



## TRAINING REPORT ON

### Recent trends in Tree Cultivation techniques

to the officials of Gujarat Forest Department

Organized by

ICFRE -INSTITUTE OF FOREST GENETICS & TREE BREEDING, COIMBATORE

#### BACKGROUND AND RATIONALE

In the context of increasing environmental pressures and the need for sustainable forest management, it is essential to continually strengthen the technical capacities of Forest Department officials. Conducting a structured training programme on advanced tree cultivation techniques enhances officials' knowledge of scientifically proven methods, species-specific practices, and climate-resilient plantation strategies. Accordingly, a training programme on "Recent Trends in Tree Cultivation Techniques" was proposed for the field functionaries of the Gujarat Forest Department, with the objective of training 100 field personnel in three batches during February and March 2026.

The main objective of this training was to enable field personnel to improve survival rates, productivity, and the long-term health of plantations while ensuring efficient use of resources in alignment with national and state forestry objectives. Special emphasis was given to Agroforestry and Trees Outside Forests (TOF), with bamboo cultivation as a major focus area.

The ICFRE – Institute of Forest Genetics and Tree Breeding (IFGTB), Coimbatore organized the training programme in two batches during February 2026, benefiting 58 field functionaries, including Assistant Conservators of Forests, Forest Range Officers, and Foresters, from various Social Forestry Divisions of Gujarat. The training programme was sponsored by the Gujarat Forest Department.

The two batches of trainings were conducted during:

Date	No. of participants
02-06 <sup>th</sup> February 2026	24
09-13 <sup>th</sup> February 2026	34

The 1<sup>st</sup> batch training programme was inaugurated on 02.02.2026 at ICFRE-IFGTB and Shri. V.Thirunavukarasu, IFS, APCCF & Principal, CASFOS, Coimbatore graced the occasion for Inaugural session as Chief Guest.



Dr.V.George Jenner, IFS, DDG, IRO MoE&CC, Chennai graced the occasion for Valedictory session as Chief Guest on 06.02.2026 for the first batch.



The Second batch training program was inaugurated by Shri. T. Rabi Kumar, IFS, Director, ICFRE-IFGTB on 09.02.2026.



Dr. Dhananjay Singh , IRS, Deputy Commissioner (customs) Coimbatore International Airport, Coimbatore graced the occasion as Chief Guest for the Valedictory session on 13.02.2026.



## **Technical Sessions**

The theme and sessions of the training programme were carefully designed to equip the field functionaries of the Gujarat Forest Department with the latest tree improvement technologies and proven packages of practices for important tree species. The sessions covered silvicultural practices, productivity enhancement, economics of cultivation, and marketing avenues.

The technical sessions were handled by IFS officers and senior scientists of IFGTB. In addition to classroom lectures, practical demonstrations on selected techniques were also conducted. These included demonstrations on clonal technology, and visits to the Seed Testing Laboratory, Seed Bank, and Seed Processing Unit. Trainees were also taken to the Bambusetum and Bamboo Nursery to understand bamboo germplasm conservation and nursery management practices.

### **FIRST BATCH**

The titles covered in the training and resource persons are furnished as below.

- Bamboo: Wonder Grass for Rural Upliftment and Environmental Conservation
- Quality Seed Production, Seed Handling & Certification
- Agroforestry Models for increasing farm income
- Nursery establishment and Production of Quality Planting Material
- Casuarina- the Cash Crop and Wind break wonder
- Tissue Culture in Agroforestry species: Challenges and Opportunities
- Bio-products and Bio-Fertilisers of ICFRE-IFGTB
- Neem: A wonder tree- Tree Improvement packages & practices

The participants were also taken to the Vegetative Multiplication Garden (VMG), where they were introduced to the concepts of VMG establishment, collection of cuttings from mother bed chambers, and vegetative propagation techniques using coppice shoots. The trainees were also exposed to advanced methodologies practiced by IFGTB in the clonal propagation of Eucalyptus, Casuarina, and other important indigenous tree species.

### **Field Visit:**

As part of the training programme, an exclusive field visit was organized to Tamil Nadu Newsprint and Papers Limited (TNPL), Karur on 04.02.2026, along with visits to progressive farmers' fields, to understand the impact of industrial agroforestry in enhancing farm income. TNPL is one of the licensees of IFGTB and holds an exclusive license for the mass multiplication of IFGTB-developed clones. During the visit, Gujarat Forest Department officials were given practical insights into large-scale clonal production and nursery management practices.



The trainees also visited the field of Shri Palanisamy, a progressive farmer in Kangeyam Taluk, where plantations of IFGTB EC-4 clones were established. They further visited the farm of Shri Selvaraj, where IFGTB CH-5 clones of Casuarina were demonstrated.

During the visit, Dr. C. Buvaneshwaran, Scientist-G, demonstrated the estimation of Casuarina plantation yield using the TreeGenie mobile application, developed by IFGTB.



