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Indian Council of  
Forestry Research  
and Education

# ICFRE NEWSLETTER

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## Significant Research Findings

### Institute of Forest Genetics and Tree Breeding, Coimbatore

- Developed the ArborEasy™ DNA Isolation Kit based on the joint patent filed by Institute of Forest Genetics and Tree Breeding and Department of Biotechnology, Government of India. The inventors of the patent were Dr. Modhumita Dasgupta and Dr. Radha Veluthakkal. The technology was subsequently upgraded based on the market requirement and a spin column based DNA isolation kit, developed under the Direct to Consumer Scheme of Indian Council of Forestry Research and Education (ICFRE) in 2016 and trade



ArborEasy™ DNA Isolation Kit launched in IFGTB, Coimbatore

mark was registered for name ArborEasy in 2017. The kit provides an indigenous, non-biohazardous, low cost spin column based system for isolation of plant genomic DNA from wide range of tissue type. The performance of the kit has been validated by various national laboratories. Presently, the Institute has partnered with Adastra IPPvtLtd, Gurugram, Delhi for commercialization of the kit. Adastra IP Pvt Ltd with its presence in leading ASEAN countries is co-ordinating with IFGTB to license/ market the kit in India and other countries. The kit was launched in the Institute premises by Dr. Meenakshi Munshi, Scientist G & Adviser, Department of Biotechnology, Government of India on 24 January 2018. The programme was also attended by Dr. Sathish Kumar, Associate Professor, Department of Biotechnology, Bharathiar University, Coimbatore. He had validated the kit in challenging tissues and shared his experience in using the kit.

### Developing and testing of *Gmelina arborea* clones:

- *Gmelina arborea* is a fast growing, deciduous tree species with multipurpose utility. It is distributed in natural forests of

India, Burma and Srilanka. The wood is used as a raw material in construction, furniture, paper, pulp, handicrafts, ply and particle board industries. Roots are used to cure fever, small pox, snakebite, blood vomiting and also used in many ayurvedic formulations. Raising of *Gmelina* plantations from unselected seed sources, results in poor tree form and low productivity. Clonal plantation play vital role in increasing productivity with good tree form. However clonal plantation of *Gmelina* is not operational in India due to non availability of clones and quality planting material. 60 candidate plus trees were selected in farmers plantations and natural forest based on growth superiority and wood traits. To avoid loss of superior genetic resources in plantations the selected trees were felled at 25 to 30cm above ground level. Coppice shoots emerged 2 to 3 weeks after felling and these shoots were collected and multiplied by treating with 2000ppm of IBA. IFGTB has developed vegetative multiplication garden of *Gmelina arborea* with 60 clones selected from different parts of Southern India.

The growth potential of selected clones need to be demonstrated to the stakeholders is the main objective of any clonal development programme. Clonal demonstration trial of *Gmelina arborea* trial was established in farmers field at Suthamalli, Ariyalur, Tamil Nadu. The trial was established in randomized block design with 30 clones planted in spacing of 4x4 metre and 5 replications, 4 ramets per replication. The clonal trial will serve as a demonstration trial among farmers.

increased in order of *Tamarix aphylla* < *Prosopis cineraria* < *Salvadora oleoides* < *Eucalyptus camaldulensis* < *S. persica* < *Azadirachta indica* < *P. juliflora* with almost 3-fold variation in biomass production.

- *Ailanthus excelsa* (Ardu) male trees have significantly higher leaflet surface area ( $F=87.475$ ,  $P<0.01$ ), leaflet length and number of veinlets compared to females. While, stomatal index was higher in female trees as compared with male trees ( $9.86\pm 0.85$ ) but this difference was statistically not significant.
- Seeds of *C. wightii* collected in two different seasons from Deesa (Gujarat) were analysed and result revealed that black seed proportion was significantly higher in winter (being 75.3% in November) as compared to seed collected in summer (being 34.5% in July). Pooled seed data of summer and winter indicated significant differences in total seed number and black seed number both.

