



### ***From the Director's Desk***

*Dear foresters,*

*IFGTB, a unit of ICFRE, is committed to work in areas of forestry research for its mandated states of Tamil Nadu, Kerala, Puducherry, Andaman and Nicobar Islands and Lakshadweep. Since 1988, this Institute has undertaken research in various areas viz., genetics, biotechnology, seed technology, pest and disease management, restoration ecology, species recovery, etc. The findings have been transmitted to farmers and State Forest Departments (SFD). To serve SFDs and other stakeholders constantly, we thought it fit to reach you all online. This will not only strengthen the communication network but also enable us to pass on our research findings constantly. While doing so, we also wish that you stay in touch and respond to us by throwing across your queries and problems urging us to tune our research and work on problems that concern you. I feel this is a good beginning made by our extension wing. We stay committed to respond to all your field issues.*

**Dr. N. Krishnakumar**  
**Director**

### **FRUSTRATING SWEETNESS**

Sweetness could be difficult to deal when it is too much! A cement of sticky nectar and pollen on to small heads of Sunbirds (*Nectarinia zeylonica* Linn.) could be really frustrating! Sunbirds are obligatory pollinators of *Bruguiera gymnorhizha* and *B.sexangula*. *Bruguiera* flowers are large and long lived. Each flower produces about 40-60  $\mu$ l of nectar/day and releases about 16-20 lakh of pollen in a floral life that lasts 15-20 days. During visitations, birds trip on anthers and the pollen is released through a trigger mechanism. Constant probing of flowers leads to the bird pollinators getting their beaks coated with nectar which is further topped up by heavy loads of pollen. This leads to an unpleasant stickiness. To remove the same, sunbirds spend quite a good time cleansing themselves after their floral visits. These schedules vary from 30 seconds to well over a minute. Sunbirds clean the excess nectar and pollen loaded on their breasts with bills and the bills with their toes. They are also found to scratch off their heads violently in selected spots of host trees in the process of cleaning. In their day routine they constantly visit these 'scratching posts' twice or thrice in a day. Excess pollen and nectar loaded on to the sides of bills could be obstructive to their tongue movements which also require cleaning. This is done by smacking their tongues against the beaks (a rare sight!). All these movements are indicative of their active pollinator services to the fragile mangrove ecosystem. In short, no sunbirds, no pollination. Isn't it frustratingly sweet?!



**Fig. 1. Sunbird collecting nectar**



**Fig. 2. Cleaning of excess nectar**



**Fig. 3. Cleaning bills with toes**



**Fig. 4. At a scratching post**



**Fig. 5. Smacking of tongue**

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### Interactive Meetings

An interactive meeting was held between the officials and scientists of IFGTB and officials of the Tamil Nadu Forest Department on 12.11.2008 at the Forest Headquarters, Chennai. Dr. C.K. Sreedharan, IFS, Principal Chief Conservator of Forests, delivered the key note address and emphasized the need for research on catchment area management, biodiversity assessment, planting on private lands, carbon trading, etc relevant for the state. He also underlined the importance of applied research than basic research looking at the needs of various end users.



An overview of the ongoing research programmes of the institute was made followed by interaction between the scientists and officers. Apart from the thrust areas provided by the PCCF, it was decided to carry out studies on the economics of agroforestry plantations, monitoring of changes in biodiversity, invasive species and mangroves, etc. Further, it was also decided to compile the literature on important species for afforestation and agroforestry for the benefit of end users. An MoU was signed between the institute and the department for establishment of Van Vigyan Kendra in collaboration with the state Forest Department and the same will be located at Coimbatore to disseminate the various technologies developed by the institute and the Tamil Nadu Forest Department to the user groups including farmers and forest based industries. The PCCF, Tamil Nadu released a book on *Management of Nursery Disease and Pest Problems* published by the Institute.



An interactive meeting between Department of Environment and Forests, Andaman and Nicobar Islands and IFGTB on Forestry

Research was held on 12<sup>th</sup> January 2009. A total of 27 officers from the department participated in the meeting. Ten officers and scientists from the institute attended the meeting. Dr. N. Krishnakumar, IFS, Director, welcomed the gathering and narrated the purpose of the meeting. Shri S.S. Choudhary, IFS, PCCF and Secretary, Environment and Forests and Science and Technology delivered the inaugural address and appreciated the efforts of IFGTB. Shri R.S.C. Jayaraj, IFS, Head, Forestry, Land Use and Climate Change Division highlighted the research works carried out by IFGTB with particular reference to the Islands and the capabilities of IFGTB in Forestry Research. Smt. N. Kala, IFS, Conservator of Forests, A&N islands presented the research requirements of the Islands and listed 13 different areas of research for collaboration with IFGTB. IFGTB made presentations on 10 concept notes relevant to A&N Islands.

