



# 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

IFGTB caters to the needs of the State Forest Departments and Forest Development Corporations, wood based industries, forestry research and academic institutions, nursery growers as well as the farming communities. IFGTB therefore gives due importance for updating the research endeavours and findings to its stakeholders.

This issue of "IFGTB News" highlights the endeavours to commercialize tissue culture technology of teak, the products developed at IFGTB including the biopesticide formulation, "**Simca BC**", an insect trap for Eucalyptus plantations, "**EuGalLure**", a farmer friendly mobile app for yield estimation in Casuarina plantations, "**CYCUS**", a new digital initiative for tree growers and stakeholders, and the Southern Regional Research Conference held at IFGTB on the theme "Management of fragile ecosystems in climate change scenario". It is hoped that the information provided would enable their wider dissemination and benefit the farmers.

**Dr. S. Murugesan**  
Director, IFGTB



### Clonal teak plants through micropropagation for commercial plantations

R. Mahalakshmi, Rekha R Warriar and R. Yasodha

Teak (*Tectona grandis*) is a premier hardwood tree species famous for its dimensional stability, resistance to weathering, aesthetics and durability of timber. Despite being the center of genetic diversity for teak, India is one of the major importers accounting for about 75 % global import of teak to meet its domestic demand. As teak has been a traditional timber of the country, marginal and resourceful farmers look up to teak as a high revenue agroforestry crop and grow on bunds as well as block plantations.

Inadequate availability of quality planting stock is a major constraint faced by the farmers and other planters due to the seed production and germination problems associated with teak. Hence, clonal propagation of teak has gained importance and true to type micropropagated plants of juvenile characteristics can be produced from identified teak genotypes.

IFGTB has developed micropropagation protocols for large scale plantlet production of teak genotypes from apical buds and nodal segments. Selected stock of teak has been mass propagated through micropropagation and supplied to farmers (Cover page photo). The teak genotypes multiplied are sourced from Kerala and Tamilnadu. Currently different genotypes are being multiplied and the ex vitro rooting of multishoots adopted has

considerably reduced the cost of propagules. Farmers place advance order with IFGTB by paying 50 % cost of the plants and in a period of 3 to 6 months, field ready plants are delivered in polybags or as conventional stumps. Micropropagated plants are supplied to Andhra Pradesh, Karnataka and Tamilnadu.

### Memorandum of Understanding with SPIC Agro Biotech Centre

The Institute has entered into a contract agreement with SPIC Agro Biotech Centre, a commercial tissue culture laboratory, for large scale production of clones of teak identified from Kerala and Tamilnadu. As part of this MoU, SPIC Agro Biotech Centre will commercially propagate two clones of teak developed by the institute which will be made available to the farmers through IFGTB.

### Green Skill Development Programme (GSDP)

To help boost employability and entrepreneurship of the youth in the country, a hands-on training under the Green Skill Development Programme (GSDP) on “Plant Tissue Culture Techniques and its Applications” (level-6) was conducted from 04<sup>th</sup> Nov to 31<sup>st</sup> Dec 2019 by ENVIS at IFGTB, Coimbatore.





### **Simca BC: A biopesticide developed from seed oil of *Simarouba glauca* DC.**

*N. Senthilkumar, S. Murugesan, R. Sumathi, D. Suresh Babu and N. Santhana Bharathi*

**Simca BC** was developed using seed oil of *Simarouba glauca* as an alternative to chemical pesticides for the management of insect pests of forestry, agricultural and horticultural importance. The major active ingredient, oleic acid, in the seed oil is as high as 51.29 %. The formulation has been evaluated for its efficacy against the key insect pests of *Ailanthus* and Teak viz., *Atteva fabriciella*, *Eligma narcissus* and *Hyblaea puera* respectively under laboratory and field conditions. It was observed that the formulation has antifeedant actions, and 75 % of larvae failed to pupate. When compared to synthetic insecticide, 70 - 80 % reduction in population was observed with no further infestation of insect pests of crops there by bringing down the cultivation cost. No phytotoxic or residual effect was observed. To spray over 1.5 to 2.0 lakhs seedlings in the nursery, 100 ml of “Simca BC” is to be mixed in 10 L of water. For 1 ha

of 1-2 yrs old plantations, 500 ml of “Simca BC” would be required. “Simca BC” was released by the Director General, ICFRE, Dr. Suresh Gairola, IFS, during the Southern Regional Research Conference held at IFGTB, Coimbatore on 20<sup>th</sup> Nov 2019.



## Effective trap for Eucalyptus Gall wasp management

*J. P. Jacob and K. Senthil*

Outbreak of the invasive gall inducing insect, *Leptocybe invasa* on eucalypts plantations and nurseries in several eucalyptus growing tracts in India has been observed since 2007. IFGTB, Coimbatore has been closely interacting with the stakeholders and advising them on management measures. Ecological and financial constraints limited pesticide application and other management measures in nurseries and young plantations.

