



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-IFGTB is entrusted with the mandate to increase the productivity of both natural forests and plantations raised outside the forests. The focus of its research projects always remained a judicious blend of improvement and conservation. The Institute closely works with State Forest Departments, Wood-based industries and farmers to achieve the research objectives. It also strives to disseminate the latest information on research and development programmes to its stakeholders through IFGTB News. The present issue highlights the research on mapping of trees of economic or conservation importance, casuarina-based paired-row agroforestry and pollinators of tamarind. Readers can also find information on various events like Tree Growers Mela, training programme to IFS Officers, Prakrithi, the Student -Scientist connect programme and others. As always we value keeping our stakeholders informed of our work and look forward to your valuable feedback and suggestions.

Dr. C. Kunhikannan
Director, IFGTB



Mapping of Tree Species in Western Ghats for *in situ* Conservation

P. Devamanikandan, S. Lalitha, R. Anandalakshmi, K. Sureshkumar, A. Satish and C. Rajesh

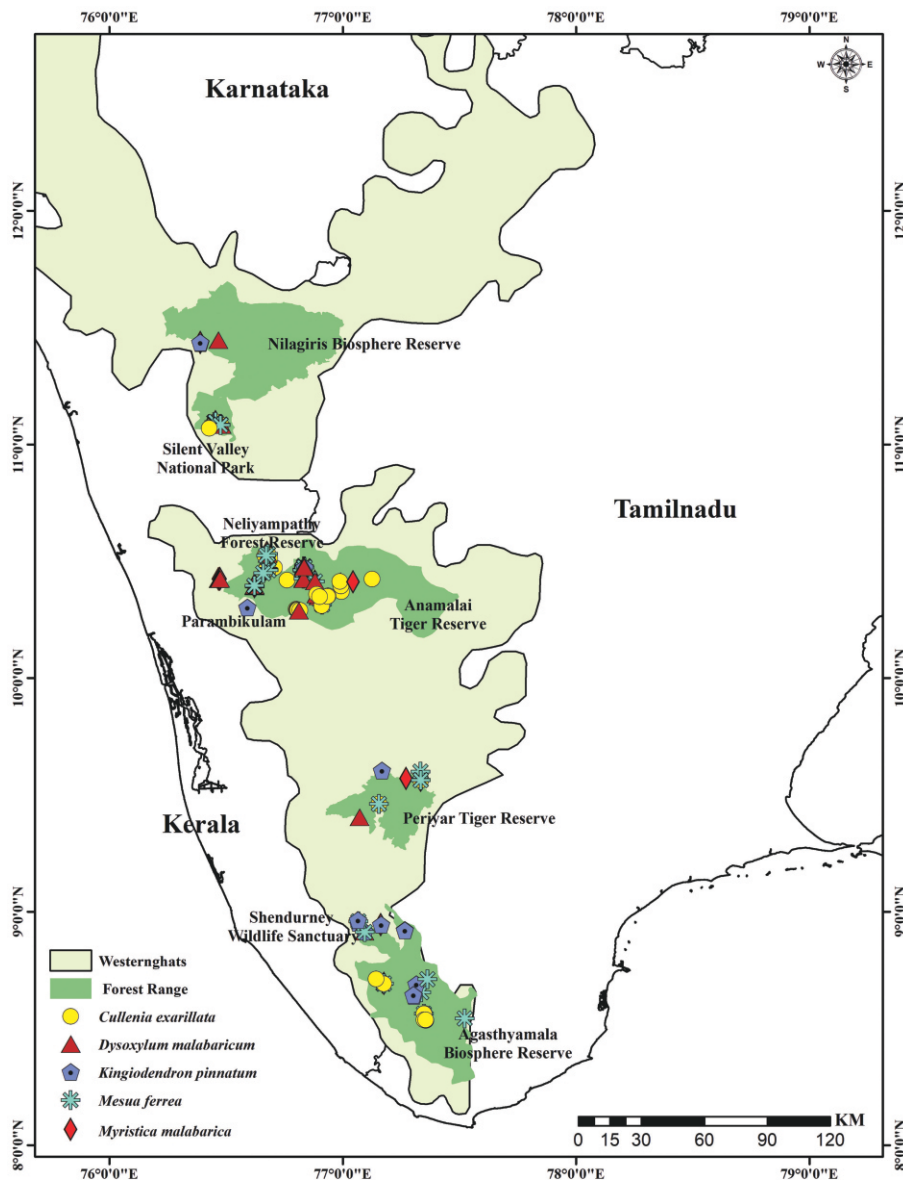
Western Ghats is a well-recognized biodiversity hotspot endowed with valuable genetic resources of tree species. ICFRE-IFGTB has prioritized 75 tree species based on economic, environmental, ecological significance and threat level for conservation. Five of these species viz., *Cullenia exarillata* A. Robyns, *Mesua ferrea* L., *Dysoxylum malabaricum* Bedd. ex C.DC., *Kingiodendron pinnatum* (Roxb. ex DC.) Harms and *Myristica malabarica* Lam. have been short-listed for *in situ* conservation. Initially the locations of these species were mapped using information gathered from herbarium and literature following which reconnaissance survey was undertaken in

