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From the Director's Desk

ICFRE-Rain Forest Research Institute (ICFRE-RFRI) is one of the nine Research Institutes of Indian Council of Forestry Research and Education (ICFRE) which is an autonomous body under the Ministry of Environment, Forest and Climate Change, Government of India and is premier research organisation in the National Forestry Research System.

The institute along with its two satellite centres- ICFRE-Bamboo and Rattan Centre (ICFRE-BRC), Aizawl and ICFRE- Livelihood Extension Centre (ICFRE-LEC), Agartala has established themselves as a major centre for research on forestry & ecology related issues to extend knowledge through research, education and extension in general and to support forestry research in North Eastern states.

I take pride on this momentous occasion unveiling the 3<sup>rd</sup> issue (April-June, 2024) of the ICFRE-RFRI, newsletter showcasing different research activities, events organized, participated, publications made during this period of ICFRE-RFRI, Jorhat.

I hope that the ICFRE-RFRI Newsletter will serve as a beacon of information on the institutional research and extension activities and will be helpful for researchers, stakeholders and policy planners concerned with forestry research.

Dr. Nitin Kulkarni Director, ICFRE-RFRI, JORHAT



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# Significant Research Achievements

ICFRE-Rain Forest Research Institute (RFRI), Jorhat has successfully isolated five fungal strains for the biological control of *Mikania micrantha*. Among these, three fungal strains have been identified as promising prospective biological control agents. These strains hold significant potential in controlling the invasive *Mikania micrantha*, which is known for its detrimental effects on native ecosystems and agriculture.



Photo1a: Before spraying of fungal strain



Photo 1b: After spraying of fungal strain

### Workshops/Seminars/Meetings/Trainings

On April 3, 2024, ICFRE-RFRI, Jorhat organized a comprehensive training program for 31 Trainee Foresters-1 from Assam Forest School, Jalukbari, Guwahati, focusing on the "General Aspects of Forestry." Dr. Satyam Bordoloi, Scientist-E and Head of the Genetics and Tree Improvement Division, delivered an insightful presentation covering some key areas which included propagation methods, effective nursery practices, and the commercial cultivation of bamboo etc.















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On April 5, 2024, ICFRE-RFRI, Jorhat, organized a pre-release consultation meeting on "Forest Soil Health Cards of Assam" via virtual mode, bringing together 32 participants, including 28 officers from the Assam Forest Department, 3 from ICFRE-RFRI, Jorhat, and 1 from ICFRE-FRI, Dehradun. The primary aim was to present the findings of the Forest Soil Health Cards (FSHC) of 33 Forest Divisions of Assam. The meeting was chaired by Shri R.P. Singh, PCCF & HoFF, Assam, who commended the meticulous efforts of ICFRE-RFRI in preparing the FSHC. Shri Hridesh Mishra, Addl. PCCF for Upper Assam Zone, Dr. R.K. Borah, Group Coordinator (Research), Dr. Vijendra Panwar, Scientist-F and National Project Coordinator of the Soil Health Card Project were aloso present. Shri D.K. Meena, Scientist-D and Project Investigator presented the detailed findings and the FSHC, and sought suggestions before its final release.





### **Great Quotes**

"We are the first generation to feel the effect of climate change and the last generation who can do something about it." Barak Obama

'You are not Atlas carrying the world on your shoulder. It is good to remember that the planet is carrying you." Vandana Shiva

"If we loose the forests, we lose our only teachers."

Bill Mollison

'Learn character from trees, values from roots, and change from leaves."

Tasneern Harneed



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#### Skill Development Training on "Agarwood Cultivation and Artificial Inoculation"

The ICFRE-RFRI, Jorhat hosted a three-day Skill Development Training on "Agarwood Cultivation and Artificial Inoculation" from April 24 to 26, 2024, with 13 participating Entrepreneurs and Farmers from India and Nepal. The training commenced with a session by Dr. R.K. Borah, Scientist-G and Group Coordinator (Research), who discussed the significance of agarwood, as well as nursery and cultivation management. Dr. Vishwanath Sharma, Scientist-B, provided insights into various aspects of agar seed and nursery management. Additionally, Dr. Nibedita Barua, Chief Technical Officer, presented scientific perspectives on agar oil extraction. Participants also enjoyed a field visit to agar plantations and a distillation unit in the Naharani area of Golaghat district. The program was coordinated by Shri R.K. Kalita, Head of the Extension Division at ICFRE-RFRI.





