

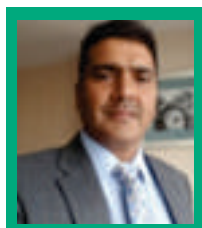


ICFRE – TFRI NEWSLETTER

July-September, 2023



From the Director's Desk



Greeting from TFRI Family,

I am pleased to mention that TFRI, Jabalpur is one of the nine regional institute under the ICFRE to provide strong research support for sustainable development of forests and forestry sectors in central India.

I take pride in sharing the eleventh issue (July- September, 2023) of ICFRE-TFRI Newsletter, showcasing, significant research activities, events organized, participated and publications made during the period.

I hope this newsletter will be helpful for researchers, different stakeholders, and policy makers concerned with forestry research.

Dr. H. S. Ginwal
Director, ICFRE-TFRI Jabalpur

Director General Visit

Shri Arun Singh Rawat, IFS, Director General, Indian Council of Forestry Research and Education ICFRE, Dehradun visited Tropical Forest Research Institute, Jabalpur on 15 July 2023 to monitor the research, extension activities and involvement of stakeholders in the research programme of the institute. He also released the documentary film on "Management of Flyash through Forestry Interventions" and a book on "Floral diversity of Kanha Tiger Reserve (Sarhi Range)" prepared by the Forest Ecology & Climate Change Division of the institute. A Bamboo workshop was also inaugurated by Shri A.S. Rawat during this visit at TFRI Jabalpur. The program concluded with a commemorative plantation drive inside the TFRI campus.



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Major Events

Regional Research Conference

Regional Research Conference (RRC), 2023 on "**Nursery Technology for Propagation of Difficult Tree Species**" was organized (Hybrid Mode) by ICFRE- Tropical Forest Research Institute, Jabalpur on 18th August, 2023.

Chief Guest of this conference Shri A. S. Rawat, IFS, Director General, ICFRE, Dehradun inaugurated the event and released Technical Bulletin entitled "**Turning Challenges into Triumphs: Strategies to conquer difficult tree species**", during the event.

Sh. M. Srinivas Reddy, APCCF (R & E) Maharashtra and Sh. P.K. Singh, IFS, PCCF, (Research, Extension and Social Forestry), Madhya Pradesh Forest Department were the Guests of Honour.

Dr. Sumit Chakraborti, ADG (Monitoring and Evaluation), ICFRE representing DDG (Research), threw light on the idea of RRC being carried out by the ICFRE through all its institutes.

Appreciable participation was observed by State Forest

Departments (Maharashtra, Madhya Pradesh and Chhattisgarh), State Agriculture Universities (Punjab Rao Krishi Vishwa Vidhyalaya, Akola (Maharashtra) Indira Gandhi Krishi Vishwa Vidhyalaya, Raipur (Chhattisgarh), scientists from SFRI Jabalpur, progressive farmers and tree growers including Shri, Dipankar Agarwal, Shri Baldev Holani, Shri Girish Pandey (Scientist, Mukund Bio-Tech, Majitha, Jabalpur), Shri Nilesh Katore (Member of Narmada Samagra, NGO) who talked on the research aspects in the relevant fields being carried out by their respective organization.



Inauguration of new Van Vigyan Kendra and training programs at SDC., chhindwara

Van Vigyan Kendra, Chhindwara under CAMPA- Extension scheme was inaugurated on 25.07.2023 at ICFRE – Skill Development Centre, Chhindwara by Dr. Nitin Kulkarni, Director, ICFRE – TFRI, Jabalpur. The occasion was graced by the presence of Shri. S.S Uddhe, IFS, Chief Conservator of Forest, Seoni (MP), Shri Madhu V Raj, IFS, Chief Conservator of Forest, Chhindwara, Dr. Nanita Berry, Senior Scientist and Head, Forest Extension, ICFRE – TFRI, Jabalpur and Shri. Vijendra Srivastava, IFS, DFO, East Forest Division, Chhindwara (MP).



Scientist's Corner

Research activities/Initiatives

Establishment of experimental trials of different species at GGU Campus, Bilaspur, Chhattisgarh

Different experimental trials were established in the campus of Guru Ghasidas University, Bilaspur, Chhattisgarh. Vegetative Multiplication Garden of grafted plants of *Madhuca longifolia* (AICRP-23 on Mahua), Progeny Trial of seedlings of *Madhuca longifolia* (AICRP-23 on Mahua), Progeny Trial of *Gmelina arborea* ((AICRP-30 on Gamhari), Progeny Trial of *Dalbergia latifolia* (AICRP-28 on Rosewood) and field trial of *Mitryagyna parvifolia* (mundi) were

established. The quality planting material was produced by collecting seeds and vegetative propagules from populations of Madhya Pradesh, Chhattisgarh and Maharashtra. Allotted field was prepared by removal of grasses, root stumps, clearing and leveling of field and preparation of pits.



Preparation of field for Plantation at GGU, Bilaspur, Chhattisgarh



Plantation of experimental trials of different species at GGU, Bilaspur, Chhattisgarh

Plantation of Candidate Plus Clumps of Four Bamboo Species at Atal Bihari Vajpayee Viswavidyalaya, Bilaspur Chhattisgarh

Field trial of Candidate Plus Clumps (CPCs) of four species of bamboos, viz., *Bambusa tulda*, *B. nutans*, *B. balcooa* and *B. vulgaris* var. green was carried out at campus of Atal Bihari Vajpayee Viswavidyalaya, Bilaspur, Chhattisgarh for Genetic Improvement of Bamboo. Four CPCs each of the four species were planted in RBD design at spacing of 4m x 4m. The plantation programme was attended by the Vice Chancellor of the university A.D.N. Bajaypee and the scientist of ICFRE-TFRI, Jabalpur.