It could only be managed by deploying gall resistant clones and withdrawing susceptible

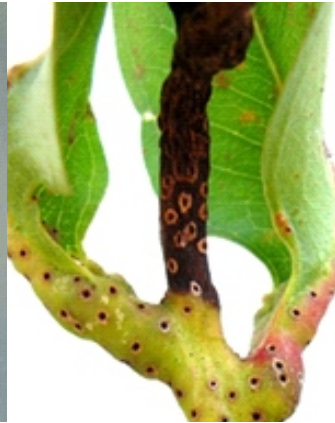
**EuGalLure is a safe, environment friendly, economically viable and plant based chemical mixture to bring down the adult gall wasp population load in the field and to prevent infestation in growing plants.**

varieties/clones, leading to reduced income for farmers, wood based industries and government agencies. Natural enemies of *L. invasa* were imported from Israel through the National Bureau of Agricultural Insect Resources (NBAIR), Bangalore multiplied and released to bring about satisfactory control.

IFGTB, Coimbatore in collaboration with NBAIR, Bangalore has brought out EuGalLure to manage eucalypts gall wasp. EuGalLure is a safe, environment friendly, economically viable, and plant

based chemical mixture which can be used in eucalyptus nurseries and plantations. The adult wasps are attracted to the lure and will get stuck to the sticky surface of the trap. About 10-15 traps per ha, baited with 10-20 µl of volatile mixture can bring down the adult wasp population load in the field drastically and therefore further fresh

infestation in growing plants can be avoided. Lures can be replaced once in 20 days for a period of 3 months and the traps as and when needed. Gall susceptible but productive clones can now be brought back by stake holders by deploying this trap in nurseries, plantations, farm and agroforestry trials.



## IFGTB's digital initiatives

### Digital interactive platform for tree growers and other stakeholders

*Rajesh Gopalan*

In tandem with the digital India initiatives of the Gol and ICFRE's vision statement, IFGTB's new project entitled, "Developing and popularizing digital interactive platform for tree growers and other stakeholders of Tamil Nadu" under National Forestry Research Plan aims to harness Information, Communication and Technology (ICT) and data ecosystems to support timely delivery of targeted information and services. This project would be first of its kind, with a shift in the current system of institution based extension to technology based forestry extension activity. The new digital platform would serve as a single window service and a data pool of available commercial technologies, quality planting material, plantation area under different tree species, its location, the tree growers, prevailing market prices of wood/timber as offered by the wood based industries etc. The tree growers would also have access to the nationwide market and prices commensurate to the quality of the produce, thereby removing information exchange barriers between industries and tree sellers and promote

real time price discovery, based on actual demand and supply. The Tree Growers Mela will be used as a platform for popularization of the digital App for its large scale dissemination. Over the last four years, six melas were organized in strategic locations (see box). Hence this project attempts to explore the immense possibilities of integrating ICT for popularizing trees outside forests, particularly in farm lands with a dual objective of increasing farm income as well as area under tree cover.





## CYCUS: A mobile app for yield estimation in Casuarina plantations

C. Buvaneshwaran

A farmer friendly mobile app for yield estimation of Casuarina plantations was released on 22.10.2019 in the Tree Growers Mela organized by IFGTB at Jayamkondam. Biomass table for plantations of *Casuarina equisetifolia* was prepared by sampling 200 trees from 69 Casuarina plantations in Tamil Nadu. The age of the sampled plantations varied from 2 to 7.5 years with the girth ranging from 8.5 to 29.5 cm and total height ranging from 4.5 to 14.6 m. Best-fit regression model from these field data has been used for development of this app. The app is user friendly as only 5 % of sampling needs to be done by measuring the girth of every 20<sup>th</sup> tree along the tree rows so that the entire plantation is covered and representative trees are measured.

The app facilitates the farmers for better negotiation for selling his plantations to the buyers/ middlemen. This mobile app is now available in Google Play Store as "CYCUS" - which stands for Casuarina Yield Calculating Utility Software.



## IFGTB conference

### Regional Research Conference on "Management of fragile ecosystems in climate change scenario"

The Southern Regional Research Conference (RRC) on "Management of fragile ecosystems in climate change scenario" was held at IFGTB on 20<sup>th</sup> Nov, 2019. The importance of such theme based seminars to identify the gaps in various aspects of forestry research was highlighted by Dr. S. Murugesan, Director, IFGTB. The guest of honour, Dr. S.C. Gairola, Director General, ICFRE, Dehra Dun pointed out that fragile ecosystems like mangroves, deserts and tropical dry evergreen forests ecosystems are more vulnerable. The conference was inaugurated by Prof. Dr. N. Kumar, Vice Chancellor, Tamil Nadu Agricultural University.