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A three-day workshop for 28 officers of the Indian Forest Service (IFS) on "Preparation of Ecosystem Health Card" was organized by ICFRE-BRC in Aizawl, Mizoram, from May 6 to 8, 2024. Dr. Nitin Kulkarni, Director of ICFRE-RFRI, Jorhat, while welcoming the participants emphasized on the importance of ecosystem and forest health, and commended ICFRE-BRC for its active involvement in research and development. The event was inaugurated by Shri H. Lalengmawia, IAS, Commissioner & Secretary of the Environment, Forests & Climate Change Department, Government of Mizoram. Honored guests included Mrs. Kamal Preet, IFS, Additional Principal Chief Conservator of Forests in Mizoram. Dr. Purvaja Ramachandran, acting Director of the National Centre for Sustainable Coastal Management, who was also the co-organizer highlighted the importance of ecosystem health and the training's relevance for ecosystem managers. Mr. M.Z. Singson, CF (CC) of the Government of Mizoram, Professor S.K. Tripathi from Mizoram University and Dr. Robin R.S., Scientist at NCSCM, were the other dignitaries.





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The ICFRE-Livelihood Extension Centre in Agartala, Tripura, hosted a one-day training program under the VVK CAMPA Extension initiative focused on bamboo propagation and nursery management. The event was inaugurated by Shri Kush Roy, DCF of the Research Division in Salbagan, in the presence of Shri Ajoy Debbarma, Scientist, and Shri Niren Das, Chief Technical Officer. Shri Roy delivered an informative presentation on bamboo, highlighting its diverse applications and raising awareness about its significance. Bamboo seedlings were distributed to all participants. Among the participants, 22 members were from Self-Help Groups (SHGs), including 19 women, from various localities in the South Tripura, Sepahijala, Khowai, and West Tripura districts.



A four-day Hindi training workshop on the Machine Aided Translation System/ Tool/Software "Kanthstha 2.0," which focuses on Translation Memory and Neural Machine Translation, was organized at the ICFRE-Rain Forest Research Institute from June 6 to 11, 2024. Fifty-two employees from the Institute participated in this informative session, enhancing their skills in

translation technology and tools. The workshop was so designed as to equip participants with the indespensable knowledge to profficiently utilize the Kanthstha 2.0 software in their work.







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ICFRE-RFRI, Jorhat, organized a Skill Development Training on "Bamboo Charcoal and Briquette Making" as part of its Demo Village Programme in Charingia Gaon from June 10 to 12, 2024. Shri R.K. Kalita, Head of the Extension Division coordinated the programme. Six villagers from the ICFRE-RFRI Demo Village in Charingia Gaon, Bhogamukh, participated in the workshop, gaining hands-on experience in bamboo charcoal production and briquette making.



A one-day Hindi training workshop on "Kanthastha 2.0" was successfully organized at ICFRE-Rain Forest Research Institute, Jorhat, on 18th June, 2024. The workshop was attended by 28 officials from the Institute, as well as from the ICFRE-Bamboo and Rattan Centre, Aizawl, Mizoram.

During the workshop, participants were introduced to the advanced features of Kanthastha 2.0, a Hindi language tool designed to enhance official communication. The training provided hands-on experience and valuable insights for improving Hindi proficiency in day-to-day office work. The tri-monthly Official Language Implementation Committee meeting was hosted at ICFRE-RFRI, Jorhat, on June 25, 2024, under the chairmanship of Dr. Nitin Kulkarni, Director of the institute. The meeting focussed on strategies and initiatives to enhance the implementation of official language policies.







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#### **PARTICIPATION FROM ICFRE-RFRI IN MEETINGS/TRAININGS/**

On 2nd April 2024, Shri R.K. Kalita, Scientist-F and Head of the Extension Division, ICFRE-RFRI, Jorhat, delivered an insightful lecture on "Bamboo-based Entrepreneurship Development for Livelihood Generation" to a group of women at Bosco Institute, Baghchung, Jorhat, Assam as a part of a seventeen-day Livelihood and Enterprise Development Programme on Bamboo Value Added Products, implemented by The Hub of Bosco DInstitute with financial support from NABARD to thirty- one women participants.