Plantation of Bamboo species at Atal Bihari Vajpayee Viswavidyalaya, Bilaspur, Chhattisgarh



Media coverage

Production of Quality Planting Material of important species for conservation of Forest Genetic Resources

With the aim of conservation of Forest Genetic Resources, a research project funded by CAMPA, New Delhi is being executed at Genetics and Tree Improvement Division. Various species of economic importance and RET status are being collected from their area of distribution and propagated. Quality Planting material of *Syzygium cumini*, *Litsea glutinosa*, *Ailanthus excelsa*, *Careya arborea*, *Buchnanian lanzan*, *Haldina cordifolia* and *Carissa carandas* were raised through various selected seed sources of central Indian states viz., Madhya Pradesh, Chhattisgarh and Maharashtra. Total of 2190 seedlings of *Syzygium cumini*, 2350 of *Litsea glutinosa*, 1630 of *Ailanthus excelsa*, 2230 of *Careya arborea*, 890 of *Buchnanian lanzan*, 1090 of *Haldina cordifolia* and 150 of *Carissa carandas* were produced.



Haldina cordifolia

Ailanthus excelsa

Carissa carandas



Buchnanian lanzan

Syzygium cumini

Careya arborea

Litsea glutinosa

Dr. Fatima Shirin, Scientist-G

Plantation technique trials of *Haldina cordifolia* (Haldu)

Research on *Haldina cordifolia* for higher wood productivity is underway at ICFRE-TFRI, Jabalpur. In the month of July, 2023, two plantations of *Haldina cordifolia* (Haldu), one at Jagmandal Range, Mandla, Madhya Pradesh and another one at Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh were established. Seedlings for these plantations were raised from seeds of superior quality trees selected from the states of Madhya Pradesh, Maharashtra and Chhattisgarh. These plantations were carried out at two different spacings (3X3 m and 5X5 m) and two different pit sizes (30x30x30 cm and 45x45x45 cm). Growth performance of these plantation will be evaluated.



Plantation at Mandla



Plantation at Bilaspur

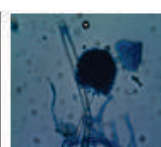
Shri Nikhil Verma, Scientist-B

Rhizospheric fungal flora of *Dalbergia sissoo* and *Gmelina arborea* plants

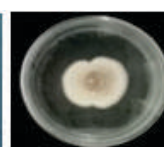
From the rhizosphere soil of *Dalbergia sissoo* plants, six fungi isolates were identified viz *Aspergillus* spp., *A. niger*, *Penicillium* spp., *Phoma* spp., *Curvularia* spp., *Alternaria* spp., *Fusarium* spp. and from the rhizosphere soil of *Gmelina arborea* – five fungi were isolated and identified namely *Aspergillus* spp., *A. flavus*, *A. niger*, *A. glaucus*, *Alternaria* spp., *Mucor* spp., *Fusarium* spp. and *Trichoderma* spp.



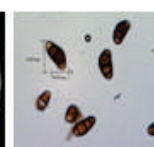
Aspergillus sp.
On
PDA media



Microscopic
view of
Aspergillus sp.



Curvularia sp.
on PDA plate



Microscopic
view of
Curvularia sp.

Shri A. J. K. Asaiya, Scientist-C



Field enquiry on insect pests infestations in teak plantations

Attended field enquiry on insect pests infestations in teak plantations and provided scientific advisories to private teak planter Shri. Satyapal Daryani regarding Biological Management of Teak defoliator and Skeletonizer through TFRI Tricho card at Durganagar, Bargi, Jabalpur on 25.07.2023



Larvae of *H. puera*



Plants affected by the attack of white grubs

Larvae of White grub

Attended field enquiry on white grub incidence in teak nursery beds and provided scientific advisories to forest officials, nursery frontline staffs, regarding production of insect pests free Teak seedlings at Jiawan forest nursery, Sidhi Forest Division, (MPRVVNL) on 01.08.2023.

Dr. Mohan C., Scientist-B

Assemblage of *Embelia tsjeriam* – *cottam* (Vaividang) under AICRP-29

Assembled germplasm of *E. tsjeriam* – *cottam* collected from 17 locations of central Indian NWFP nursery for ex-situ conservation



Assemblage of *Embelia tsjeriam* – *cottam* from all 17 locations

Dr. Hariom Saxena, Scientist-E

Propagation and Conservation of Wild fruits Species

Seed Germination Enhancement: Standardized pre-treatment for *Semecarpus anacardium* seeds using concentrated sulfuric acid for 15 minutes, resulted in improved germination and a shorter germination period.

Phytosociology Study: Study conducted at several forest divisions in Madhya Pradesh, Maharashtra and Chhattisgarh highlighted insufficient regeneration of *S. anacardium* in most areas, with the species being widely scattered. This emphasizes the need for conservation efforts for this valuable medicinal fruit species.



Plantation of *Semecarpus anacardium* and *Flacourtia indica* superior genotypes took place at FRC-SD, Chhindwara, GGU, Bilaspur, Chhattisgarh and SFM & AF nursery, TFRI, Jabalpur.



Seed storage behaviour assessment: Seed storage behaviour assessments were conducted for five species *Buchanania cochinchinensis*, *Haldina cordifolia*, *Flacourtia indica*, *Stereospermum chelonoides* and *Kydia calycina*, affirming their orthodox seed storability behaviour after storage at -20°C for 3 months.