On 05.02.2026, the Gujarat Forest Department officials were taken to the Teak Canal Plantations in Thanjavur Forest Division, an important agroforestry initiative of the Tamil Nadu Forest Department that utilizes silt-rich canal banks for high-yield teak production. Ms. Karthikeyani, IFS, Divisional Forest Officer (DFO), Thanjavur, delivered a lecture on the Canal Teak Plantation model. Subsequently, the trainees visited the Timber Treatment Plant and Wood Seasoning Unit of the Thanjavur Forest Division.



## SECOND BATCH

The titles covered in the training and resource persons are furnished as below.

- Quality Seed Production, Seed Handling & Certification
- Eucalyptus(Nilgiri) Plantation Technology for higher yield
- Agroforestry Models for increasing farm income
- Bamboo: Wonder Grass for Rural Upliftment and Environmental Conservation
- Ailanthus excelsa: Harnessing an indigenous Genetic Resources for Arid and Semi Arid Region
- Casuarina- the Cash Crop
- Use of Bio-Fertilisers for Tree Improvement
- Bio Control Products in Agroforestry
- Tissue Culture in Agroforestry species: Challenges and Opportunities
- Nursery establishment and Production of Quality Planting Material
- Silvicultural Interventions for Agro Forestry
- Nursery techniques for preparation of Tall seedlings

The participants were taken to Vegetative Multiplication Garden and inputs on the concepts of establishment of VMG, collection of cuttings from mother bed chambers, vegetative multiplication garden and coppice shoots, etc. were given. They were also given inputs on the various advanced methodologies practiced by ICFRE- IFGTB in clonal propagation of Eucalyptus, Casuarina and other important indigenous tree species. They were also taken to FGR Nursery and establishment of Calophyllum species was explained to them.

### Field Visit:

The trainees were taken to Moringa and Amla fields based on their request to Shri.Rajendran farm, the farmer and owner of Nivee Gardens, Vaavipalayam village, Palladam taluk Tiruppur district on 11.02.2026. They were also taken to Tamil Nadu Newsprint & Papers Limited (TNPL), Karur and farmer field was organized as part of training to learn significant impact of industrial agro forestry for increasing farm income. TNPL is

one of the licensees of IFGTB who has obtained exclusive licenses for mass multiplication of clones of IFGTB. GFD officials were given inputs on mass production of clones & nursery management. They also visited the field of Shri. Palanisamy, Progressive farmer in Kankeyam taluk wherein the clones of IFGTB EC-4 plantation was identified. They also visited Shri.Selvaraj farmer field and IFGTB CH-5 Clones of Casuarina was shown to the trainees. Dr.C.Buwaneswaran, Scientist G made the demonstration for estimation of Casuarina plantation using yield calculator of TreeGenie mobile App of ICFRE-IFGTB. During the training, all the participants were successfully downloaded the TreeGenie App and free login was done by ICFRE-IFGTB for effective utilization of App.



On 12.02.2026, the GFD officials were taken to Coir root trainer unit of Kerala Forest Department. KFD is producing approximately one crore seedlings every year. Seedlings are raised in Single Use Plastic Polythene Bags (90 %) under various size and thickness. 25 MT of plastic waste discarded into environment every year. Plastic root trainers used for making root trainer seedlings (10%). Parambikulam FDA encouraged to establish coir root trainer manufacturing unit on a pilot basis. 15.00 Lakhs granted for establishing the unit. Unit consist of moulding machine and infrastructure. Raw material – Coir sheets (mattress)

It was found that the coir root trainers have good growth - moisture retention for long time

- Easy transportation
- Less quantity of potting mixture
- Local employment generation
- Cost effective
- Best alternate for plastic bags



Also they the trainees were taken to Parambikulam Reserve Forest to show the Teak stands and growth of colonial time Teak plantations, method of seed collection, preservation etc. from mother/ plus trees and the maintenance of the stock trees for seeds etc.



#### **REMARKS BY DIRECTOR**

Shri T. Rabi Kumar, IFS, Director, ICFRE–Institute of Forest Genetics and Tree Breeding (IFGTB), during the Gujarat Forest Department training programmes, highlighted the various technologies developed by ICFRE–IFGTB and emphasized the importance of strengthening collaboration between the Forest Department and ICFRE–IFGTB to enhance tree cover in the country. He stressed that such networking would facilitate effective dissemination of improved tree cultivation techniques and technologies to stakeholders, thereby improving productivity and ensuring sustainable income for farmers.

He further noted that scientifically developed tree cultivation practices would help farmers adopt current advances and technological tools through the trained field officials of the Forest Department. The Director informed the participants that ICFRE–IFGTB has developed several agroforestry models and improved technologies, including tissue culture teak (TC Teak), Casuarina hybrid clones, and various ICT-based platforms. He emphasized that these technologies need to be effectively transferred to tree growers through the field functionaries of the Gujarat Forest Department.