Ms. Sneha Chowdhury, a Ph.D. Scholar at ICFRE-RFRI, participated in the National Seminar organized by the Department of Applied Biology at the University of Science and Technology, Meghalaya. The seminar was held from 2nd to 3rd April, 2024. Ms. Chowdhury, during the seminar, presented a poster on the topic "Mutualistic Interaction between Aquilaria Tree and Microbe for the Sustainable Cultivation of Agarwood." Her research work highlighted the potential and important role of microbial interactions in the growth and sustainable production of Agarwood.

### **Great Quotes**

"For in the true nature of things, if we rightly consider, every green tree is far more glorious than if it were made of gold and silver."

Martin Luther King



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On 5th April, 2024, Dr. Nitin Kulkarni, Director of ICFRE-RFRI, Jorhat, attended the Regional Inter-Agency Coordination Meeting organized by the Wildlife Crime Control Bureau. The meeting was chaired by the Additional Director General (Wildlife) from the Ministry of Environment, Forest and Climate Change (MoEF & CC), New Delhi, and was held at the Assam Administrative Staff College, Khanapara, Guwahati, Assam.

On 9th April, 2024, Dr. Nitin Kulkarni, Director of ICFRE-RFRI, Jorhat, attended the valedictory function and certificate distribution event for newly recruited scientists of the Central Silk Board (CSB). The event was held at the Central Muga Eri Research and Training Institute, CSB, Lahdoigarh, Jorhat, Assam. The occasion was honored by the presence





of His Excellency, the Governor of Assam, Shri Gulab Chand Kataria, who graced the event with his distinguished presence.

Dr. Prosanta Hazarika, Chief Technical Officer (CTO) of ICFRE-RFRI, Jorhat, delivered a lecture on "Understanding the Importance of Waste Management and Its Impact on the Environment" as a resource person in a workshop on "Solid Waste Management" organized by the Assam Science Technology and Environment Council in collaboration with IQAC and Eco Club, Moran College, on 22nd April, 2024. The workshop was conducted in commemoration of Earth Day and was funded by the Ministry of Environment, Forest, and Climate Change (MoEF&CC), Government of India.





Dr. Nitin Kulkarni, Director of ICFRE-RFRI, Jorhat, delivered a guest lecture on "Collaboration and Leveraging Resources in Assam for Developing an Impactful Project Proposal for Integrated Value Chains." at a three-day training programme for Corporate Social Responsibility (CSR) officials of Numaligarh Refinery Limited (NRL). The training, held from 30th April to 2nd May, 2024, at NRL, Golaghat, Assam, was conducted by the Indian Institute of Corporate Affairs (IICA), Manesar, Haryana, Government of India. On 1st May, 2024, Dr. Kulkarni delivered an insightful lecture on the topic His lecture focused on identifying potential collaboration opportunities and resource utilization strategies in Assam to design impactful CSR project proposals aimed at integrated value chain development.





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Participation from ICFRE-RFRI in Seminars/Workshops/Meetings/Trainings

On 8th May, 2024, Shri R.K. Kalita, Head of the Extension Division, and Shri R. Bhattacharyya, Senior Technical Officer from ICFRE-RFRI, Jorhat, participated as resource persons in a Training Workshop on "Vermicomposting" at Amguri College, Sivasagar, Assam. The workshop was organized by the Eco Club and IQAC of Amguri College, with sponsorship from the Assam Science Technology and Environment Council (ASTEC). The workshop was inaugurated by Dr. Dipamoni Borthakur, Principal of Amguri College, and was attended by more than one hundred students from ten different schools. The resource persons, Shri Kalita and Shri Bhattacharyya, delivered insightful sessions, sensitizing the students on various aspects of vermicomposting technology and its significance for sustainable waste management. The workshop was a great success in promoting environmental awareness and equipping students with knowledge about vermicomposting techniques.



