

INSTITUTE OF FOREST GENETICS AND TREE BREEDING

(Indian Council of Forestry Research and Education)

VAN VIGYAN NEWSLETTER

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From the Director's Desk

Forestry extension is taking rapid strides in the country due to the success of research findings which is reforming tree cultivation practices in lands outside forests in a big way. May it be agroforestry, plantation forestry, homesteads, research findings have contributed to productivity enhancement in these forestry practices. Forestry, along with agriculture can play a significant role in reducing poverty and inequalities particularly along forest fringe villages. There are many success stories of farmer prosperity through tree cultivation. We are keen to compile such stories so that they become reference models to encourage farmers venturing into tree cultivation. Innovation in research and client satisfaction through the use of research findings is our endeavour. Our aim as a team is to strengthen silvi business in this part of the country by providing improved varieties of seeds and clonal material for farmland gains. We not only support research outside forests but also involve actively towards restoration of degraded forests. This newsletter is a small extension effort for technology dissemination and for sharing our views with our stakeholders. It should not remain a one way communication. I once again request the readers to share their stories with us so that tree cultivation efforts are strengthened.

Dr. N. Krishnakumar
Director, IFGTB

Visit of Director General, ICFRE

The Director General, ICFRE Dr. V.K. Bahuguna, IFS, visited the Institute on 30.5.2011 for the first time.



He had elaborate discussions with the scientists of the Institute. After looking into the activities of IFGTB, DG refined the roles of IFGTB as (1) Tree improvement, (2) Forest Genetic Resource Management (including biodiversity and bio-prospecting) linked to livelihood of people, and (3) Climate Change. He suggested a pan India outlook in core competence areas of tree improvement. In the given thrust areas the institute should emerge as world class institutes.



A chart on Animal and Plant classification for school children was released. A Book on Bioprospecting Forest Resources: An Illustrative catalogue of some flora for biopesticides was also released. Following this, the DG visited all the laboratories of the Institute.

Near to nature agroforestry - a way to increase tree cover

A recent field visit to a farm at Alandurai was indeed a new experience. It was a small holding of about 5 acres of agricultural land that was acquired 3 years back, by a software engineer who had transformed to a farmer cum naturalist. The soil had already turned infertile over the years of continuous use of fertilizers and pesticides. Though situated amidst other vast agricultural patches where regular pattern of cultivation is practiced, be it turmeric or onion, down pour of pesticides and fertilizers coupled with ample irrigation persisted. Among these this particular farm stood odd. Odd in the sense –a SUCCESSFUL ODD! It was a surprise to us who visited the farm with expectations of routine organic farming practices in an agroforestry model! The green cover on the farm vouches for the success of the trial undertaken by the farmer. All that he did was improvisation of the farm on the lines paralleling natural succession with minimal human intervention with regard to crop protection and other management practices. He had bordered the farm with trees like Gmelina, Casuarina, Syzgium, Mango, Ailanthus, Melia, Sapota, Guava, Mahogany, Pongamia, Cocoa and Coconut. The tree interspaces were utilized for cultivation of turmeric, ginger, yam, onion, carrot, pulses and greens, in a mixed poly crop model. The farmer claims that the yield is commendable without any extra care as compared to the neighboring farms which indulge in regular management practices such as tilling, monocropping, pesticide/insecticide application, fertigation, weeding etc. The green cover has invited varieties of avi-fauna, which in turn helps control of insect problems. Moreover, the soil

quality has also improved due to natural mulching by the withered leaves from the trees. Harvest and sowing is practiced hand in hand which helps minimize labour costs. A small plot is solely dedicated for paddy cultivation but with no use of fertilizers or inorganic protection measures. The fresh fruits and vegetables from the farm suffice the day to day needs of the family which also warrants pesticide free commodities in addition to a profitable income throughout the year. According to the innovative farmer, with minimum farm inputs his three member family is able to cut down its monthly expenditure to a great extent. On the long run the farmer assures total self sustenance of his family with this small piece of agricultural land!

This odd model, though looks viable, there is lot of resentment to this approach of tree cultivation as tree cultivation is always looked with profit motivation anywhere in the country. Farmers practicing this were however very optimistic and confident that the yield of both tree and intercrop is as good as under intensive agroforestry. This concept provides scope for researchers to work on and fit in this model in appropriate areas to develop agroforestry.

Today when we are trying to increase the tree cover outside forests, such models of blending tree cultivation with agricultural crops in a near to nature forest scenario is a welcome sign. Such agroforestry models in the forest fringes are also measures to increase biodiversity in the country. In fact, such agroforestry models should increase their economic efficiency and this is a fertile area for research, extension and outreach.