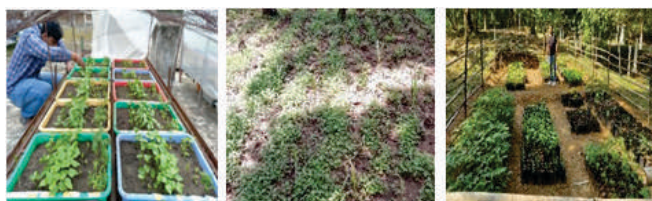
Seed Handling Protocol: A seed handling protocol was developed for *Feronia limonia*, *Sterculia villosa*, *Pterospermum acerifolium* and *Cochlospermum religiosum*

Novel Seed Sources: Additionally, novel seed sources were identified for *Pterospermum acerifolium* and *Cochlospermum religiosum*.

Shri Manish Kumar Vijay, Scientist-B

Allelopathic effect of aqueous extract of Lantana root and leaves on seed germination

The allelopathic effect of aqueous extract of lantana root and leaves on seed germination, plant growth, and phytotoxicity was evaluated on the various species viz. *Caesalpinia bonducella*, *Thespesia populnea*, *Tinospora cordifolia*, *Azadirachthta indica*, and *Sapindus mukorossi* in different concentrations.



Shri Neeraj Prajapati, Scientist-B

Assessment of demand and supply of timber, fuel-wood and fodder in India

To assess the demand and supply of timber, fuel-wood and fodder in India, survey of hotels, dhabas and restaurants was undertaken and identified tree species such as *Acacia nilotica*, *Prosopis juliflora*, *Holoptelea integrifolia*, *Cordia dichotoma*, *Tamarindus indica*, *Acacia leucophloea*, *Leucaena leucocephala* and *Ailanthus excelsa* are being used as energy source for cooking of foods. The average price of wood Rs. 4–7 per kg, paid by hotels, dhabas and restaurant owners to local wood suppliers. Among all species, the most preferable tree species is *Acacia nilotica*. This species has good potential to grow in dry regions as well as in wasteland areas with minimal inputs.



Tree species used as fuelwood in Hotels, Dhaba and restaurants

Shri Rathod Digvijaysinh, Scientist-B

Established Eucalyptus clonal trial on farmer's field at village Samnapur, Dist- Mandla

A clonal trial consisting of 80 clones with six replications was planted at farmer's field at Village Samnapur, Tehsil - Narayanganj, District-Mandla in July, 2023 to find out the best performing clones for central Indian rainfed condition.



Status of a clonal trial at framers field at Samnapur Village, Mandla District

Dr. Naseer Mohammad, Scientist-E

Consultancy Projects

Third Party Assessment of Compliance of Environmental Clearance condition imposed by MoEF&CC, Gol to Khairaha Underground Coal Mines of South Eastern Coalfields Limited (SECL), Sohagpur Area, District Shahdol, Madhya Pradesh

Indian Council of Forestry Research and Education (ICFRE) has been awarded a consultancy project for Third Party Assessment of Compliance of Environmental Clearance condition imposed by MoEF & CC, Gol to Khairaha Underground (UG) Coal Mines of South Eastern Coalfields Limited (SECL), Sohagpur Area, District Shahdol, Madhya Pradesh.

As a consultant member of the ICFRE team, the conditions laid down in the Environmental Clearances (EC) approval for mitigation of environmental pollution, status of Resettlement and Rehabilitation (R&R), public hearing, occupational health hazards and Corporate Social Responsibility (CSR) were reviewed, the compliance of the project proponent with the project approval conditions and other warranted approvals of the mine were assessed, the existing levels of air, water and noise pollution with respect to the laid down standards and implementation status of R&R and CSR were reviewed through onsite inspection, and recommendations which were necessary for implementation of measures as stipulated in the EC, so as to improve environmental performance of the mine were

provided and individual Environmental Audit Report pertaining to the domains of 'physical environment' *vis-à-vis* air quality monitoring, noise quality monitoring and water quality monitoring and 'social environment' *vis-à-vis* R&R, public hearing, occupational health hazards and CSR were prepared and submitted to Nodal Officer, ICFRE (HQ) for Khairaha Underground Coal Mines of South Eastern Coalfields Limited (SECL), Sohagpur Area, District Shahdol, Madhya Pradesh.



ICFRE Officials' interactive meeting with the Mining officials of Khairaha UG - MP



On-site field inspection of dust-suppression measures adopted by the project proponent to maintain air quality in Khairaha UG mines against the laid down standards

Preparation of Reclamation and Rehabilitation Plan for Devadari Iron Ore and Manganese Ore Mines of KIOCL Limited, Bellary, Karnataka

A consultancy project for Preparation of Reclamation and Rehabilitation Plan for Devadari Iron Ore and Manganese Ore Mines of KIOCL Limited, Bellary, Karnataka, as per the guidelines of the Centrally Empowered Committee (CEC) of Hon'ble Supreme Court of India issued in the BCT sector of Karnataka has been awarded to Indian Council of Forestry Research and Education (ICFRE).

ICFRE team of experts visited the mines in the month of September 2023 to physically verify and collect data pertaining to the proposed mining area, individual waste dumps and dump yards, existing watershed of the area and the drainage system. As a consultant member of ICFRE team, the virgin area of the mine lease was visited, surveyed and existing vegetation was also documented. Phytosociological analysis of existing vegetation is being worked out for all the study sites delineated in the mine bound area and the preparation of Reclamation and Rehabilitation Plan for the aforesaid mines is also underway.



Vegetation survey along the slopy terrains existing within the mine leasehold area



Documenting natural vegetation existing on different study sites existing within the Mine Lease area.