On 14th May, 2024, Dr. Nitin Kulkarni, Director, and Dr. Satyam Bordoloi, Scientist-E, ICFRE-RFRI, Jorhat, participated virtually in the second meeting of the Technical Committee established by the Chief Minister's Task Force on Environment and Sustainable Development, Government of Maharashtra. The meeting focused on bamboo plantation activities under the MGNREGA scheme, with in-depth discussions on the selection of appropriate bamboo species and optimal plantation spacing tailored to Maharashtra's diverse climatic conditions. The goal of the discussions was to formulate strategic recommendations for large-scale bamboo cultivation across the state representatives from all four Agricultural Universities of Maharashtra, along with experts from prominent institutions such as ICFRE-Forest Research Institute, Dehradun, and Kerala Forest Research Institute, Peechi, also participated in the meeting. The session was chaired by Mr. Nand Kumar, Director General of the MGNREGA Mission, Government of Maharashtra. In addition, Shri Sanjeev Kapre, a well-known bamboo planter and activist, contributed valuable insights to the discussions. The collaborative efforts in the meeting are expected to lead to the implementation of scientifically sound and region-specific bamboo plantation activities that will benefit Maharashtra's environmental sustainability and rural development.





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Participation from ICFRE-RFRI in Seminars/Workshops/Meetings/Trainings

On 22nd May, 2024, Dr. Nitin Kulkarni, Director of ICFRE-Rain Forest Research Institute, Jorhat, had a courtesy meeting with Shri Harish Chaudhary, IFS, Principal Chief Conservator of Forests (CCR&T), Department of Environment and Forests, Government of Meghalaya. The meeting was held in presence of Ms. Tarakshi Marak, IFS, Deputy Conservator of Forests. The discussions during the meeting focused on various ongoing projects between ICFRE-RFRI and the Government of Meghalaya, exploring current initiatives and the progress of collaborative efforts. This meeting highlights the commitment of both institutions to work together towards sustainable forest management and environmental conservation in Meghalaya.



On 22nd May, 2024, Dr. Nitin Kulkarni, Director of ICFRE-Rain Forest Research Institute (RFRI), Jorhat, Assam, visited the restoration site of the abandoned coal mine land located in Latyrke village. The visit was accompanied by Marshal Sytry, District Mining Officer of the East Jaintia Hills District, Directorate of Mineral Resources, Meghalaya, along with the village President and Secretary. The site spans 6.5 hectares and is part of the restoration efforts undertaken by ICFRE-RFRI, Jorhat, which includes the planting of 10,500 seedlings from 35 native plant species. This initiative incorporates microbial technology and soil amendments to enhance soil fertility and promote the growth of the newly planted vegetation. Dr. Kulkarni's visit underscores the commitment of ICFRE-RFRI to rehabilitate degraded landscapes and support local biodiversity while engaging with the community in sustainable development practices.





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On June 12, 2024, Dr. Vishwanath Sharma, Scientist-C, and Mr. Shankar Shaw, Junior Translation Officer, represented the Rain Forest Research Institute in Jorhat at a virtual workshop organized by the Ministry of Environment, Forest, and Climate Change. The workshop focused on the "Application of Hindi E-Tool in the Implementation of Official Language."



On 13th June, 2024, Dr. Prosanta Hazarika, Chief Technical Officer of ICFRE-Rain Forest Research Institute, Jorhat (Assam), delivered a talk titled "Understanding the Importance of Waste Management and Its Impact on the Environment" in a workshop on "E-Waste and Solid Waste Management" as a resource person. The workshop was held at Bamunbari High School, Dibrugarh, and focused on the critical issue of waste management and its environmental impacts. The workshop was organized under the Environment Education Program of the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India, and sponsored by the Assam Science Technology and Environment Council, Guwahati, Assam. Approximately 300 students and teachers from various schools in the Dibrugarh district participated in the workshop. In addition to discussing waste management strategies, Dr. Hazarika urged the students to engage in the 75 activities of Mission LiFE, emphasizing the importance of building a healthy lifestyle for the environment.



