



INSTITUTE OF FOREST GENETICS AND TREE BREEDING

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From the Director's Desk

Forests are receiving significant attention these days due to the factor of climate change. It is said that deforestation and degradation of forests account for 20% of the global carbon emission. Therefore, we have to be fully aware of the impact of climate change and how to adapt forests to cope with the change. Forests for adaptations and adaptations for forests are areas in which research is needed. In the Forestry, Land use and Climate Change division of this institute, efforts are being made to understand the carbon sequestration potential of economically important tree species. Climate change is likely to lead to spread to all invasive species. Therefore, a variety of silvicultural practices have to be adopted to enable forests to adapt to climate change. Foresters need to work on such important areas. There are a whole range of forestry challenges in which the scientists of this institute are relentlessly working. We remain committed to the cause of Forestry Research for the benefit of foresters and farmers. Through extension wing we have been able to reach farmers and foresters in the recent past.

Please visit us at Coimbatore to know more about the scientific activities taking place in the institute.

Read on....

Dr. N. Krishnakumar
Director

SPECIAL PURPOSE SEEDLING SEED PRODUCTION AREA (SPSSPA) OF EUCALYPTUS FOR MANAGEMENT OF GALL INSECT PEST PROBLEM

Eucalyptus is now being affected by an invasive gall insect pest, *Leptocybe invasa* Fisher and La Salle throughout the country, and is causing severe economic loss to the planting agencies and farmers. The pulp and paper industries dependent on Eucalyptus wood are also facing raw material shortage. The gall insect being an internal feeder, the conventional methods of control have no effect on this pest, but for repelling the adults to some extent. Thus the options that remain are either planting of tolerant/ resistant varieties of Eucalyptus or biological control of the pest. Biological control, besides being time consuming in view of the long drawn procedures of quarantine and testing, has its own inherent risks of the control agent becoming harmful to useful insects. Further, this method needs extensive studies on the adaptability of the control agent to the environment in the country, besides its ability to multiply and selectively target the pest. Thus the other alternative and viable eco-friendly option available is identification or development of resistant genotypes, which can be put to practice immediately.

With this objective eight different seedlots of Eucalyptus were screened in the nursery for susceptibility to gall infestation, after 6 months of growth. The seedlots included five from the seed sources maintained by IFGTB and three others for comparison, namely, *Eucalyptus camaldulensis* from a seed source of TAFCON raised using a single provenance called Kennedy River, local Mysore gum seedlot called as Commander and *Eucalyptus tereticornis* from WIMCO. The seedlots expressed wide variation in their susceptibility. The proportion of seedlings affected by gall ranged from 27 to 100%. The number of galls per plant (including galls on stem, petiole and leaves) varied from 2 to 54. The local seedlot of Mysore gum sold in the name of Commander (Red) was the most infested and all the seedlings developed gall on petioles, leaves and stem. Gall infestation was less in the seedlings raised from seeds of the Seed Orchards/ Seedling



Seedlings raised from IFGTB seedlots (gall free -left) alongside seedlings raised from local seed sources (gall infested-right).

Seed Production Areas of IFGTB. This suggests development of a strategy to overcome the problem of gall,

wherein seedlings can be raised with seedlots showing less infestation with gall, and then heavily culled in the nursery to eliminate those showing gall infestation, to produce a planting stock that is gall-free. The seedlings from these orchards have been found to be comparable with the commercial clones in terms of productivity. This has been advocated to the farmers and agencies planting Eucalyptus. Further, the plantations raised with seeds from these orchards can be a source of new gall-free clones for clonal forestry, after 3-4 years, and the agencies can resume their clonal forestry programmes with these new clones.