An interactive meeting was held with the Puducherry Forest Department at IFGTB on 6<sup>th</sup> February, 2009. Dr. P. Devaraj, Conservator of Forests and Chief Wildlife Warden, Puducherry explained in detail the activities carried out by the Department. He explained that the total area for carrying out forestry activities was only 4.846 sq.km. Detailing the need for carrying out conservation related activities, he stressed the need for more research on the species *Borassus flabellifer*, *Thespesia populnea* and mangroves. The thrust areas of research identified for IFGTB included identification of appropriate species for urban forestry, agroforestry modeling, casuarina tree improvement, coastal afforestation and shelter belt modeling, mangrove area management, carbon sequestration potential assessment including carbon trading and biodiversity assessment.

### Meeting on Finalisation of List of Non target species (Plants & Insects) for Safety Testing for Parasitoids of Eucalyptus Gall Wasp

Meeting on Finalisation of List of Non-target species (Plants & Insects) for Safety Testing for Parasitoids of Eucalyptus Gall Wasp was held at IFGTB on 25<sup>th</sup> February 2009. The Meeting was chaired by Dr. R J Rabindra, Director, National Bureau of Agriculturally Important Insects (NBAII), Bangalore. Dr. N. Krishnakumar, Director, IFGTB, co-chaired the meeting. Representatives

from Plant Quarantine and Storage, Regional Plant Quarantine station, Botanical Survey of India, Karnataka Forest Dept, Bangalore, Pondicherry Forest Dept, Andhra Pradesh Forest Development Corporation, Tamilnadu Forest Plantation Corporation, University of Agricultural Sciences, Dharward, Tamil Nadu Agricultural University, Mysore Paper Mills, Tamil Nadu Newsprint and Papers Limited, and ICFRE Institutes attended the meeting. Dr Prasanth Jacob, presented a detailed overview of eucalyptus gall problem highlighting taxonomy, spread of the pest, distribution, host relations, symptoms, biochemical changes, gall tolerance testing allelochemicals involvement in imparting the resistance to gall formation and his experience on management of gall wasps at Israel. Procedures and protocols for safety testing were briefly discussed. The delegates underlined the importance of selection of non target species based on scientific principles and logic. It was decided to include a few economically important plants. The list of non-target plants /insects for safety testing was drawn.

### IFGTB – Wood Based Industry Interactive Workshop on Research and Development for Enhancing Production and Quality



An interactive Workshop between IFGTB and wood based industries of Tamil Nadu and Kerala was held on 5<sup>th</sup> March 2009 at IFGTB. About twelve representatives participated including Shri V.V. Rajan, Managing Director, Vasan Match Works, Gudiyatham Shri R. Seenivasan, Senior Manager, Tamil Nadu Newsprint and Papers Limited, Pugalur, Shri K. Shanmugam, Seshasayee Paper and Boards Ltd, Erode, Shri K. Sanathanan, Manager, Hindustan Newsprints Limited, Kerala, Dr E. Sreenivasan, Biotechnologist, Western India Plywood Ltd. Kannur, Kerala and Shri Pon Ravi, Proprietor, Pon Ravi Wood Carvings, Salem.



The Director, IFGTB gave an overview of the Research and Development efforts of ICFRE and IFGTB and informed the gathering that though the Institute on its own could support the wood based industries to meet their demand to a certain extent, collaboration and networking between industries and research institutions will be the ideal way to improve the quantity and quality of raw materials needed by the industries. Shri V. Irulandi, Chief Conservator of Forests, Extension, Tamil Nadu Forest Department assured that the Department shall function as a bridge between the tree growers and the people who market their produce. He requested the industries to spell out their requirements and species of their choice so that he can motivate the farmers for growing those selected species. The representatives felt the need for research on narrowing variation in wood qualities like kappa number, pulp yield and viscosity, identification of alternate species by assessing their suitability for various end uses, supply of good quality seeds, clones for high productivity and guidance for pest management and screening of alternate fast growing pulpwood species and research on pest and diseases of pulpwood species. It was decided in the meeting that prior to development of projects, scientists of IFGTB would keep in touch with all industries to precisely understand their requirement and their views on meeting them.