#### **Great Quotes**

"Preserve and cherish the pale blue dot, the only home we've ever known"

- Carl Sagan





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On 19th June, 2024, Dr. Satyam Bordoloi, Scientist-E and Head of the Genetics and Tree Improvement Division at ICFRE-Rain Forest Research Institute (RFRI), attended the Stakeholders' Consultation Meeting on the Indian Forest and Wood Certification Scheme as part of the Trees Outside Forests in India (TOFI) Programme at Novotel Hotel, Guwahati, Assam, organized by the Center for International Forestry Research and World Agroforestry (CIFOR-ICRAF) in collaboration with the Indian Institute of Forest Management (IIFM), under the aegis of the MoEF&CC-USAID Trees Outside Forests in India Programme. During the meeting, Dr. Bordoloi delivered a lecture on "Tree Improvement Initiatives and Quality Planting Material Production at ICFRE-RFRI, Jorhat," highlighting the importance of genetic improvement and the production of high-quality planting materials for enhancing forestry practices in India. Dr. Bordoloi's participation and insights contributed significantly to the discussions surrounding the certification scheme and its implications for sustainable forest management.

Dr. Nitin Kulkarni, Director of ICFRE-Rain Forest Research Institute (RFRI), attended the Consultative Meeting for "Developing a Roadmap for Supporting and Nurturing Biotechnology in the Northeast Region (NER) by the Department of Biotechnology (DBT) during the next five years (2025-30)." The meeting was held from 21st to 22nd June, 2024, at CSIR-NIEST, Jorhat, Assam. Dr. Kulkarni's participation in this consultative meeting reflects ICFRE-RFRI's commitment to contributing to the advancement of biotechnology and its potential impact on forestry and environmental management in the region.

Dr. Rakesh Kumar Prajapat, Scientist-B, and Ms. Rekha Mahato, Scientist-B, participated in the "One Week National e-Workshop on Innovation and Intellectual Property Rights (NeWIPR-2024)" held from 24th to 29th June, 2024. The theme of the workshop was "IP for ALL," and it was organized by the CSIR-Institute of Minerals & Materials Technology, Bhubaneswar, India. Dr. Prajapat and Ms. Mahato's participation in this workshop demonstrates their commitment to advancing knowledge in the field of innovation and intellectual property, which is essential for enhancing research and development initiatives at ICFRE-RFRI, Jorhat.

Shri R.K. Kalita, Scientist, ICFRE-RFRI, Jorhat (Assam) delivered a talk on "Bamboo Based Entrepreneurship Development for Livelihood Generation" to a group of women Trainees at HUB, Don Bosco, Baghchung, Jorhat on 26th June, 2024. The participants attended a training programme on Livelihood and Enterprise Development Programme on on Bamboo and Value Added Products, funded by NABARD.







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Miss Tara Kumari, Scientist-B of the Silviculture & Forest Management Division at ICFRE-RFRI, Jorhat, represented ICFRE-RFRI at the prestigious XXVI IUFRO World Congress 2024, held from 24th June to 29th June at Stockholmsmässan, Stockholm, Sweden. During the congress, Miss Kumari presented a poster titled *"Does Traditional Agrisilvicultural System Benefit Farmers? - A Cost-Benefit Analysis of Grewia optiva on Pea Fields of Northwest Himalayas."* Her research highlights the economic and ecological benefits of integrating Grewia optiva, a multipurpose tree species, with pea crops in the Northwest Himalayan agrisilvicultural systems. The study provides insights into how traditional farming systems can improve farmer incomes while contributing to sustainable land management. The IUFRO (International Union of Forest Research Organizations) World Congress is a globally renowned event that brings together experts and researchers in the field of forestry and related disciplines to discuss advancements in forest science and practice.



### **Great Quotes**

"Look deep into the nature, and then you will start to understand everything better."

- Albert Einstein

"The clearest way into the universe is through a forest wilderness."

- John Muir



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### **Memorandum of Understandings (MoUs)**

On 28th April 2024, the ICFRE-Rain Forest Research Institute (RFRI), Jorhat, signed a landmark Memorandum of Understanding (MoU) with the ICMR-Regional Medical Research Centre, North Eastern Region (RMRC-NER), Dibrugarh. The MoU signing ceremony was graced by the Director General of ICMR and the Special Secretary of the Department of Health Research, marking a significant step forward in collaborative research between the two esteemed institutions. The agreement aims to facilitate clinical bioassay trials of specific active molecules and formulations developed by ICFRE-RFRI.