N. Krishna Kumar
R. Anandalakshmi
S.K. Shanmugasundaram
J.P. Jacob

Insect pests of *Melia dubia*

Melia dubia (Meliaceae) is a fast growing native tree species recently introduced in plantation forestry. Due to its straight growth, short

rotation period of two years and pulping characters it is preferred by paper and pulp industries. Large scale plantation programmes are initiated by State Forest Departments and tree growing farmers in Tamil nadu and Karnataka. *M. dubia* is reported to be free from termites. However, large scale raising of seedlings in nursery was found to be susceptible to few species of pests. Being a new species introduced for large scale planting, it is necessary that the pest spectrum of this species be identified so that epidemic outbreaks in nurseries and plantations areas can be avoided in future. Assessment of the intensity of infestation was done on nursery beds in IFGTB.

Red spider mite; The mite occurs in groups beneath the leaves and feed on the epidermal tissues. (Fig- A). Chlorosis can be easily located on the adaxial side in infested seedlings (Fig C). Low to medium level infestation was found during June to July and November to December. Application of Derrimax 0.3 ml/lit of water can control the mites.



A. Red spider mite



D. *Ascortis selenaria* larva



B. Chlorosis on leaves due to mite feeding



E. Leaf miner



C. *Ferrisia virgata* - Scale insects



F. Fruit eating beetle grub

Ascortis selenaria - defoliator : A polyphagous defoliator attacks *Melia* seedlings during the rainy season June to July and November to December (Fig D). The main host is *Prosopis juliflora*. It also occurs in *Peltoforum ferrugenum*, *Santalum album*, *Delonix regia* etc. At low infestation level, handpicking of caterpillars can be done to manage the

pest. Adults are usually attracted to light and therefore light traps can be installed for a week after the first showers. At high infestation level Methyl parathion (2 ml/lit) can control the pest.

Ferrisia virgata -Mealy bug: Occasional incidence of mealy bugs were noticed at low levels in seedlings (Fig 1 –C). Application of Neem oil, tobacco extract directed towards the underside of the leaves can control the scales.

Leaf miners: Leaf miners also damage the leaves in nursery seedlings. Very low level incidence was observed in seedlings (Fig E).

Fruit infesting beetles: Fruit pulp of fallen fruits is eaten by beetles. However, seeds are not found to be attacked or damaged (Fig F)

John Prasanth Jacob

Addressing Stakeholder issues

The Ministry of Environment and Forest Govt. of India, has identified IFGTB as a CITES Scientific Authority for Plants related to CITES in India. The MoEF has sanctioned a project for one year duration during December 2010; to conduct NDF study on *Pterocarpus santalinus* which is currently included in CITES Appendix –II. Consequently five teams consisting forest officers, scientists and research fellows were formed, which visited various Forest Divisions in Andhra Pradesh having red sanders natural forests. Sample plots were laid to assess population structure, growing stocks and regeneration. The data collected by teams will be used for preparing a NDF report for *P. santalinus* as per CITES guidelines.



An Interactive Meet on Forestry (Stakeholders Meet) was organized

by IFGTB and TNFD on 26.05.2011 to discuss on various research programmes to be undertaken by IFGTB.



Rediscovery of Endemic species in Kalakkad Mundanthurai

Two strict endemic species of KMTR, viz, *Phyllanthus singampattianus* and *Eugenia singampattiana* were rediscovered at Pappanasam recently by the IFGTB team.



Eugenia singampattiana (Myrtaceae)



Phyllanthus singampattiana (Myrtaceae)

New projects initiated

The ICFRE has approved the following proposals under the National Forestry Research Plan.

1. Restoration ecology and species recovery studies in Tsunami impacted mangrove areas of Andamans
2. Development of models for conversion of plantations into secondary forests in Andaman & Nicobar islands
3. Selection and Screening of Germplasm of *Thespesia populnea* for Improving Productivity

4. Genetic Improvement of *Gmelina arborea* Roxb. through selection and clonal evaluation
5. Anti-insect secondary metabolites from fungal endophytes of selected tree species
6. Selection and Evaluation of High yielding clones of *Pongamia pinnata*
7. The study of biology and conservation of endemic plants of Kalakadu Mundanthurai Tiger Reserve, Tamil Nadu
8. Population structure, regeneration status and pollination ecology of *Dalbergia latifolia* and *D. sissooides*
9. An improved holistic approach for development of database on fast growing tree species targeting stakeholders in Tamilnadu and Kerala
10. A New paradigm: A study to evaluate different innovative and successful marketing strategies and its suitability for forestry products
11. Response of mycorrhizae and microbial symbionts to elevated CO₂ in commercially important tree species

Seminars / Workshops/ Technical meets

The International Day for Biodiversity 2011 was celebrated on 22.5.2011 at IFGTB. The event was organized jointly by the National Biodiversity Authority Chennai and the Institute of Forest Genetics and Tree Breeding, Coimbatore. The Centenary Celebration of Fischer herbarium of IFGTB Coimbatore was also held on the same day.