Prepared distribution maps for trees of conservation importance using geo-coordinates and herbarium information

Tamil Nadu and Kerala. Populations of each species were identified, trees marked, geo-coordinates recorded and passport data

of trees were collected. In total, 167 geo-coordinates (16 to 49 per species) were collected in eight protected areas (Tiger and Biosphere Reserves) and distribution maps were prepared on a GIS platform (ArcGIS Desktop Basic, version 10.8.1). Predictive models of the species distribution can be developed using these maps with the integration of environmental data for understanding the current distribution status and planning effective conservation measures.

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Economically Viable Casuarina based Clonal Paired-row Agroforestry system

C. Buvaneshwaran, A. Nicodemus, A. Mayavel, Avinash Jha*, K. N. Mishra* and T. Sudharani*

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Under a collaborative project with Andhra Papers Limited, agroforestry field trials were established using Casuarina hybrid clone (CH2) released by ICFRE-IFGTB and adopting “Paired-row Agroforestry Systems”. The distance between a pair of rows was 4 m and within the paired-row trees were planted at 1 x 1 m. Two adjacent blocks, one with sole agricultural crop cultivation and the other with sole casuarina block plantation of clone CH2 were kept as control plots. Trees were harvested after three years and economic productivity was worked out for all the three systems of cultivation adopted. Pulpwood production was 49.25 tonnes per acre under paired row agroforestry system compared to 52.35 tonnes with the sole casuarina crop. Two crops of

Paired row agroforestry model with casuarina clone CH2 more profitable than sole tree cultivation

black gram were cultivated under the agroforestry system. The net return was greater in paired-row agroforestry (₹ 28,623 per acre per year) than the sole tree plantation (₹ 23,061 per acre per year). The results are encouraging for opting to agroforestry for simultaneous production of food and wood.

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Pollinator Interactions in *Tamarindus indica* L.

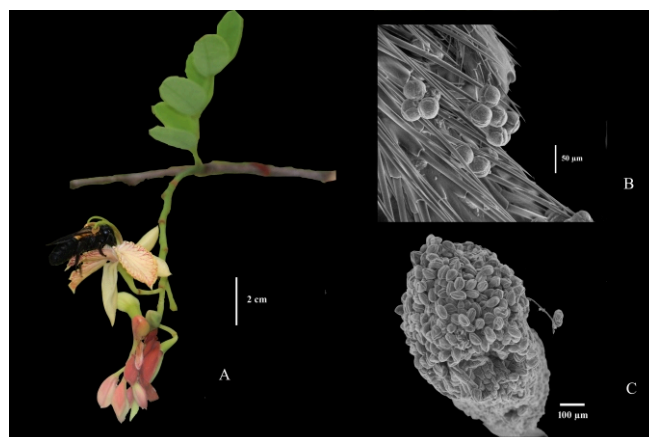
A. Mayavel, C. Bagathsingh, B. Chitra and B. Nagarajan