On 28th June 2024, the ICFRE-Rain Forest Research Institute (RFRI), Jorhat (Assam), entered into a significant partnership with AAIE Earth Initiatives Private Limited through the signing of a Memorandum of Understanding (MoU). The primary objective of this MoU is to leverage the brick kiln located on the Institute's premises for the production of bamboo charcoal and its related products. This collaboration seeks to promote sustainable practices in bamboo utilization, aligning with eco-friendly initiatives and the development of green products.



### **Great Quotes**

It's not that the world hasn't had more carbon dioxide, it's not that the world hasn't been warmer. The problem is the speed at which things are changing. We are inducing a sixth mass extinction event kind of by accident and we don't want to be the extinctee.

Bill Nye, 'The Science Guy'



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**KISAAN MELA** 

ICFRE-Rain Forest Research Institute, Jorhat participated in the one day "Krishi Prajukti Pradarshini" organized by KVK, Kaliapani,Teok, Jorhat of Assam on 27th June, 2024.









### **ACTIVITIES UNDER VVK**

On 17th April 2024, the ICFRE-Bamboo and Rattan Centre (ICFRE-BRC) in Bethlehem Vengthlang, Aizawl, successfully conducted a one-day hands-on training on Plant Tissue Culture under the Van Vigyan Kendra (VVK) initiative, at the Plant Tissue Culture Laboratory of ICFRE-BRC and aimed to provide practical knowledge to science undergraduates. Professor John Zothanzama, Head of the Department of Biotechnology at Mizoram University as the Chief Guest. Dr. Nitin Kulkarni, Director of ICFRE-RFRI, Jorhat, delivered the welcome speech virtually. A total of 20 participants from the Biochemistry Department of Government Zirtiri Residential Science College gained practical insights and skills in plant tissue culture techniques.











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#### **VISIT OF GUESTS**

On 29th April 2024, ICFRE-Rain Forest Research Institute (RFRI), Jorhat, welcomed a delegation of distinguished guests, including Mr. Mukesh Kumar, Head of the Centre for Excellence in CSR & Corporate Citizenship at the Indian Institute of Corporate Affairs (IICA), Manesar, Gurugram, Haryana; Mr. Manish Kumar, Chairman Cum Managing Director of Rock Light Energy Pvt. Ltd, Ranchi, Jharkhand; and Ms. Sana Farid, Research Associate at the Centre of Excellence in CSR & Corporate Citizenship, IICA. The visitors toured several key facilities, including Bambusatum, the Bamboo Nursery, the Bamboo Charcoal and Composite Centre, the Bamboo Treatment Unit, and Bah Bithika. The visit offered a valuable opportunity for the exchange of ideas and knowledge, highlighting the institute's ongoing efforts in bamboo research and sustainable development practices.



On 13th June 2024, Mr. Arnab Chakraborty, National Director of Empretec India Foundation, accompanied by a delegation from the Chuchuyimlang Village Council, Nagaland, led by Council Chairman Ao Sanen Pongen, visited ICFRE-Rain Forest Research Institute (RFRI), Jorhat, Assam. During the visit, the group had an in-depth discussion on various topics, including the applications of bamboo, bamboo planting stock, bamboo value addition, agarwood, and other non-timber forest products. The conversation also covered potential sources of funding for projects related to these areas, fostering collaboration and innovation in bamboo-based industries and sustainable forest product development. The visit paved the way for future partnerships and the exploration of opportunities for both organizations.



On 24th June 2024, the Hon'ble Vice Chancellor of Birangana Sati Sadhani Rajyik Vishwavidyalaya, Golaghat (Assam), Dr. G. Singaiah, along with the Registrar, Dr. Uday Kumar Khanikar, visited ICFRE-Rain Forest Research Institute (RFRI), Jorhat. Dr. Singaiah introduced the university and expressed his interest in signing a Memorandum of Understanding (MoU) with the institute to foster collaboration, particularly in areas of research and employable ventures. This potential partnership could strengthen research opportunities and create pathways for skill development and innovation.