#### Forest Research Institute, Dehradun

- Under the project “Expression profiling of mevalonate (MVA) pathway and methyl erythritol 4-phosphate (MEP) pathway transcripts in *Cymbopogon winterianus* under pathogen stress” Gas chromatography–mass spectrometry (GC-MS) analysis was done in laboratory which indicated the presence of several major chemical constituents in the oils extracted from diseased and healthy leaves of *Java citronella*. However, the quantity of all the major constituents was increased in the oils extracted from the diseased leaves. These findings indicate that during the initial stages of infection, the plant produces more terpenes as a line of defense to combat pathogen infection.
- Life history of two species of butterfly was studied in the laboratory by rearing them in cages. 32 herbarium sheets of plants (trees, shrubs & herbs) sampled in 9 forest sub-types and sampled in the field were identified and a database prepared on vegetation of sampling plots.
- Digitization of whole drawers of each cabinet: Editing of photographs of whole drawers was completed. Digitization of slides in trays: 160 trays in four boxes were photographed. Digitization of small insects: 140 species of Hymenoptera in cabinet no. 2 were digitized with Automontage 3-D imaging system mounted on SMZ-16 Stereozoom Microscope. Photographs of each species were placed in a folder named after the accession number of the species registered in NFIC. Record of the photographed insect was noted and insect marked with a white paper disc for future reference. NFIC Database format was updated.
- Saccharification of hemicellulose rich pretreated liquor, has been done by using microbial enzymes to enhance the yield of mono-sugars for bioethanol production.
- Demonstration field trial and Vegetative Multiplication Garden (VMG) set up were for tissue culture raised *Corymbia* hybrids by G & T.P Division

#### Visit of Dignitaries

- Sh. Vinay Kumar Tiwari, Chief Post Master General, Uttarakhand visited FRI, Dehradun on 12 January 2018.



Sh. Vinay Kumar Tiwari, Chief Post Master General, Uttarakhand at FRI, Dehradun

- Senior Directing Staff (Rank equivalent of Major General/ Joint Secretary) of National Defence College, Ministry of Defence, New Delhi visited FRI on 30 January 2018.



Major General/ Joint Secretary) of National Defence College, Ministry of Defence, New Delhi at FRI, Dehradun

#### Arid Forest Research Institute, Jodhpur

- Under effluent utilization in afforestation, dry biomass production varied significantly due to both species as well as irrigation levels. Significant species x irrigation level interaction showed dependency of species biomass production on the irrigation levels. Across the species, biomass production increased in the order: application of tubewell water at 1/2PE (pan evaporation) < Effluent at 1/2 PE < Effluent water at 3/4 PE < Effluent water at 1PE showing 1.27 to 1.71-fold high biomass over control (tube well water irrigation). Among the species, biomass production

## Workshops/ Seminars/ Meetings

Sl. No.	Topic	Duration	Beneficiaries
<b>Institute of Forest Genetics and Tree Breeding, Coimbatore</b>			
1.	National Agroforestry Policy 2014 and its Role – Red Sanders and Sandal production	24 January 2018	130 farmers
2.	Cryopreservation and its significance	25 January 2018	66 Scientists, officers and research staff including SRFs, JRFs, RAs and FAs



Workshop on National Agroforestry Policy 2014 and its Role – Red Sander and Sandal production at IFGTB, Coimbatore



Periodical seminar on Cryopreservation and its significance at IFGTB, Coimbatore

### Institute of Wood Science and Technology, Bengaluru

3.	Institute Industry Integration (III-2018) workshop	19 January 2018	55 delegates from industries entrepreneurs, startups, wood and composites manufacturers, architects, builders, user agencies
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Workshop on Institute Industry Integration (III-2018) at IWST, Bengaluru