Training and Capacity Building

Four-one week training programs for Frontline Staff of Chhattisgarh State Forest Department organized by Genetics and Tree Improvement Division

Four training programs in two batches each were organized by Genetics and Tree Improvement Division on "Bamboo Propagation and Nursery Management" from 24th to 28th July 2023 and 7th to 11th August 2023 and "Propagation and Hi-Tech Nursery Techniques" from 21st to 25th August 2023 and 4th to 8th September 2023. Fifteen trainees from frontline staff of Chhattisgarh Forest Department participated in each training program, Dr. Fatima Shirin coordinated the training programme. Lectures, hand-on practicals and field visits to various experimental trials were carried out. One day field visit to Pariyat Nursery was organized. During the training, in-depth information was provided for both theoretical and practical aspects of propagation of bamboo through Macropropagation and Micropropagation technique, Bamboo Nursery Management and Propagation of forestry species and Hi-Tech Nursery Techniques. Participants shared their feedback on training programme and expressed their gratitude for providing detailed knowledge related to different propagation techniques.



- One day training programme was conducted on "Nursery techniques of important Forestry/ NTFP species and Value addition of NTFPs" at VVK, Chhindwara on 25th July, 2023.
- One-day training programme was conducted on 'Biodiversity & Conservation' at ICFRE- SDC, Chhindwara (M.P.) on 11th August, 2023.



Dr . Naseer Mohammad, Scientist-E attended one week training programme on 'Hands-on training on Data handling and statistical analysis of MLTs' organized by IFGTB, Coimbatore from 3rd to 7th Oct, 2023.



Visit of scientists and subject specialists from ICFRE - Tropical Forest Research Institute Jabalpur to the selected demo forest village

ICFRE- Tropical Forest Research Institute Jabalpur selected Santhal-Banjari forest village in Seoni forest division of M.P. as Demo village in collaboration with state forest department. A team of scientists and subject experts from the institute visited this village to explore the possibilities of extending research outputs for enhancing farmers' income. The institute organized an entry level activity of one day training on preparation of vermicompost and plantation of quality *Melia dubia* seedlings.

TFRI scientists and subject experts explained quality planting material, medicinal plants, soil health cards, mushroom cultivation vermicomposting, biofertilizer, pest protection of the plantations for increasing income of forest village dwellers. Villagers showed keen interest in getting trained on medicinal plants collection and processing, mushroom cultivation, bamboo and tree plantation. Shri Motilal Kakoriya, Sarpanch; Manisha Vanghade, Range officer; Shri Uikey, Dy. Ranger; Vanpal Rekha Bhalavi and other State Forest Department officials of Seoni were also present at the event.



Visits/ Demonstration of stakeholders



Dr. Nanita Berry, Scientist-F and Head, FE Division demonstrated and elaborated about the Agroforestry activities of the institute to the group of Students of M.Sc. Forestry, JNKVV, Jabalpur (MP).



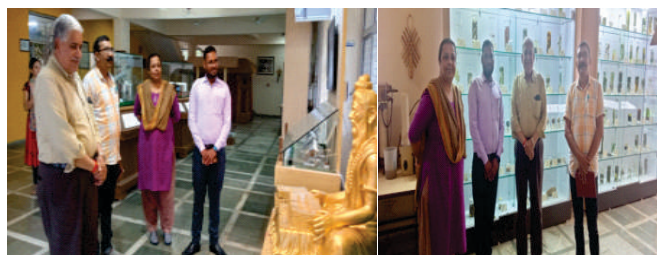
On August 29, 2023, a group of 170 third year students of Agricultural College, Nagpur (Maharashtra) and a team of 10 member professors visited interpretation center and museum.



Two Group Frontline staff of Chhattisgarh State Forest Department visited interpretation center and museum on 07/08/2023 & 25/08/2023.



A Group of GIZ (German International Project) officials including Dr. Jochen Statz, Germany, Dr. Atul Gupta, Consultant, India and Ex-PCCF Tripura state and Dr. Sanjiv Tomar working as India representative of German Federal Ministry for Economic Cooperation and Development visited ICFRE- Tropical Forest Research Institute Jabalpur on 24th August 2023 and interacted with Dr. N. Kulkarni, Director and Head of the divisions to discuss the scope of Agroforestry and other forestry related aspects with particular reference to Madhya Pradesh. The team appreciated the efforts of TFRI done in the Forestry and Extension field. They also paid a visit to the Interpretation Centre of the institute.



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Dr. A.L. Mahobia, Principal, Science College, Jabalpur; Dr. Sunita Sharma, and Dr. R. K. Shrivastav visited ICFRE-TFRI, Jabalpur on 7th August, 2023

Activities under Azadi ka Amrit Mahotsav



Dr. Nanita Berry, Scientist 'F' and Head, FE division organized 'Swachhta Campaign' under Azadi ka Amrit Mahotsav at Govt. Middle school, Jamuniya village with the involvement of school children on 09/08/2023.



Organized Awareness programme on conservation of Natural resources for tribal community of Jamuniya village, Beejadandi block on 10-08-2023 under Azadi Ka Amrit Mahotsava.



Swachhata Abhiyan conducted by the ICFRE-SDC, Chhindwara on 23.08.2023.