To carry out further improvement, a seedling seed production area (SSPA) was established over 0.5 ha area at Coimbatore,

with the seedlings that were found not affected by gall



using equal number of seedlings from the seed sources that had less incidence of gall. The seedlings were planted at random at a spacing of 1 x 1 m, distributed within the plot, to increase the chances of unrelated mating. The plantation is now one year old and would be culled based on growth after 18 months, reducing the number by half, and increasing the spacing. Later in the 3rd year it will be converted into a Seed Production Area, after thinning. Till now the saplings have remained free from gall. This Seedling Seed Production Area will serve the purpose of production of seeds which will result in seedlings free of gall infestation. By collection of seeds from the individual trees in the identified orchards which show relatively less incidence of gall, it is also possible to segregate the families that show no gall infestation, and establish Special Purpose Seedling Seed Orchards (SPSSO) in the same manner. The strategy has been recommended to various planting agencies like Tamilnadu Forest Plantation Corporation (TAFCON) and the Tamilnadu Newsprint and Papers Ltd. (TNPL) for implementation.

R.S.C. Jayaraj, A.Balu,
C. V. Vijayam and R. Mahalakshmi

Digitisation of Herbarium

Demonstration of data base of digitized herbarium of IFGTB was organized at the Institute. Prof. K.N.Ganeshiah, University of Agricultural Sciences, Bangalore demonstrated the digitized herbarium to the scientists, staff of the institute. Dr. G.V.K Murthy, Joint Director, Botanical Survey of India delivered a lecture on importance of Herbarium in the present context during this programme. Prof. K.N. Ganeshiah handed over the Digitized Herbarium of IFGTB to Dr. N. Krishnakumar, Director, IFGTB.



A team of scientists went on a field visit to Silent Valley on 25.4.09. The team was led by Dr. B.N.Mohanty, IFS, Head Biodiversity Division and Dr. C. Kunhikannan, Scientist explained about the silent valley Forest Ecosystem and helped in identification of many endemic flora and fauna of Silent Valley.



A technical meeting was held with Dr. K. Dhileepan, Principal Scientist, Alan Fletcher Research Station, Queensland, Australia on 29.6.2009. Dr. Dhileepan delivered a talk on Bio control research on weed management. Dr. Irfan Ahmed, Scientist F, AFRI and Entomologist was also present.



Interactive meets

An Interactive meeting on Forestry, between IFGTB, Coimbatore and Kerala Forest Department was held on 17.04.2009 at Thiruvananthapuram.

14 officers from IFGTB and 23 officers from Kerala Forest Department attended the meeting. Shri R. P. Sharma, PCCF in his introductory remarks, expressed his view that the ICFRE institutes have done a lot of research works, but these findings are to be disseminated. Shri R.S.C. Jayaraj presented the research achievements of IFGTB, followed by the presentation of Shri Kannan C.S. Warriar, on the ongoing research programmes of IFGTB, taken up in Kerala State. Shri K. Ravichandran explained the activities contemplated in the Vana Vigyan Kendra at Kuthiran, Kerala. The areas of future research and opportunities for collaboration were presented by Dr. N. Krishnakumar, Director, IFGTB. Dr. K. Palanisamy, Scientist E, presented a proposal on selection and establishment of clonal plantation of teak to improve productivity in Kerala. He also presented a long term project for 10 years, on genetic improvement of teak, for consideration by the Kerala Forest Department.



Shri T.M. Mahoharan, IFS, PCCF appreciating the good gesture shown by IFGTB to interact with the user agency, stressed the need for identifying suitable species for social forestry programme in Kerala. He pointed out that the exotic tree species are not favoured by the people of Kerala and hence research has to go into indigenous species only. Various areas for research were prioritized during the meet.



An "Interactive Meeting on Forestry" was organized with Tamil Nadu Forest Plantation Corporation (TAFCON), Trichy at TAFCON, Trichy, Tamil Nadu on 21-05-2009 and 22-05-2009. The Corporation was represented by the Managing Director, Joint Managing Director, General Manager, Regional Managers and 39 field level officers. The Institute was represented by the Director and Heads of divisions. Projects and consultancies to be taken up with TAFCON were discussed during the meeting.

An interactive meeting between officers of the institute with Shri R. Sundararaju, IFS, PCCF cum Chief Wildlife Warden, Tamil Nadu was held on 8.6.2009.

During the meeting the PCCF outlined the programmes undertaken in Protected Areas of Tamil Nadu and the research needs of the state in Wildlife areas.