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### **Special Day Celebrations**

In a series of different events at ICFRE-Rain Forest Research Institute (RFRI), Jorhat, celebrated International Day for Biological Diversity (IDB) 2024 on 22nd May at Latyreke Village, Saipung, East Jaintia Hill District, Meghalaya. The event saw the participation of over 70 attendees, including 30 men and women villagers and more than 50 high school students. The events included ceremonial planting of seedlings at a coal mined site in the village participated by Dr. Nitin Kulkarni, Director,



ICFRE-RFRI, Jorhat, Marshal Systry (District Meghalaya), Village Head Jashril Satunga, Secretary Overse Malang, and officers from ICFRE-RFRI to symbolize the institute's ongoing environmental restoration efforts. Dr. Prosanta Hazarika, Chief Technical Officer, ICFRE-RFRI, shared insights about the institute's various environmental initiatives, including a restoration program for coal-mined sites near the village in commemoration of the day, approximately 250 seedlings of five native plant species were distributed to the villagers and students for plantation in their homesteads, further promoting the importance of biodiversity conservation.



As part of celebration, the Institute on 22nd May 2024, celebrated International Day for Biological Diversity with a series of programs held at Teok Girls' Higher Secondary School, Teok, Jorhat. The celebration began with a ceremonial plantation program initiated by Dr. Mahendra Neog, President of the School Management and Development Committee (SMDC) of the school, and led by Shri R.K. Kalita, Scientist-F of ICFRE-RFRI, Jorhat. The event featured engaging activities such as drawing and quiz competitions, which saw participation from students of various schools in and around Teok. A popular talk on the significance of the International Day for Biological Diversity was delivered by Shri Rajib Kumar Kalita, followed by an open session attended by dignitaries including Dr. R.K. Borah, Scientist-G, Shri R.K. Kalita, Scientist-F, and Shri Bibhuti Deka, Chief Technical Officer from ICFRE-RFRI, along with Shri Raju Kumar Saikia, Principal of the school, teachers, and students from various schools. The event concluded with the distribution of prizes and certificates to the winners of the competitions, and a vote of thanks delivered by Shri Bikas Bora, Post Graduate Teacher (PGT) of the school.





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Series of events for World Environment Day 2024 kicked off at Sankardev Vidyapith High School in Ledo, Tinisukia, Assam, on 27th May 2024 organized by ICFRE-Rain Forest Research Institute (RFRI), Jorhat.The celebration commenced with a ceremonial plantation program in by Shri Utpal Kumar Gogoi, Principal . In his address, he emphasized the importance of environmental protection and urged all to contribute to safeguarding the Earth. Following the plantation, drawing and speech competitions were held for the students. In alignment with the theme of World Environment Day 2024, "Land Restoration, Desertification, and Drought Resilience," two informative talks were delivered by Shri Dinesh Kumar Meena and Miss Muna Tamang on "Land Degradation" and "Land Restoration," respectively. Shri Meena discussed various issues related to land degradation, including its meaning, problems faced in India and globally, causes, and impacts. Miss Tamang highlighted restoration techniques, as well as the issues and challenges involved. Prizes and certificates were awarded to the winners of the competitions during the open session.



In continuation of the World Environment Day 2024 celebrations, ICFRE-Rain Forest Research Institute (RFRI), Jorhat, organized a second program at Arunachal University of Studies (AUS), Namsai, Arunachal Pradesh, on 31st May 2024. The event was attended by over 150 participants, including approximately 50 students from AUS. The program commenced with a welcome address by Dr. Prosanta Hazarika, Chief Technical Officer of ICFRE-RFRI, followed by a ceremonial planting of saplings by dignitaries, including Dr. Nitin Kulkarni, Director of ICFRE-RFRI, and Prof. (Dr.) Ajit Kumar K., Vice Chancellor (In-Charge) of AUS, along with other guests. To engage students and promote environmental awareness, various competitions were held, including an idea drop competition and an extempore speech contest. The participants also viewed an ICFRE-RFRI documentary titled "ICFRE-RFRI Technology for Coal Mined Land Restoration." During the Valedictory Session, certificates and prizes were awarded to the winners of various competitions. Prof. (Dr.) Ajit Kumar K., Vice- Chancellor (In-Charge), Arunchal University of Studies (AUS), Dr. Nitin Kulkarni, Director, Dr. Dhrubajyoti Das, Head, FECC Division, Dr. Prosanta Hazarika, CTO and Angshuman Patel delivered their talk during the events.