New Publications

Research papers

- Mohan C, Nitin Kulkarni, Sowmya Priya S, Sourabh dubey and Anand Kumar (2023). Role of Biorational Insecticides in Resistance Management of insect Pests- A Review. *Indian Journal of Tropical Biodiversity*. 31 (1):1-13.
- Nidhi Mehta, Avinash Jain, Muthu Rajkumar, Sanjay Komra, Pooja singh, Ramu Naik, Raghvendra Singh and Partha Banerjee (2023). Assessing carbon stock and annual sequestration potential of plantations raised at Rourkela steel plant, Odisha. Sustainable lifestyle approaches towards environment and climate change : EIACP(PC-RP), Special issue: 18-27.
- Fatima Shirin, Arpana Singh, Kavita Patel, Sharmishtha Gangopandhyay, Irshad Ali Saudagar, Sushma Maravi and PK Rana (2023). Influence of cytokinins and auxins during micropropagation in *Celestrus paniculatus* (Malkangni). *Indian Journal of Tropical Biodiversity*, 31(1).
- Sekhar A., Rajkumar M. and J. Deepika (2023). Why is conservation of grasslands in protected landscapes imperative?, *SNHC Journal*, 11(01): 8-11.
- Jangam, Deepika; Naga, Venkata Krishna Vara Prasad ; Tollamadugu, Sujani Rao Challa, Martin Luther Manchala & Vatluri Srinivasa Rao (2023). Conjunctive and concentration dependent effects of nanoscale zinc and boron on the physiological, biochemical, nutrient uptake, and translocation processes in peanut (*Arachis hypogaea* L.), *Journal of Plant Nutrition*, DOI:10.1080/01904167.2023.2233566.
- Selvan, T; Panmei L, Murasing KK, Guleria V, Ramesh KR, Bhardwaj DR, Thakur CL, Kumar D, Sharma P, Digvijay Singh Umedsinh R, Kayalvizhi D and Deshmukh HK (2023). Circular economy in agriculture: unleashing the potential of integrated organic farming for food security and sustainable development. *Front. Sustain. Food Syst.*, :1170380. doi: 10.3389/fsufs.2023.1170380

Popular Article

- Mohan C. (2023) Insect pests of Teak and Bamboo and their Integrated Management. *Kaalnadai Velanmai Magazine in Tamil Language*. 5 (2):15-19.
- Mohan C, Nitin Kulkarni, Sakshi Dwivedi, Jyoti Ranjan Mishra and Nahar Singh Mawai (2023). Larvicidal effect of *Jatropha* (*Jatropha curcas*) seed oil against key defoliator pests of teak (*Tectona grandis*) In International Conference on "Recent Advances in Agricultural, Industrial Entomology, Environmental Sciences and their impact food and Environmental Security" held during 28-30, September, 2023, at Entomology Research Institute,

Loyola College, Chennai, Tamil Nadu. (Extended summary).

- Mohan C, Sourabh dubey, Anand Kumar, Ramkishore mahobe and Gulshan Chakravarty (2023) RNA Interference : Next generation pest control Technology. *Vansangyan* 10 (8):44-47.
- Vijay, M. K. (2023). Forest Trees Seed Certification: Need of the Hour. *Van Sangyan*, Vol. 10, No. 7, Issue: July 2023.
- Vijay, M. K. (2023). Preservation of Forest Resources: An Important Lifestyle for Environment (LiFE) Activity since Time Immemorial in India. *Van Sangyan*, Vol. 10, No. 8, Issue: August 2023.
- Sekhar, Ajin and M Rajkumar (2023). Understanding LiFE movement, *Van Sangyan*, 10 (6):44-46.
- Banerjee, Saikat; Rajkumar, M; and Sengar, K.S. (2023). Vulnerability of forest ecosystem to climate change, *Van Sangyan*, 10 (6):47-54.
- सौरभ दुबे (2023). नारायणपुर का साप्ताहिक बाजार: भोजन योग्य वन्य व कम प्रचलित वनस्पतियों का अनूठा संग्रह, *Van Sangyan*, Vol. 10(6): (55-57).

Book

- Mehta, Nidhi; Desai, Jyothi; Amrutha, Balakrishnan; and Ayushi Tiwari (2023). Floral diversity of Kanha Tiger Reserve (Sarhi Range)

Book Chapter

- Berry, N. (2023). 'Lac cultivation: a tool of sustainable livelihood for tribal women of Madhya Pradesh', Booklet on 'Her Land Her Rights: success stories of women combating desertification and land degradation in India', 38-39pg
- Vijay, M. K., & Sharma, R. (2023). Carbon Nano Tubes (CNTs) as a Tool of Seed Quality Enhancement Using Nanopriming Approach: A Review. In A. Singh, V. Rajput, K. Ghazaryan, S. Gupta, & T. Minkina (Eds.), *Nanopriming Approach to Sustainable Agriculture* (pp. 90-109). IGI Global. <https://doi.org/10.4018/978-1-6684-7232-3.ch004>.

Training Manual/ Training Manual Chapter

- Vijay, M. K. (2023). Optimizing Nursery Operations: Current Practices and Future Visions for Input Management. In the training manual on "Propagation and High-Tech Nursery Techniques" organized by GTI division, TFRI from 04/09/23 to 08/09/23 (p. 73).



Darshan K, Asaiya, AJK and Dubey, S.(2023). Training on bamboo propagation and nursery management. Targeted group: Chhattisgarh state forest department staffs (20).

Abstracts

- Vijay, M. K. (2023). From Seeds to Sustainability: Ensuring Semecarpus anacardium and Flacourtia indica Survival through Propagation in Central India. Abstract published in the Medicinal Plants (Special Issue) Journal for the National conference on 'Medicinal Plants, Natural Products and the Indian System of Medicine (NCMP-2023)' organized at ICAR-CAFRI, Jhansi, during September 8–9, 2023, by the V Sivaram Research Foundation, Bengaluru, in collaboration with ICAR-CAFRI, Jhansi. Special issue P No. 23. NAAS rating- 5.14.
- Vijay, M. K. (2023). Unlocking the Secrets of Nyctanthesarbor-tristis Seeds: Insights into Maturity, Germination, and Storability for Successful Propagation and Conservation. Abstract published in the Abstract book & Souvenir for the International conference on Green Energy & Sustainable Environmental Technology (GESET-2023)' organized at Raj Kumar Goel Institute of Technology, Ghaziabad, during September 16–17, 2023, by the RKGIT, Save the Environment in collaboration with CSIR. P No 51. Abstract ID 38.
- Vijay, M. K. (2023). Harnessing Seed Science and Technology for Climate-Resilient Tropical Forest Conservation. Abstract published in the Souvenir & Abstract Volume for the 5th International conference on Sustainability Education (ICSE-2023)' organized at Indian Habitat Center, New Delhi during September 19-20, 2023 by the Mobius Foundation. P No. 53. Abstract ID 14.

