and will be useful to the tree growers and the staff of TNFD who are involved in establishment of agroforestry systems.



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Establishment of a Palmetum to mark International Day for Biological Diversity 2024

B. Nagarajan

The International Day for Biological Diversity (IBD) is observed on 22nd May each year to raise awareness about the importance of biodiversity conservation. The IBD-2024 theme, "Be Part of the Plan," encourages collaborative approaches to address biodiversity loss and in implementing the Kunming-Montreal Global Biodiversity Framework, also known as "The Biodiversity Plan". The Institute commemorated this occasion by organizing a Palm planting event and dedicated the Palmetum to the Botanical Garden of the Institute on 22nd May 2024.

Palmetum is a live collection of indigenous and exotic palms and it serves as a facility for educating the public about the need for conservation. Palms are distributed all over the world and 106 species belonging to 22

genera are distributed in India. A total of 22 accessions belonging to 13 different species were planted in the Palmetum that include *Aiphanes horrida*, *Bentinckia nicobarica*, *Dypsis lutescens*, *Licuala grandis*, *Licuala peltata*, *Livistona rotundifolia*, *Pinanga coronata*, *Rhapis excelsa*, *Rhopalobláste augusta*, *Thrinax parviflora*, *Borassus flabellifer*, *Phoenix sylvestris* and *Wodyetia bifurcata*.



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IFGTB Scientist Takes Over as Director, KFRI

Kannan Chandrasekara Warriar

The Director, Scientists, Officers and Staff of IFGTB are delighted to note that their colleague **Dr. Kannan C.S. Warriar**, Scientist G has taken over as the Director of KCSTE-Kerala Forest Research Institute (KFRI) with effect from 20.04.2024. An alumnus of Kerala Agricultural University, Dr. Kannan joined IFGTB in 1997 and made valuable



contributions in the areas of forest genetics and biotechnology particularly genetic improvement of indigenous tree species. He has been the Coordinator of the Programme Centre for Environmental Information, Awareness, Capacity Building and Livelihood Programme (EIACP, formerly ENVIS) more than a decade and conducted several events that linked the Institute with the society. His rich experience gained in IFGTB will be useful in leading the prestigious KFRI to greater heights in the days to come. IFGTB wishes him a successful tenure as Director, KFRI.

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EVENTS : APRIL - JUNE 2024

- ◆ **TRAINING :** Soil and Plant Analysis for Nutrient Management' (06-10 May)
- ◆ **WEBINAR / MEETINGS / CONFERENCE :** *TreeGenie* - Digital Interactive Platform (04 Apr); Consultative meeting with TNPL, Karur (26 Jun)
- ◆ **OTHER EVENTS :** The 133rd Birth Anniversary Celebration of Babasaheb Dr. B.R. Ambedkar (15 Apr); Earth Day (22 Apr); International Day for Biological Diversity (22 May); *EK Ped Maake Naam* (plant 4 mother) - A Tree in the Name of Mother Campaign (22 Jun)
- ◆ **PRAKRITI PROGRAMME :** Natural resources and bioprospecting (09 Apr); Forest Products (16 Apr); Bio-Fertilizer (03 May); Food science and Environment (03 May); Fertilizer (21 May)
- ◆ **RETIREMENTS :**
Shri S. Sundararajan, Assistant (April 2024)
Shri L. Manimuthu, CTO (May 2024)
Shri C. Arumugam, MTS (June 2024)



About ICFRE-IFGTB

The ICFRE - Institute of Forest Genetics and Tree Breeding (ICFRE - IFGTB), Coimbatore, is a national institution of the Indian Council of Forestry Research and Education (ICFRE), an autonomous body under the Ministry of Environment, Forest and Climate Change, Government of India. ICFRE - IFGTB has a mandate to develop new varieties, management and silvicultural techniques to maximize productivity of natural and planted forests under different ecological considerations and changing environment.

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