The Institute conducted its second interactive workshop on 19.6.2009 with all its stakeholders to prioritise and finalise new research projects and programmes to be taken up during the current year.

Representatives from Forest Departments and Forest Development Corporations of Kerala, and Tamil Nadu, Research and Academic institutions, Wood based industries, farmers and NGOs including Tree Growers Associations participated actively and listed out their research and training needs. A total of 44 new research projects in the areas of Tree Improvement, biotechnology, Climate Change, Forest Health, Agroforestry, Bioenergy, Biodiversity Conservation and Bio-prospecting based on the research needs of the stakeholders were presented.



A book on Quality Planting Stock Production in Tamil published by the institute for the benefit of farmers and other user agencies involved in tree farming was released by Shri Siddappa, Chief Conservator of Forests, Kerala.



Education and Awareness

An awareness programme on environmental conservation for school children was organized by Siruthuli an NGO based in Coimbatore. As part of the programme, students and teachers from 20 schools visited the institute on 8.4.2009 at. Dr. N. Krishnakumar, IFS, Director welcomed the students and dwelt at length the importance of conservation of forests and environment and underlined the role of student community in conservation efforts. An interactive session was organized and queries of students and teachers were answered by the Director and Shri K. Ravichandran, Extension Officer. Later the students were taken to the Gass Forest Museum and to the woodlots in the campus for familiarization of flora.



The World Earth Day was observed at the institute on 22.4.2009. The Officers, Scientists and staff of the institute participated in a *shramdhan* and cleaned the campus premises on that day.

IFGTB supported the effort of Royal Classic Polo in launching "Club Earth" on 7.6.2009 to serve the rising green needs of the country. Shri R.S.C. Jayaraj, Head, Forestry Land Use and Climate Change Division delivered a talk on Climate Change and its mitigation.

A one day training course on "The ABC of DNA" for higher secondary school students of Coimbatore was organized in the Institute. Twenty six students from various schools took part in the programme. The students were exposed to various basic techniques in biotechnology. In the end a quiz programme was conducted and prizes distributed to the winners.



The institute celebrated the World Environment Day, 2009 on 5.6.2009 in a befitting manner. The theme of the celebration was "Your Planet Needs You – Unite to Combat Climate Change". As part of the celebrations the institute organised a commemorative tree planting programme. Dr. N. Krishnakumar, Director, welcomed the gathering and underlined the role of citizens in keeping the environment clean. Shri Anshul Mishra, IAS, Commissioner, Coimbatore Corporation was the chief Guest and was attended by officers and staff of Tamil Nadu Forest Academy, State Forest Service College, District Forest Officer, Coimbatore and others. A special address on Climate Change and Forestry was delivered by Shri R.S.C. Jayaraj, IFS, Head, Forestry, Land Use and Climate Change Division to the participants.



Dr. N. Krishnakumar, IFS, Director, delivered a talk to All India Radio, Coimbatore on theme "Environment and Pollution and the ways to improve our surroundings" which was aired on World Environment Day.

Dr. V. Mohan, Scientist-E delivered a talk to All India Radio, Coimbatore about the Ph.D. programme in Forestry carried out in IFGTB under FRI University, Coimbatore under Higher Education Programme on 16-06-2009.

Training Programmes

A training programme for farmers of Coimbatore District was organized on Cultivation and Management of Casuarina and Eucalyptus under the National Agricultural Innovation Project "Development of Value chain for Industrial Agroforestry". The objective of the training is to sensitize the farmers to take up cultivation of the two species and the ways to gain higher yields. Shri R.S.C. Jayaraj, IFS, Nodal Officer of the Project welcomed the gathering and provided an overview of the project. Dr. N. Krishnakumar, IFS, Director inaugurated the training programme. The farmers were informed about the details of the Project, the cultivation and management aspects of Casuarina and Eucalyptus, The improvement programme undertaken by the institute, etc. The Industries partners of the Project the TNPL and Seshasayee Paper Boards provided an overview about the schemes promoted by them on contract farming, Quality planting stock production, etc.