Technical Bulletin

- Vijay, M. K., Singh, N., & Kulkarni, N. (2023). Turning Challenges into Triumphs: Strategies to Conquer Difficult Tree Species. ICFRE-TFRI Publication. TFRI/Tech. Bull./05/2023/42.

TV/ Radio Talk

TVTalk

- Dr. Nitin Kulkarni, Director, delivered One TV Talk on 'Extension of forest based products and nursery techniques of medicinal plants' on 25th July, 2023 and telecasted in 'Kisan Darshan' programme, Chhindwara (MP).

Radio Talk

- Dr. Nitin Kulkarni, Director, delivered Radio Talk on 'Agroforestry' on 25th July, 2023 on Akashvani, Chhindwara (MP)

- Dr. Nitin Kulkarni, Director, delivered Radio Talk on 'Value addition of Forest products' on 25th July, 2023 on Akashvani, Chhindwara (MP)
- Dr. Nanita Berry, Scientist-F & Head, FE Division, delivered Radio Talk on 'Agroforestry and its extension' on 25th July, 2023 on Akashvani, Chhindwara (MP).
- Dr. Nanita Berry, Scientist F and Head, FE division, delivered one Radio Talk on 'Management of Bamboo based agroforestry system' on 25th July, 2023 on Akashvani, Chhindwara (MP).

Awards

Dr. Mohan C (Sci-B) Conferred "YOUNG FOREST ENTOMOLOGIST AWARD 2023" on the occasion of 5th International Conference on 'Recent Advances in Agricultural, Industrial Entomology, Environmental Sciences and their impact food and Environmental Security' held during 28-30 September, 2023, at Entomology Research Institute, Loyola College, Chennai, Tamil Nadu.

Dr. Manish Kumar Vijay, Scientist- B 'RECEIVED BEST ORAL PAPER PRESENTATION' award in the National conference on 'Medicinal Plants, Natural Products and the Indian System of Medicine (NCMP-2023)' organized at ICAR-CAFRI, Jhansi, during 8–9 September, 2023, by the V Sivaram Research Foundation, Bengaluru, in collaboration with ICAR-CAFRI, Jhansi.



Shri. Mukesh Kumar Sonkar, Technical officer, awarded ICFRE BEST EMPLOYEE AWARDS for the year 2021



Shri. Saikat Banerjee, Senior technical Officer, awarded "ICFRE BEST EMPLOYEE AWARDS" for the year 2022



Memorandum of Understanding



ICFRE- Tropical Forest Research Institute, Jabalpur signed a Memorandum of Understanding with Xavier Institute of Development Action and Studies (XIDAS) on 1st, August 2023. In this context, a meeting was organized at ICFRE-TFRI, Jabalpur. The MoU was signed by Dr. Nitin Kulkarni, Director, TFRI, Jabalpur and Dr. Dharam Kishore Lakra, Director, XIDAS, Jabalpur.



ICFRE-Tropical Forest Research Institute, Jabalpur signed a Memorandum of Understanding with Government Science College (Autonomous) on 7th August, 2023 to promote mutual cooperation in research and educational activities.

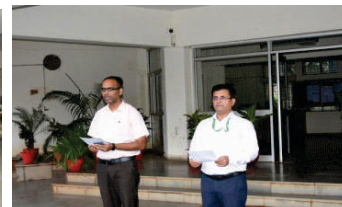
The MoU was signed by Dr. Nitin Kulkarni, Director, TFRI, Jabalpur, and Dr. A.L. Mahobia, Principal, Government Science College, Jabalpur at ICFRE-TFRI, Jabalpur.

The occasion was attended by Dr. Sunita Sharma, Professor & Head, Department of Zoology & Biotechnology, Dr. R.K. Shrivastava, Professor & Head, Department of Ecology, Govt. Science College, Jabalpur, Smt. Neelu Singh, Group Coordinator (Research) & Head, Silviculture, Forest Management and Agroforestry Division, Dr. Fatima Shirin, Head, Genetics & Tree Improvement Division, Dr. Avinash Jain, Head, Forest Ecology and Climate Change Division and Dr. Nanita Berry, Head, Forest Extension Division of ICFRE-TFRI, Jabalpur.

Memorandum of Understanding (MOU) was signed between ICFRE-Tropical Forest Research Institute, Jabalpur (Madhya Pradesh) and R&D Global Consultants Pvt. Ltd., Thane (Maharashtra) to work in the project "Bio-prospecting for industrial utilization of lesser-known forest plants (AICRP-16)". The key outcome of the partnership between parties is to commercialize natural dye, essential oil and bioactive extracts-based products for mass production and high value applications.

Celebration of Important Days

Sadbhavna Diwas



ICFRE - Tropical Forest Research Institute Jabalpur observed Sadbhavna Diwas to commemorate the birth anniversary of former Prime Minister Shri. Rajiv Gandhi.

Dr. Nitin Kulkarni, Director TFRI led the integrity pledge to maintain peace and communal harmony among the people from different religions. All the head of divisions, scientists, officers and staff members were also present during the commemoration.

Parthenium eradication programme



A programme under Swachh Bharat Abhiyan to enhance awareness about the alien, invasive weed - Parthenium was organized in TFRI campus on 11th August, 2023 (Friday). The Director, Dr. Nitin Kulkarni, led the programme and scientists, officers of technical cadre and other staff actively participated in manually removing the Parthenium weed.