Tamarind (*Tamarindus indica* L.) is widely grown for its acidic fruit pulp and seeds used in food, ayurvedic and textile industries. Effective pollination is essential for high fruit production in Tamarind orchards. It is a cross-pollinated species and insects are the major pollinators. It has nototribic type of flowers and nectar probing nature of flower visitors facilitates pollen transfer. Tamarind flowers attracted a diverse range of pollinators, including bees, wasps, and butterflies. The bees (*Apis dorsata*, *A. florea* and *A. cerana*) were the earliest and most frequent visitors. They started arriving by 6 a.m. and continued till 5.30 p.m. with peak visitation between 7.30 a.m. and 9 a.m. The *Xylocopa* sp. visited occasionally but due to its larger body size came into contact with anther and stigma at the same time. The digger bee (*Anthophora cingulate*) was more active visiting multiple flowers and spending short time on individual flowers. The *Macroglossum stellatarum* (Hawk Moth) and *Panara* sp. passed through the flowers

Key pollinators of Tamarind and their foraging behaviour documented

occasionally without causing pollen transfer. *M. stellatarum* preferred to probe the nectar while gliding rather than landing on flowers. The probing behaviour of the sunbirds (*Leptocoma* spp.) was similar to that of *M. stellatarum*. The pollination behaviour and life cycle requirements of the Hymenoptera insect group need to be understood to increase their pollination services and thereby enhancing fruit production in Tamarind orchard.

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Training Course on Forest Genetic Resource Management for IFS officers

R. Anandalakshmi

The Institute had organized a one-week training course on Forest Genetic Resource Management for IFS Officers from 04th to 08th July, 2022. Fifteen officers from different states participated in the programme which was inaugurated by Dr. V. Geethalakshmi, Vice Chancellor, Tamil Nadu Agricultural University. Being a National Focal Point for Forest Genetic Resources (FGRs) and an EIACP programme Centre Resource Partner for FGRs and Tree Improvement, ICFRE-IFGTB always strives to work with the State Forest Departments in assessing, documenting and sustainable utilization of FGRs in the country. Eminent resource persons from ICFRE-IFGTB and many specialized institutions contributed on key areas of FGR management and interacted with the participants. Dr. David Bush, Director, Australian Tree Seed Centre, Canberra talked about the role of germplasm collection and conservation in seed bank for the efficient utilization of FGR. The officers also visited ICFRE-IFGTB field research station near

IFS Officers were given one-week training on FGR management for effective conservation and utilization

Siruvani, Anamalai Tiger Reserve, Topslip and Parambikulam Tiger Reserve, State Forest Seed

Centre, Coimbatore. A Panel Discussion on "Improvement in the working of Forest Departments - need for career development through training and improvement of skills" was also a part of the training program. The resource persons and participants stressed the need of conservation, ecological restoration, skilling and creation of awareness on FGR and its sustainable utilization.

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Tree Growers Mela 2022

S. Saravanan, P. Chandrasekaran and R.G. Anithaa

ICFRE-IFGTB has been organizing Tree Growers Melas (TGM) since 2011 as a platform for Scientists, Nursery growers, Wood based industries and Government agencies to equip the tree growers with the latest information on all aspects of growing trees. The recent TGM was conducted on 24th September, 2022 at Karaikudi, Sivagangai District, Tamil Nadu under the theme "Tree Cultivation Technologies for Rainfed Areas" in collaboration with Tamil Nadu Newsprint and Papers Limited (TNPL). The Tamil Nadu Forest Department, Sivagangai Circle, Krishi Vigyan Kendra, Kundrakudi of Tamil Nadu Veterinary and Animal Sciences University and Tamil Nadu Forest Plantation Corporation were the associate partners. Around 550 farmers from Sivagangai, Pudukottai and Tiruchirapalli Districts participated.

Farmers received the latest information on tree cultivation techniques, integrated farming system, Timber Transit Rules and pulpwood procurement policy of industries.

Varumanam' and the iOS Platform of 'TreeGenie Mobile App' - digital interactive platform developed by ICFRE-IFGTB were released. Eight

technical sessions focusing on choosing appropriate tree species, improved planting / clonal material and package of practices for increased production and higher economic returns and better wood marketing were conducted. An Exhibition was arranged by ICFRE-IFGTB and TNPL to display various technologies in clonal forestry and package of practices recommended for raising nursery and plantations of major tree crops.