Many publicity and awareness programmes on the subject of biodiversity were conducted. Painting competition, Essay competition, Elocution competition and Quiz competition were conducted. On 22.5.2011, a mini Marathon race was organized, inaugurated by Dr.C.Sylendra Babu, I.P.S. the Commissioner of Police, Coimbatore City Corporation, Coimbatore.

The main function was inaugurated by Shri J.C.Kala, IFS (Retd) Former Director General of Forest and Secretary to Govt. of India. Dr.N.Krishna Kumar, IFS, Director, IFGTB delivered introductory address.



Dr.S.Balaji, IFS, Director, TNFA, Coimbatore and Shri. C. Achalender Reddy, IFS., Secretary, National Biodiversity Authority delivered special address on Biodiversity and on the latest issues involving biodiversity conservation. Dr. Kala delivered the inaugural address and distributed prizes.



He also unveiled the commemoration stone for the 100 years Fischer Herbarium. He also released a Souvenir containing 26 articles including special lectures related to Biodiversity topics. A Herbarium catalogue for Fischer herbarium too was released. The chief guest also honoured the retired and serving taxonomists who have significantly contributed in the growth and development of Fischer herbarium.



A technical session was also arranged as part of the celebration and experts in their relevant fields of bio-diversity delivered lectures.



Visit of Australian team

Mr. K. Pinyopusarker and Mr. David Bush, Scientists from CSIRO, Australia visited IFGTB, field experiments and collaborating

wood-based industries from 01.05.2011 to 09.05.2011. The main focus of the visit was to review the progress made in the ongoing AusAID funded project implemented in collaboration with CSIRO and the Forest Departments of Tamil Nadu and Pondicherry. The visiting Scientists expressed satisfaction over the progress made so far and the development of Community Seed Orchards. They visited two community orchards established by IFGTB at Valluvedu in the Union Territory of Pondicherry and at Arasanur Extension Centre, near Madurai in Tamil Nadu. They also interacted with the officials of forest departments of Tamil Nadu and Pondicherry, farmers and traditional nursery operators. In order to explore further collaboration between IFGTB, CSIRO and wood-based industries visits were made to The Andhra Pradesh Paper Mills, Rajahmundry and the Harihar Polyfibres, Bangalore.



Education and Awareness

Training to farmers in Karaikkal
Training and Entrepreneurship development programme organized for the Farmers at Karaikal from 22.6.2011 to 24.6.2011 and delivered special lectures on 'Cultivation of Casuarina', 'Bio fertilizers for improvement of Tree crops' and 'Disease management of Forest tree species'.

Training to farmers in Puducherry

Skill Up gradation Training Programme on Nursery and Plantation Techniques of Fast Growing Tree Species for Staff and Personnel of Department of Forests and Wildlife, Pondicherry was organized on 28.4.2011. A total of 65 persons from the department

participated in the training programme. The topics covered include Seed handling techniques for important fast growing species, Nursery techniques for important fast growing species, Cultivation and management of Casuarina, Eucalyptus, Melia dubia, Ailanthus and other fast growing species, Pest and disease management in nurseries and plantations of fast growing species.



Hands on training was provided on production of planting materials through seeds, clonal technology, vegetative methods including mini and micro cutting techniques, use of Biofertilizers and Biomanures at Model, Research nurseries and vegetative propagation complex. Dr. A. Balu, Dr. A. Nicodemus, Dr. V. Sivakumar, Smti R. Anandalakshmi, Shri Maria Dominic Savio, Scientist D, Shri V.K.W. Bachpai, and Dr. A. Karthikeyan provided the inputs for the said training programme.

Training program was imparted in IFGTB on 16.06.11 & 17.6.2011 to the Foresters' trainees of Tamil Nadu Forest Academy, Govt. of Tamil Nadu.



Dr. Ambedhkar's 120th Birthday was celebrated in IFGTB.



VVK activities

An awareness programme was arranged for the students of Panchayat Union Elementary school of Kandiyur Village on the subject of "Bio-diversity

Conservation, its importance and sustainable utilization"



A book on this subject published in local language by IFGTB was distributed. As part of the awareness programme, Wildlife films were screened. Nearly 50 students of all classes and teachers participated in the programme. Library books, school bags and other stationery materials were distributed. The financial support was extended by the Directorate of Environment, Tamil Nadu Government, Chennai.



BOOKS / BROCHURES PUBLISHED

1. Fischer Herbarium (FRC) Catalogue. Centenary celebration volume.
2. Bio prospecting Forest Resources: An Illustrative catalogue of some flora for bio pesticides
3. Biodiversity Conservation - Animal & Plant Chart

FORTHCOMING EVENTS

Trainings on

1. Tree Improvement
2. Integrated Pest and Disease management
3. Biofertilizer Technology

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