### Himalayan Forest Research Institute, Shimla

4.	Forest Certification	13 January 2018	Forestry Scientists, Academicians, Researchers, Students and Forest Officials from different states
5.	Biodiversity Conservation	25 January 2018	Scientists, Officers including Research and Technical Staff

Institute of Forest Productivity, Ranchi

6.	Livelihood Economic Growth	30 January 2018	All Officers/ Scientists/ Technical Staff/ Ministerial Staff/ Research Scholars, etc
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**Training**

Sl. No.	Topic	Duration	Beneficiaries
<b>Forest Research Institute, Dehradun</b>			
1.	Conservation and Management of Coastal Ecosystems	8 - 12 January 2018	12 Commandants/Deputy Commandants
2.	Edible and Medicinal Mushroom Cultivation	15 - 19 January 2018	Technical Officers of different institutes of ICFRE
3.	Handmade Paper from <i>Lantana camara</i>	15 - 19 January 2018	Self Help Group, Ramgarh Sikri from Village Maili of kandi region, Distt,Hoshiyarpur
4.	Seed Technology	21 - 24 January 2018	16 Officers of the rank of PCCF, CCF, ACF, FRO & Forester of U.P. Forest Department and five Forest Range officers from Haryana Forest Department
5.	Basic Tissue Culture Techniques	26 December 2017 to 5 January 2018 3 - 5 January 2018	Officials of IFFCO, Kalol, Gujarat Staff of Haryana Forest Department



Training on Seed Technology at FRI, Dehradun



Training on Edible and Medicinal Mushroom Cultivation at FRI, Dehradun



Training on Conservation and Management of Coastal Ecosystems at FRI, Dehradun

**Institute of Forest Genetics and Tree Breeding, Coimbatore**

6.	Introductory Training in Molecular Biology Techniques	8 – 12 January 2018	14 ICFRE Scientists
7.	Hands on Training on Bioprospecting – Instrumentation methods and Phytochemical analysis	22 - 23 January 2018	19 Under graduate, post graduate and students of Biotechnology, Microbiology, Biochemistry, Ph.D scholars and Lecturers.
8.	Research Methodology, Quality Seed Production and Seed Handling Techniques	23 - 24 January 2018	30 Rangers, foresters, senior research fellow, junior research fellows and technical assistant working under the forest genetics Circle
9.	Agroforestry models – Establishment and Management'	29 – 31 January 2018	30 KVK Subject Matter Specialists



**Training on 'Agroforestry models – Establishment and Management' at IFGTB, Coimbatore**



**Introductory Training in Molecular Biology Techniques at IFGTB, Coimbatore**



**Training on Research Methodology, Quality Seed Production and Seed Handling Techniques at IFGTB, Coimbatore**



**Training on Bioprospecting – Instrumentation methods and Phytochemical analysis at IFGTB, Coimbatore**

**Tropical Forest Research Institute, Jabalpur**

10.	Nutritional benefits of <i>Moringa oleifera</i> leaves and prospects for its value addition	7 January 2018	Under graduate, post graduate and students of Biotechnology, Microbiology, Biochemistry, Ph.D scholars and Lecturers
11.	Agroforestry systems and its management	8-12 January 2018	B.Sc. Forestry students of Sam Hingonbottom University of Agriculture Technology and Sciences (SHUATS), Allahabad

**Institute of Wood Science and Technology, Bengaluru**

12.	Training programme on wood preservation, protection of innovations, Wood Polymer Composites, Industrial prospective on wood science, wood quality improvement	8 – 12 January 2018	17 IFS officers
13.	Wood Seasoning and Protection	12 January 2018	-
14.	Field Identification of Important timbers	23 to 24 January 2018	32 RFOs of Maharashtra Forest Department
15.	Insect pests and their damage aspects	25 January 2018	47 trainees of 3 <sup>rd</sup> batch RFO trainees of Karnataka Academy