### Tree Growers Workshop

IFGTB organised Tree Growers Workshop on 7-8 March 2009 in collaboration with the Extension wing of Tamil Nadu Forest Department. The workshop was inaugurated by Dr. C.K. Sreedharan, PCCF, Tamil Nadu. Dr. Rabindra Kumar, DDG (Extension), ICFRE presided. As part of the programme, a workshop on cultivation and management of Plantation forestry crops, Integrated Pest and Disease management in plantations and seed handling and storage techniques of some important species was organised. Further an interactive session with the farmers was held to assess their needs and aspirations in the field of farm forestry and agroforestry. An exhibition was organized highlighting technologies developed by various institutions and wood based industries on agroforestry machinery, irrigation systems, organic

farming, bioenergy, biofertilizers and vermicompost for the benefit of participating farmers.



About 400 farmers from various districts of Tamil Nadu and Puducherry took part in the workshop.

### New Projects initiated

#### From Department of Biotechnology, GoI

1. Web-enabled database and analysis of gene sequences implicated in abiotic stress tolerance for screening gene homologues in salt tolerant tree species. - Rs. 22.54 lakhs
2. Identification of superior growth promoting strains of *Frankia* in *Casuarina equisetifolia* and *C. junghuhniana*. - Rs. 21.89 lakhs.

#### From ICFRE

1. Development of macro and micropropagation techniques for *Melia dubia* for planting stock production - Rs. 5.84 lakhs.
2. Enhancing rootability and planting stock production of selected high yielding *Eucalyptus* clones through Micro and Mini cutting technique - Rs. 6.44 lakhs.
3. Development of methods for functional analysis of genes involved in sodium transport in *Eucalyptus tereticornis*. - Rs. 30.93 lakhs
4. Screening of high yielding clones and seed sources of *Eucalyptus* spp. for gall insect pest, *Leptocybe invasa* Fisher & La Salle - Rs. 9.20 lakhs.
5. Screening for blister bark disease resistance in *Casuarina equisetifolia* Forst. clones - Rs.16.61 lakhs
6. Selection, evaluation and identification of efficient bio-inoculants for quality seedling production of selected fast growing native tree species. - Rs. 7.50 lakhs
7. IPM for the key pests of *Ailanthus excelsa*, *Gmelina arborea* and *Dalbergia sissoo* in nurseries and in young plantations - Rs. 4.40 lakhs
8. Development of agroforestry systems with economically important medicinal plants under industrial tree species of *Casuarina* and *Eucalyptus*. - Rs. 14.57 lakhs

9. Identification of biochemical markers for salinity tolerance in *Casuarina equisetifolia*. - Rs.9.90 lakhs
10. Development of Eco-restoration model for potential regeneration areas in Western Ghats. - Rs. 15.12 lakhs
11. Impact of continuous moisture on growth, seed production, wood characteristics and disease problems of canal teak plantations in Tamil Nadu. Rs. 8.00 lakhs
12. Development of advanced generation seed orchard of *Acacia mangium* based on biomass and wood density. Rs. 15.00 lakhs

### EXTENSION AND TRAINING

#### Training Programme on Tree Borne Oil Seeds



The National Oilseeds and Vegetable Oils Development Board sponsored five farmers training programme and two Trainers Training Programme. The Training of Trainers (TOT) programme for field functionaries of Forest, Agriculture, Horticulture and Rural Development departments on Tree Borne Oil Seeds (TBOs) was organized by IFGTB on 2.2.2009 and 26.3.2009 to popularize the TBO crops for the field functionaries of the said Departments to enhance their skills and knowledge on TBOs and with the objective to train the farmers and other user groups involved in cultivation and management of TBOs and to popularize such crops among farming community for adoption. About 200 officials participated in the training programme. The farmers training programme was organised at Coimbatore (30.01.09), Tiruvannamalai (13.02.09), Sathyamangalam (28.02.09), Tirunelveli (20.03.2009) and Salem (25.03.2009) to reach out to a larger section of the farmers across districts in the State. A total of more than 600 farmers participated in the training.