Organised five days training Programme on Bamboo Cultivation and Management for two batches of Horticulture officers of Tamil Nadu on 18-22nd May, 2009 and 25-29th May, 2009 at the Institute. The Training Programme was sponsored by Tamil Nadu Horticultural Development Agency, Govt. of Tamil Nadu. A total of 50 officers were trained. The officers were provided with an overview of the bamboo resources in India, cultivation and management of various bamboo species in farm fields, bamboo 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 institute organised a training programme for the Range Forest Officers of the Extension Wing of Tamil Nadu Forest Department on Quality Planting Stock Production and Agroforestry from 24.6.2009 to 26.6.2009. A total of 20 officers participated in the training programme. The training programme was inaugurated by Dr. N. Krishnakumar, IFS, Director. Training was imparted on Seed Collection and Handling, Nursery Management, Use of bio-fertilizers in forestry, Pest Management in Nurseries, Biological Control and Bio-pesticide, Disease management, and Plantation Management. The participants were taken on field visit to CSOs, SSOs, Clonal Trials, various agroforestry models, VMGs, and Nurseries. Group Discussion was held on Cultivation and management of economically important species grown in farm lands. Dr. G. Kumaravelu, IFS, APCCF (Retd), Tamil Nadu delivered the valedictory address and distributed the certificates to the participants.



DEMO VILLAGE

Interactive meeting with farmers, SHGs of Kandiyur demo village was held to discuss and decide the activities to be carried out.



Nursery Pest Management during the quarter

Probable insect pest infestation	Management measures
Sap feeders Psyllids, Aphids. Defoliators <i>Rhesala imparata</i> and <i>Eurema blanda</i> on <i>Albizia lebbek</i>	Application of 5% Tobacco extract if colony of Psyllids and Aphids are identified. One round of prophylactic spray of 0.06% Dimethoate or 0.05% Methyl Dematon during September soon after the rain for Sap feeders and 0.05% monocrotophos for defoliators. Handpick and destroy folded leaves. Segregation of affected seedlings from the main lot will reduce the spread of insect population.
<i>Papilio demoleus</i> on <i>Aegle marmelos</i>	Hand picking and destruction of larvae. As soon as the seedling put forth new tender leaves a spray of Pongam-Neem oil extract or 5% Neem Seed Kernal Extract can be given and repeated after a week. If problem persists, 0.05% of Monocrotophos spray can be given.
<i>Parneria mathias</i> and <i>Aceris pongamiae</i> on <i>Pongamia pinnata</i> .	Hand picking of infested shoot tips every 10 days. One round of 0.05% monocrotophos or 0.076% Dichlorvos sprayed soon after the rain. Arrange 2-3 beds of other species in between the beds of <i>P. pinnata</i> .
<i>Apoderus</i> sp. on <i>Syzigium cumini</i>	Hand picking and destruction of rolled up leaves. 0.05% monocrotophos spray if severe infestation persists.
<i>Eriophyes cernuvis</i> gall on <i>Ziziphus mauritiana</i>	Selective trimming of affected shoots and destruction of galls. Spray of 0.06% dimethoate as a prophylactic measure and during severe infestation.

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BOOKS PUBLISHED

- Casuarina: A guide for cultivation (English) by Dr. A. Nicodemus
- Quality Planting Stock Production (Tamil) Eds: R.S.C. Jayaraj and K. Ravichandran

FORTHCOMING EVENTS

1. Training on Quality planting stock production
2. Training on Isolation, Identification and Mass Production of Bio-fertilizers and bio-inoculants
3. Introductory Training Course on Field Oriented Forest Entomology for Post Graduate Students.

VISIT OF DIGNITARIES

Shri Tikshan Sud, Hon'ble Forest Minister of Punjab State and Shri Jitendar Prasad, IFS, Chief Conservator of Forests visited the Institute on 20th June'09

Dr. K. Venkataraman, Secretary, National Biodiversity Authority, Chennai, visited the Institute on 20th April 09.

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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THE EXTENSION OFFICER

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