The Branch Head of Union Bank of India (TFRI Branch) Sh. Ranjeev Ranjan along with other employees of the bank also participated in the programme

Independence day



On the occasion of Independence day, Dr. Nitin Kulkarni, Director, ICFRE - Tropical Forest Research Institute Jabalpur, hoisted National Flag and addressed the gathering on 15th August, 2023. During the occasion, ICFRE best employee awards for the year 2021 & 2022 were also awarded to Shri

Mukesh Kumar Sonkar, Technical Officer and Shri Saikat Banerjee, Senior Technical Officer, respectively for their devoted service towards the institute.

Van Mahotsav



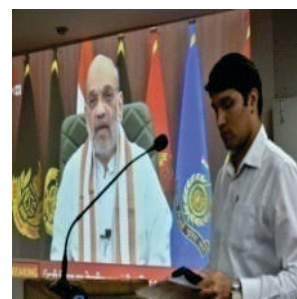
ICFRE - Tropical Forest Research Institute Jabalpur (MP) has organised a Mass plantation program on the occasion of VanMahotsav under the MissionLIFE on 6th July, 2023 jointly with ITBP, Jabalpur in ITBP campus, Jamtara village, Jabalpur (MP).

Dr. Nitin Kulkarni, Director, TFRI; Shri Mahendra Pratap, Commandant, ITBP; Dr. Fatima Shirin, Head, GTI; Dr. Avinash Jain, Head, FE &CC; Dr. Nanita Berry, Head, FE division; Shri Darshan Gattani, DCF, Admin; Shri A. Francis, STO and Shri Raghvendra Mehra, MTS of the institute and officers of ITBP and others planted approximately 125 number of Maulshree and other ornamental plants with an aim to create awareness and involve people in the plantation drive to increase the green cover.

In a series of Plantation activities, ICFRE- Tropical Forest Research Institute Jabalpur organised a Mass plantation program on the occasion of VanMahotsav under the MissionLIFE on 7th July, 2023 at TFRI campus Jabalpur.

Dr. Nitin Kulkarni, Director, TFRI, all head of the divisions and officers participated in the plantation drive to conserve the Vasundhara by planting ornamental plants.

Hindi Fortnight



ICFRE-TFRI, Hindi Fortnight-2023 was concluded in Jabalpur (Tropical Forest Research Institute Jabalpur) on 29th September, 2023. Director of the Institute, Dr. H.S. Ginwal Talking about the Hindi language which brings pride to the country, Dr. H.S. Ginwal, Director ICFRE-TFRI, Jabalpur congratulated the participants of various competitions organized under the fortnight. The winners of Hindi scientific vocabulary, speech, essay writing, poetry and poetry recitation competitions organized during the fortnight were awarded with prize money and certificates.

Swachhata Special Campaign 3.0



Nodal officers for divisions and sections of ICFRE Tropical Forest Research Institute, Jabalpur conducted a meeting to chalk out plans for different outdoor and indoor cleaning and scrap disposal campaign activities for the institute.

Wellness Campaign



ICFRE- Tropical Forest Research Institute Jabalpur organised a wellness campaign for all employees on 4th July 2023. The mass level health check up program was

organised in collaboration with the Healthy Wealthy India with an aim to promote regular health check up practice to remain healthy and active. Total of 105 employees participated and obtained counselling from the expert team.



STAFF NEWS

Sl. No.	Particulars	Name of officers/staff	Previous post	New post	Date
1	Promotions- New Position	Dr. Nitin Kulkarni, Scientist-G & Director	Director, ICFRE-TFRI	Director, ICFRE-RFRI	23-08-2023
2	Joining- New Position	Dr. H.S. Ginwal, Scientist-G	Dean (Academic) FRI(Deemed University)	Director ICFRE-TFRI	04-09.2023
3	Transfers	Shri Sukhram Meena	MTS	-	04-08-2023
4	Retirement	Shri Chhotelal, MTS	MTS	-	31-07-2023





Infrastructure and facilities available at ICFRE-TFRI, Jabalpur

National Insect Repository



750 species of insects.

recognized by National Biodiversity Authority (NBA) as National Repository

Mycology Herbarium



4000 Fungal specimens systematically arranged and documented and 451 species of Fungi identified.

Forest fungi identification service available

Herbarium



800 plant specimens preserved in Herbarium .

Forest Ecology & Climate Change Division provides services of plant identification on submission of specimens.



Non Timber Forest Produce (NTFP) Demonstration Centre
Interpretation Centre - Museum



Interpretation Centre - Museum



Testing facilities available at ICFRE – TFRI, Jabalpur



S. No.	Parameter	Price in
1	pH	100/- per sample
2	EC	100/-per sample
3	Organic Carbon (OC) /Organic Matter	100/-per sample
4	Major nutrients (N, P, K, Ca, Mg, Na)	300/- each and 1500/- package
5	Micronutrient (Mg, Ni, Zn, Fe, Co, Cr, Cu, Mn, B)	300/- each and 2000/- package
6	Texture analysis	500/-per sample
7	Bulk Density	150/-per sample
8	Total soil Analysis (1 to 7)	4000/-per sample
9	Dry matter / Moisture percentage	100/-per sample
10	Plant testing – N, P, K, Ca, Mg, Na	250/- element and 1300 /-for all
11	Plant identification charges	250/- specimen
12	Bio- control agent-egg parasitoid card (25000 eggs /card)	300/- card
13	Laboratory testing of pesticide (biopesticide / insecticide) against insect defoliator/ white grub	20,000/- per defoliator 40,000/- per white grub
14	Field testing of insecticides against termites and insect defoliators	1,00,000/-
15	Identification services for decay fungi/mould	1000/ species
16	Identification of fungal specimen and its matching with herbarium	250/-per sample
17	Micro photography of fungi	100/-per sample
18	Seed germination and viability test	500/- per sample
19	Seed purity tests	400/- per sample
20	Moisture content of seeds	200/- per sample
21	Determination of phenols (if standards available)	600/- per sample
22	Determination of tannins (if standards available)	600/- per sample
23	Determination of carbohydrates (if standards available)	600/- per sample
24	Determination of starch (if standards available)	600/- per sample
25	Determination of chlorogenic acid (if standards available)	600/- per sample
26	Determination of Protein (if standards available)	600/- per sample
27	Chemo profiling of medicinal plants with the help of HPTLC	2000/- for the first sample & 500/- per subsequent sample of the same sp.
28	Leaf area Measurement	200/- per sample
29	Estimation of a single marker constituent in plant extract	5500/- per sample for Academia / R &D, 10000/- per sample for Industry
30	Ash Content	610/-per sample for Academia , 1100 / per samplee for Industry
31	Microscopic analysis	500/- per sample