The training covered all aspects of TBOs like cultivation and management of important oilseed crops suitable for Tamil Nau, seed handling and storage techniques,

TBOs in different agroforestry models, genetic improvement strategies, pest and disease management.

### **Programme on Bamboo Cultivation and Management**

The Institute organised three five-days training Programme on Bamboo Cultivation and Management for officers of the Agriculture and Horticulture Departments of Tamil Nadu. The Training Programme was sponsored by TamilNadu Horticultural Development Agency (TANHODA).

A total of 100 officers were trained. The officers were provided with an overview of the bamboo resources in India, the cultivation and management of various bamboo species in farm fields, bamboo cultivation in agroforestry, nursery management, disease and pest management, harvesting of bamboo, the marketing issues, etc. The participants were taken to fields where bamboo is planted and managed, Bambusetum maintained by the institute, KFRI and Bamboo Development Society at Palakkad. Hands on training was imparted on nursery techniques. The training was conducted by the internal resource persons and persons from KFRI, Peechi.



### **Training on post harvest techniques of Jatropha**

Hands-on training on post harvest techniques of *Jatropha curcas* was given for Tribal Women's Self Help Group of Vattalukki village, Attapady on 23.3.2009. The training was sponsored by Department of Biotechnology, New Delhi.



### **Van Vigyan Kendra (VVK)**

IFGTB has established VVKs in the States of Tamil Nadu, Kerala and Union Territory of Andaman and Nicobar Islands to reach out all the user groups and provide access to the appropriate technologies developed by the institute and other government agencies. The VVK, on the lines of Krishi Vigyan Kendras (KVK), will promote research outputs and help in providing livelihood opportunities to local people.

In Tamil Nadu, the VVK is established in collaboration with the Tamil Nadu Forest Department at Forest Campus, Coimbatore. A Tree Information Centre is established which provides information on cultivation and management of various tree species, its genetic improvement, pest and disease management, the technologies developed and available in the field of forestry, etc. A model nursery is being developed as part of VVK.

In Kerala, the VVK is established at Kuthiran, Thrissur. Works related to establishment of model nursery is under progress. In Andaman and Nicobar Islands the VVK is established at Port Blair and work related to establishment of model nursery is under progress at Kalatang. All the VVKs are equipped with equipment namely computers, LCD projectors, camera, etc., to conduct various outreach activities and documentation.

Training programme to various stakeholders especially frontline staff of the department and farmers will be undertaken through respective VVKs. Publicity materials in local vernacular language will be developed and distributed. Demonstration trials of proven economically viable, ecologically sustainable and socially acceptable models will be established for adoption in the field by farmers and others.

### **Quinquennial Review of IFGTB**

A Quinquennial Review Team (QRT) comprising Dr. G. Kumaravelu, APCCF (Retd.), TN, as Chairman, Dr. K.V. Sankaran, Director, KFRI, Peechi, Dr. P.S. Rao, Director, Life Science, C.D. Sagar Institute, Mumbai, Dr. L.P. Swaminathan, Prof. Emeritus, TNAU and Dr. P. Balasubramanian, Scientist, SACON reviewed the progress of research and its relevance to provide feedback to ICFRE for mid course corrections, if any.

The team had in-depth discussions with the Director, GCR, officers and scientists. Detailed presentations on the completed projects of 10<sup>th</sup> five year plan and the ongoing projects of 11<sup>th</sup> five year plan were made. The team visited the trials and field stations of IFGTB. The background information about the institute was also reviewed by the team which provided details covering the years from 2003-4 to 07-08. The team submitted its review report to ICFRE on 31<sup>st</sup> January, 2009.



### **Visitors**

- Dr. S. Shivaji, Sr. Scientist from LaCONES, Hyderabad.
- Dr. Rabindra Kumar, DDG (Extension), ICFRE
- Dr. K.S. Srinivasamurthy, CCF (Working Plan) and Shri V. Irulandi, CCF (Extension) Tamil Nadu Forest Department.

### **FORTHCOMING EVENTS**

- Training Programme on Bamboo Cultivation and Management for officers of the Agriculture and Horticulture Departments of Tamil Nadu in May, 2009.
- Capacity Building for forest officials of Extension wing, Tamil Nadu Forest Department in June, 2009.

### **FIELD FORESTERS' COLUMN**

The forest officials are requested to contribute their important observations in the field related to the forest management and express the problems encountered in management of forest resources which can be addressed through research/training. Please send rare photographs of events for publication.

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