**Rain Forest Research Institute, Jorhat**

16.	Awareness - cum - Skill Training Program	5 - 6 January 2018	-
17.	Bamboo Handicrafts especially Jewellery making	20 -27 January 2018	-
18.	Bamboo Tissue Culture	22 to 25 January 2018	Trainees of B.S.S. College, Supaul, Bihar
19.	Spring Shed Recharge	23 January 2018	Mizoram Core team members
20.	Bamboo Propagation Techniques	27 to 28 January 2018	19 <sup>th</sup> Batch of Deputy Rangers' of Forest Training School, Manipur
21.	Bamboo Nursery Management, Cultivation, Preservation, Treatment, Value addition and Agarwood: Nursery & Plantation	31 January to 1 February 2018	Trainees of State Environment & Forestry Training Institute (SEFTI), Dimapur



**Bamboo Propagation Techniques**



**Training on Bamboo Handicrafts especially Jewellery making**



**Awareness - cum - Skill Training Program at RFRI, Jorhat**

**Himalayan Forest Research Institute, Shimla**

22.	Scope and Importance of Medicinal and Aromatic Plants for Enhancing Farmers Income of Jammu Region	19 January 2018	65 farmers of Jammu region
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**Institute of Forest Productivity, Ranchi**

23.	Livelihood generation through lac cultivation of Kotshilsa (Pundag), West Bengal and Mahilong, Ranchi	17 and 24 January 2018	31 Farmers of Kotshilsa (Pundag), West Bengal and Farmers of Mahilong, Ranchi
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Training on Livelihood generation through lac cultivation at IFP, Ranchi



Training on Scope and Importance of Medicinal and Aromatic Plants for Enhancing Farmers Income of Jammu Region

**Tree Growers Mela/ Kisan Mela**

Institute	Participated/organized	Duration	Place
AFRI, Jodhpur	Paschimi Rajasthan Hastshilp Mela	5 to 14 January 2018	Central Stall, Raavan ka Chabutara, Jodhpur
RFRI, Jorhat	Science Exhibition	9-11 January 2018	Kakojan College, Kakojan, Jorhat
	MSME Expo 2018	23 - 24 January 2018	Kushal Kunwar Indoor Stadium Complex, Jorhat
HFRI, Shimla	Vision Jammu & Kashmir-2018	29 - 31 January 2018	Udhampur (Jammu & Kashmir)



Science Exhibition at Kakojan College, Jorhat



MSME Expo 2018 at Jorhat



Vision Jammu & Kashmir 2018 at J&K

## Publication

FRI, Dehradun prepared a 45 page booklet on Butterflies of New Forest Campus, with colour photographs, text, maps, graphs and tables for 153 species of butterflies found in the campus over the last few decades.

## Consultancies

Presently work on 11 consultancy projects, awarded by Tehri Hydro Development Corporation India Ltd; Himachal Pradesh Power Corporation Limited; Karnataka State Official Authority; Uttarakhand Jal Vidut Nigam Limited (UJVNL); MoEF&CC GoI, New Delhi; Coal India Limited, Kolkotta; NTPC Ltd Noida and CMPDI Ranchi, NMDC Ltd. Hyderabad are in progress.

## Miscellaneous

## Board of Governors (BoG) Meeting

- Board of Governors meeting held on 9 January 2018 at Indira Paryavaran Bhawan, New Delhi.

## Activities under VVK and Demo Village

- FRI, Dehradun organized 3 days training on "Cultivation, sustainable harvesting & utilization of medicinal plants" to the farmers, NGOs and forest officials of Haryana at KVK, Damla, Yamunanagar from 23-25 January 2018 under VVK – KVK networking. 35 participants attended the training programme.