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During the mela, a tree cultivation manual in Tamil entitled 'Maram Valarpu Moolam Makathana



Events : July - December 2022

VIGILANCE AWARENESS WEEK 2022

As per direction of the Central Vigilance Commission, ICFRE-IFGTB observed “**Vigilance Awareness Week**” from 31.10.2022 to 06.11.2022. The theme for this year was “**Corruption free India for a developed Nation**”. The week commenced with administering the integrity pledge to the Staff of ICFRE-IFGTB by Dr. C. Kunhikannan, Director. They also took the pledge online and received certificates from the Central Vigilance Commission. A special talk on Fundamentals of Personal Financial Management was delivered by Dr. R. Yasodha, Group Coordinator (Research). A short essay competition on the theme “A corruption free and developed India - realizing the dream”, poster painting / drawing competition on the theme “Corruption free India for a developed Nation” and quiz competition on “Conduct rules, leave rules, GFR, and RTI Act” were organized. Prizes for the winners of various competitions were given away by Shri K. Balakrishnan, Commissioner of Police, Coimbatore city during the valedictory function.



PRAKRITI PROGRAMME

Plastic Bag Free Day (03 Jul); Cadamba cultivation under agroforestry (08 Jul); Biodiversity of Andamans (26 Jul); Screening of film: Our living planet (14 Jul); World Nature Conservation Day (28 Jul); International Tiger Day (29 Jul); World Lion Day (10 Aug); Biodiversity, conservation and value addition (11 Aug); Conservation of genetic resources (09 Sep); International Red Panda Day (17 Sep). Biodiversity conservation and utilization (26 Oct); Variation in plants and its importance (31 Oct); Importance of Forest genetics and its implications (01 Nov); A treasure for nature enthusiasts (04 Nov); Importance of urban greening (07 Nov); Agroforestry systems for sustainability (09 Nov); Biodiversity in changing climate (14 Nov); Economic importance of beneficial insects (15 Nov); Importance of taxonomy (21 Nov. 2022); Good laboratory practices, chemical safety and biosafety (28 Nov); Biomonitoring of water qualities (29 Nov); Importance of forest trees (05 Dec); Planting techniques and materials (08 Dec).



- ◆ **TRAINING** : Summer internship/industrial training on remote sensing and GIS (05-22 Jul); HPLC & GCMS/MS- instrumentation, principle and function (27 Jul); Two weeks summer internship (01 -12 Aug); Basics of remote sensing and GIS- practical application of GPS and demonstration of application of QGIS (03-04 Aug); Bamboo - a wonder grass (23-25 Aug); Tissue culture of teak (05-09 Sep); Characterization of forest genetic resources and their conservation (13 Oct); ABC of DNA (19 -20 Oct); Capacity building on development of *Tree Rich Biobooster* - an organic waste based bio product (11 Nov); Assessing the availability of Tree Seed Science for forest and landscape restoration (28 Nov-02 Dec); Seed ball technology (06 Dec); Vegetative propagation techniques (21-22 Dec).

- ◆ **MEETINGS / SEMINARS/ CONFERENCE** : An interactive meeting with Department of Immunology, Madurai Kamaraj University, (01 Jul); Meeting with JSW Steels, Karnataka (30 Jul); Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, FRA 2006; (24 Aug); Memorandum of Understanding between ICFRE-IFGTB, Coimbatore and University of Copenhagen, Denmark for the Co-financed Research Project on “Genomic Selection for Superior Heartwood Formation in Two Commercial Timber Species: Teak (*Tectona grandis*) and European Oak (*Quercus robur*), Fastwood” (22 Sep); Research Advisory Group Meeting (14 Oct).
- ◆ IFGTB's Youtube channel has crossed two lakh views. Subscribe and watch short films on IFGTB's research work, varieties, products, tree cultivation techniques and outreach programmes.
- ◆ **OTHER EVENTS:** Van Mahotsav Day (05 Jul); Participation in agricultural trade fair - AGRI INTEX (15-18 Jul); International day for the conservation of the mangrove ecosystem (26 Jul); Parthenium Awareness Week (16-22 Aug); Hindi Day Celebration (14 Sep); International day for the preservation of the ozone layer (16 Sep); Fit India Freedom Run 3.0 (30 Oct); Observance of National Unity Day (Rashtriya Ekta Diwas) (31 Oct); Overview of Indian wildlife (03 Nov); Constitution Day (26 Nov); World Soil Day (05 Dec); Chai pecharcha (09 Dec); International Mountain Day (12 Dec).
- ◆ **SUPERANNUATION:** Shri K.S. Venkataramanan, Scientist B (December 2022)



About 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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