## **COURSE DIRECTORS OBSERVATION**

Welcoming the Officers of the Gujarat Forest Department the Course Director, Dr K Ganesh Kumar, IFS, CCF has expressed his pleasure in hosting the officers of the Gujarat Forest Department and appreciated their participation in the capacity-building programme, which reflects their commitment to sustainable forestry, scientific management, and environmental conservation.

He informed that the training programme, conducted in three batches, was carefully designed to provide both theoretical knowledge and practical exposure to the participants. The programme covered important topics such as bamboo cultivation, quality seed production and certification, agroforestry models, nursery management, bio-fertilisers and bio-control products, tissue culture technologies, neem improvement practices, and field visits to plantations and industries.

The Course Director also highlighted that India currently imports nearly 94% of its timber requirements, and of the remaining domestic supply, more than 90% is obtained from Trees Outside Forests (TOF). In this context, the role of states like Gujarat is very significant. Gujarat is one of the leading states in promoting Trees Outside Forests, with over 70% of trees growing on private lands and an average of around 30 trees per hectare. He also mentioned that Gujarat has a long history of promoting social forestry, with Social Forestry Divisions established during the 1970s, which were among the first in the country.

He further noted that districts such as Banaskantha, Valsad, Kutch, and Dahod have demonstrated the potential of tree-based farming systems. Farmers in the state cultivate important tree species including Neem, Babool, Ardusa, Shisham, Casuarina (Sharu), Eucalyptus (Nilgiri), Teak, and Bamboo, which contribute significantly to rural livelihoods and environmental sustainability. The Course Director also referred to integrated farming approaches such as the Anand model, which demonstrate the benefits of combining agriculture, livestock, and tree cultivation to enhance farm income.

Emphasizing the importance of improved technologies, he stated that the supply of Quality Planting Material (QPM) plays a crucial role in enhancing productivity. Research institutions such as IFGTB are actively engaged in developing improved clones and technologies for important agroforestry species. Efforts are also being made to develop improved planting material and management practices to reduce the rotation period of species such as Casuarina and Neem, thereby making tree cultivation more profitable and attractive to farmers.

He also mentioned that the programme had been designed with the support of experienced resource persons and scientists, who would share their expertise and practical insights during the sessions. In addition to classroom lectures, the participants would benefit from laboratory demonstrations, nursery visits, and field exposure, which would help in understanding the practical aspects of tree cultivation technologies. The Course Director expressed hope that the participants would find the programme informative and beneficial, and encouraged them to actively participate in discussions, field visits, and interactive sessions in order to gain maximum benefit from the training. He concluded by wishing the participants a fruitful, productive, and memorable training programme.

## READING MATERIALS

During the training programme, participants were given an elaborative reading content on the topics discussed during the training.

1. A book on 'Clonal Propagule production of forests trees' in Hindi.
2. A book on Casuarina - Cash crop in English
3. E-book on Tree Cultivation techniques was also shared to the participants



## FEEDBACK SESSION & VALEDICTORY

During the feedback session, participants expressed a strong desire for more trainings like this, emphasizing its critical role in enhancing their skill development, especially at the ground level, which would greatly benefit the tree growers. They conveyed sincere appreciation to ICFRE-IFGTB for organizing such valuable training, acknowledging its pivotal role in shaping and implementing of future programmes in a successful manner.

The participation certificates were awarded to all trainees by the Director, ICFRE-IFGTB in recognition of their active involvement and successful completion of the training.

## GLIMPSE OF THE TRAINING PROGRAMME



BATCH 1



BATCH 2



Dr.Anandalakshmi, Scientist G on Quality Seed production , handling and certification



Dr.Sivakumar, Scientist G on Eucalyptus cultivation



Dr.R.Yasodha Scientist G on Tissue Culture in Agroforestry species



Dr.A.Nicodmeus Scientist G on Casuarina Cash Crop



Visit to Seed processing unit and Seed testing lab



Visit to Vegetative Multiplication Garden



Visit to FGR Garden



Visit to Bambusetum



Shri Maria Dominic Savio, Scientist on Bamboo for rural upliftment and environmental conservation



Dr.Raja Suguna Sekar, Scientist G on Ailanthus Cultivation



Dr.Saravanan Scientist G and Dr.A.Vijayaraghavan, Scientist F on Agroforestry models



Dr.C.Buveneswaran, Scientist G on Casuarina Yield Estimation



Shri.A.Mayavel on cultivation practices of Neem



Dr.A.Karthikeyan Scientist G on use of Biofertilisers on tree improvement



Dr.N.Senthil Kumar, Scientist G on Biocontrol products in ICFRE-IFGTB



Nursery techniques for preparation of tall seedlings from TNFD



Shri.Murali Shankar, IFS on Nursery establishment and production of QPM



Dr.Rekha Warriar Scientist G on Tissue culture in Agroforestry species



Certificate distribution