### Institute

### Special day/theme

### Duration

RFRI, Jorhat

Swachh Bharat Abhiyaan,  
Swachh Pakhwada

4, 11, 18 and 25 January 2018

IFGTB, Coimbatore

Martyr's day

30 January 2018



Martyr's Day at IFGTB, Coimbatore



Swachh Bharat Abhiyaan at RFRI, Jorhat

## Popularizing Forestry through All India Radio/ Doordarshan

### Programme Topic

### Channel

### Date

Forest Research Institute, Dehradun

भारतीय वानिकी अनुसंधान और शिक्षा परिषद् का राष्ट्रीय वानिकी परिदृश्य में योगदान

विकसित विभिन्न वानिकी प्रौद्योगिकी की आजीविका सुधार में भूमिका

लकड़ी के सीजेनिंग के लिए FRI की सोलर आपाक

औषधीय पौधों का सतत् विकास

लकड़ी और बांस परिरक्षण क्यों आवश्यक है : तरीके तथा सावधानियां

जैव उर्वरक द्वारा वानिकी एवं कृषि उत्पादकता बढ़ाना

कृषि वानिकी में आर्थिक स्वावलंबन

कृषि एवं वानिकी में रोगों का पर्यावरण अनुकूल उपचार

आधुनिक कृषि वानिकी में टिश्यू कल्चर की भूमिका

युकेलिप्टस के पौधों में गांठों/गाल का बनना एवं उनका नियंत्रण

Doordarshan TV

January 2018

## बांस का संशोधन

उत्तराखंड में पाये जाने वाले प्रमुख औषधीय पौधों का संरक्षण एवं विकास

शहरी क्षेत्रों में पाये जाने वाले पेड़ों (Hazardous trees)की देशभाल

पोपलर पत्तियों से प्रोटीन सांद्र

परिरक्षण द्वारा बांस एवं लकड़ी को कीड़े एवं फफूंद से बचाने के उपाए

हिल बांस- रिंगाल परिचय उपयोगिता एवं संवर्धन

जैविक खाद मृदा एवं पर्यावरण संरक्षण हेतु समय की आवश्यकता

कृषि वानिकी से आर्थिक स्वावलंबन वानिकी एवं कृषि उत्पादकता बढ़ाना

कृषि एवं वानिकी में रोगों का पर्यावरण अनुकूल उपचार

## Hill Bamboos

## Institute of Forest Genetics and Tree Breeding, Coimbatore

Role of Biotechnology in forestry

All India Radio, Coimbatore

8 January 2018

## Rain Forest Research Institute, Jorhat

Promotion of Broom Grass cultivation in Tripura

Local TV Channel "Headlines Tripura"

19 January 2018

## Memorandum of Understanding

- MoU was signed between ICFRE, Dehradun with Zoological Survey of India (ZSI), Kolkata on 10 January 2018 for next 10 years.
- Process on to sign MoU between
  - ICFRE, Dehradun with Technology Information, Forecasting & Assessment Council (TIFAC), New Delhi
  - IFGTB with Sri Ramakrishna College of Arts and Science (SRCAS), Coimbatore
  - IWST, Bengaluru with Biesse Manufacturing Co. Pvt. Ltd.
  - RFRI, Jorhat with Madhya Pradesh State Bamboo Mission (MPSBM), Madhya Pradesh
  - MoEF&CC, New Delhi with University of British Columbia (UBC), Vancouver, Canada.

## Other Important Activities

- AFRI, Jodhpur prepared handicraft under the DST Funded project Studies on post harvest technologies of *Azadirachta indica* and *Acacia senegal* as alternative timber species for handicraft industries.

## HR News

Name & Designation	Date	Retirement	Date
<b>Repatriation/ Relieving from ICFRE</b>		Dr. S.A. Ansari, Scientist-G & Director, IFP, Ranchi	31.1.2018
Shri Arup Kumar Deka, Dy. Conservator of Forests, RFRI, Jorhat	31.1.2018	Dr. D.K. Mishra, Scientist-F, AFRI, Jodhpur	31.1.2018
		Shri H.P. Singh, Scientist-E, FRI, Dehradun	31.1.2018

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