Altogether 10 talks were delivered in four technical sessions addressing issues related to management of fragile ecosystems by the state forest departments of Tamil Nadu, Kerala, Karnataka and Andhra Pradesh, and IWST, Bengaluru. The Organizing Secretary, Dr. C. Kunhikannan, Scientist G, briefed the research activities carried out at IFGTB, Coimbatore.

A book on "Insect pests of trees outside forests and their management" authored by Dr. J.P. Jacob, Scientist G, and a biopesticide named "Simca BC" developed by Dr. N. Senthil Kumar, Scientist E, were released. An MOU was signed between College of Forestry, Ponnampet, Karnataka and IFGTB, Coimbatore for research, education and training. Under the chairmanship of Dr. S. C. Gairola, the recommendations from the technical sessions were finalized in the wrap-up session.



## Events: Oct - Dec 2019

- ◆ **Memorandum of Understanding (MoU):** IFGTB signed MoU with SPIC Agro Biotech Centre, a commercial tissue culture laboratory, to propagate teak clones (16<sup>th</sup> Oct), College of Forestry, Ponnampet, Karnataka for research, education and training (20<sup>th</sup> Nov).
- ◆ **Meetings/ Seminars:** "Preparation of Detailed Project Report (DPR) for Rejuvenation of River Cauvery through "Forestry Interventions" (16<sup>th</sup> Oct). Research Advisory Group Meeting (16<sup>th</sup> - 17<sup>th</sup> Oct), Dr. S. Kedharnath Memorial Lecture on "Realigning and Reorienting Forestry Research as if People Matter" by Dr. Syam Viswanath, Director, KFRI, Trissur (23<sup>th</sup> Dec).
- ◆ **Tree Growers Mela:** "Industrial Tree Growers Mela" (22<sup>nd</sup> Oct) at Jayankondam, Ariyalur District under the theme "Clonal Farm Forestry for Increased Productivity", in collaboration with Tamil Nadu Newsprint & Papers Limited (TNPL), Karur.
- ◆ **Trainings/ Demonstrations:** "Bioprospecting and Biopiracy" for personnel of other services (09<sup>th</sup> - 11<sup>th</sup> Oct), "Sensitization Course on "Biodiversity and its Conservation" for Teachers of Kendriya Vidyalaya (23<sup>th</sup> -25<sup>th</sup> Oct), "Development of Compost out of Waste involving Tribals for their Livelihood Support" (31<sup>st</sup> Oct), "Plant Tissue Culture Techniques and its Applications" (04<sup>th</sup> Nov - 13<sup>th</sup> Dec), "Forest Entomology and Pest Control"(22<sup>th</sup> Nov - 23<sup>rd</sup> Dec), Saransh Hindi typing (13<sup>th</sup> Nov - 15<sup>th</sup> Nov), "Finance, Budget & Accounts, Internal Audits & Control" for ICFRE Ministerial Staff (27<sup>th</sup> - 29<sup>th</sup> Nov) "Biofertilizers and biocontrol agents in Forestry" (18<sup>th</sup> - 20<sup>th</sup> Dec), "Forest Genetic Resource Management" for IFS officers (09<sup>th</sup> -13<sup>th</sup> Dec).
- ◆ **Awareness programmes:** PRAKRITI program (3061 school & 1941 college students) at Gass Forest Museum ( Oct - Dec), Green Deepavali (25<sup>th</sup> Oct).
- ◆ **Days celebrated:** Wildlife Week Celebration, Vigilance Awareness Week (28<sup>th</sup> Oct - 01<sup>st</sup> Nov), Celebration of Constitution Day , World Soil Day, International Mountain Day.

## About IFGTB

The Institute of Forest Genetics and Tree Breeding (IFGTB), Coimbatore, is a national institution of the Indian Council of Forestry Research and Education (ICFRE), an autonomous council under the Ministry of Environment, Forest and Climate Change, Government of India. 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.

Chief Editor

**Dr. S. Murugesan**, Director

Executive Editor

**Dr. Mathish Nambiar-Veetil**, Scientist F  
Plant Biotechnology Division

Editorial Committee

**Dr. S. Murugesan**, Group Coordinator  
(Research) & Scientist G

**Shri G. Rajesh**, IFS, Head,  
Extension Division

**Dr. Kannan C.S. Warriar**, Scientist F &  
Coordinator ENVIS

For further information contact

**The Director**,  
Institute of Forest Genetics and  
Tree Breeding,  
(Indian Council of Forestry Research  
and Education)  
P.B. No. 1061, R.S. Puram P.O.,  
Coimbatore-641002, INDIA  
Phone: +91 422 2484100  
Fax: +91 422 2430549  
Email: dir\_ifgtb@icfre.org

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