Services available for the Society

Plant Species and plant Available for Sale at Genetics and Tree Improvement Division, TFRI, Jabalpur

Improved Varieties- Cost per plant- Rs. 50/- plant

S. No.	Species	Number of Plants Available
1.	<i>Rauvolfia serpentina</i> TFRI RS-1 (Sarpagandha)	200
2.	<i>Rauvolfia serpentina</i> TFRI RS-2 (Sarpagandha)	150

Bamboos Species- Rs. 25/-plant

S. No.	Species	Number of Plants Available
1.	<i>Bambusa bambos</i> (Katang bans)	1350
2.	<i>Bambusa vulgaris</i> (var. green)	110
3.	<i>Bambusa nutans</i>	75
4.	<i>Dendrocalamus strictus</i> (Lathi bans)	940
5.	<i>Dendrocalamus longispatus</i>	100

Tree Species and Medicinal Plants- Rs. 25/- plant

S. No.	Species	Number of Plants Available
1.	<i>Tectona grandis</i> (Teak, Sagoan)	200
2.	<i>Dalbergia latifolia</i> (Kala shisham, Rosewood)	200
3.	<i>Celastrus paniculatus</i> (Malkagini, Jyotishmati)	100
4.	<i>Plumbago zeylanica</i> (Chitrak)	100
5.	<i>Oroxylum indicum</i> (Shivnag)	50
6.	<i>Tamarindus indica</i> (Imli)	150
7.	<i>Azadirachta indica</i> (Neem)	50

Plant Species and plant Available for Sale at Silviculture, Forest Management Division , TFRI, Jabalpur

S. No.	Species	Number of Plants Available
1.	<i>Tinospora cordifolia</i> (Giloy)	100
2.	<i>Aegle marmelos</i> (Bel)	50
3.	<i>Cymbopogon citratus</i> (Lemon grass)	100
4.	<i>Oroxylum indium</i> (Shyonak)	50
5.	<i>Mimusops elengi</i> (Moulshri)	100
6.	<i>Asparagus racemosus</i> (Satawar)	100
7.	<i>Artemisia annua</i> (Davana)	30
8.	<i>Phyllanthus emblica</i>	25
9.	<i>Terminalia arjuna</i>	30
10.	Other Species	As per availability

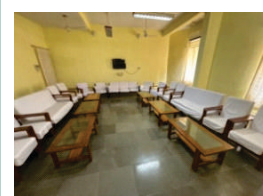
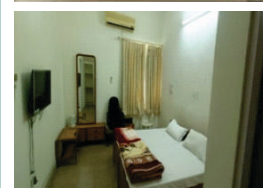
Prices and number may be vary as per the availability and season



**Medicinal Plants-
Rs. 30/- plant**

Guest House facilities and Charges

S.No.	Category of Person	Rent per day while on Govt. Duty (Rs.)		Rent per day while not on Govt. Duty (Rs.)	
		Rooms 20 no.	Suits 4 no.	Room	Suit
1.	<ul style="list-style-type: none"> Officials of ICFRE and institutes Consultants and research Fellow at ICFRE and its institutes and FRI Deemed Universities Officials and experts of MoEF&CC, New Delhi Officials of SFDs Ex-employees of ICFRE and Ex-Deputationist 	150	200	200	300
2.	Family members of present /ex-employees <ul style="list-style-type: none"> ICFRE Employees ICFRE Deputationist 			200	300
3.	<ul style="list-style-type: none"> Officials of Autonomous bodies, Universities under the FRI Deemed University Officials of Central/State Government other than SFDs 	200	300	400	500
4.	Others (Non Governmental)			600	750
5.	Community garden/hall with Permanent Stage (Facilities of changing room/ sitting room)	50,000/per day			



Maintenance charges in addition to above rent will be applicable as follows :

Accommodation type	Maintenance charge including A/C , Heater Charges
Room	200
Suit	250





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About the Institute

Tropical Forest Research Institute ,Jabalpur (Madhya Pradesh) came into existence in April 1988,to provide strong research support to sustainable development of forest and forestry sectors in central India comprising the states of Madhya Pradesh, Chhattisgarh and Maharashtra.



It is one of the nine Regional institutes under the Indian Council of Forestry Research & Education , Dehradun (Uttarakhand) .



Forest Research Centre for Skill Development ,Chhindwara , came into existence on 30th March 1995.It was declared on 3rd January 1996,a satellite Centre of Tropical Forest Research Institute,Jabalpur.



Core Research Areas

- Eco-restoration of Vindhyan, Satpura and Maikal hills and Western Ghats, Rehabilitation of mined areas.
- Development and Demonstration of Agroforestry Models
- Forest Protection
- Biofertilizers and Biopesticides
- Non-Wood Forest Products
- Biodiversity Assessment, Conservation and Development
- Sustainable Forest Management
- Planting Stock Improvement
- Climate Change & Environment Amelioration
- Forest Products Development