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### **Special Day Celebrations**

The series of programmes on "World Environment Day 2024" culminated in a final day celebration on 5th June, 2024 at the Institute's premises. The event commenced with an address by Dr. Nitin Kulkarni, Director of ICFRE-RFRI, followed by a Green Walk the ICFRE-RFRI campus, accompanied by a ceremonial planting of saplings. In the lead-up to the main event, various competitions were organized on 4th June, including an Extempore Speech competition and a Drawing Competition, fostering student engagement in environmental awareness. Additionally, a quiz competition took place in the auditorium on the day of the celebration.

An Open Session was held with Dr. D.J. Das, Scientist at the Institute, delivering the welcome address and emphasizing the significance of World Environment Day. Miss Tara Kumari and Shri Amitabha Roy presented innovative practices for making the Deovan Campus cleaner and greener. Three publications of the Institute were also released during the celebration. The invited speaker for the event, Shri Jitu Kalita, a renowned environmental journalist from Assam, delivered an extensive talk on various issues related to environmental conservation, particularly focusing on water conservation. He shared his vast experiences, including his journey of discovering Mr. Jadav Payeng, known as the "Forest Man of India." Mr. Kalita played a pivotal role in introducing Mr. Payeng to the world through his writings in print media.







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On 18th June 2024, World Day to Combat Desertification and Drought was celebrated at ICFRE-Rain Forest Research Institute (RFRI), Jorhat, Assam with the noble aime to raise awareness about the diminishing land cover on Earth and to encourage collective action to address this pressing issue. To commemorate the occasion, two informative presentations were organized: Dr. Mitali Mehta, Scientist-B at the Institute, delivered a presentation titled "Desertification: Causes, Effects and Solutions," outlining the various factors contributing to desertification and the potential strategies for mitigation; Dr. Nibedita Guru, another Scientist at ICFRE-RFRI, presented on "Water Resources Management to Combat Desertification and Drought," emphasizing the importance of effective water management in combating these environmental challenges. The event successfully ended with distribution of certificates to the winning participants of diferent competitions.



ICFRE-Rain Forest Research Institute (RFRI) in Jorhat, Assam, celebrated the 10th International Yoga Day on 21st June 2024, aimed to raise awareness about the benefits of yoga for both physical and mental health. Dr. R.K. Borah, Scientist-G and Group Coordinator (Research), welcomed everyone and talked about the importance of yoga higlighting many health benefits and encouraged everyone to practice different yoga poses, known as asanas, for better well-being. Mr. Protul Hazarika, Chief Technical Officer, opened the program, creating a positive atmosphere for the day's activities. Around 60 officials from the Institute took part, showing their dedication to promoting health and wellness.





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### Nature Camp

On 29th April 2024, ICFRE-RFRI, Jorhat organized a "Nature Camp" as part of the Environment Education Programme by the Assam Science Technology and Environment Council (ASTEC). The event was coordinated locally by the NGO MOTION and saw participation from around 50 students from various schools in the Jorhat district. Dr. Nitin Kulkarni, Director of ICFRE-RFRI, inaugurated the camp and addressed the attendees. He emphasized the importance of environmental education and awareness. Shri R.K. Kalita, Head of the Extension Division, sensitized the students about the LiFE Mission, which promotes sustainable practices for a better environment. The camp provided hands-on experiences in various activities, including: Bamboo cultivation and propagation, Nursery management, Biotechnology and tissue culture, Value addition and preservation techniques for bamboo, Lac cultivation, Vermicomposting, Exploring the botanical garden, Agar plantation etc. This camp aimed to engage students with practical knowledge about nature and sustainable practices, fostering a deeper understanding of environmental conservation.





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A ten-day "Yoga Camp" was held at the ICFRE-Rain Forest Research Institute (RFRI) campus from June 3rd to June 12th, 2024. The camp was led by experienced yoga instructors Mrs. Aparajita Gogoi and Shri Jadumoni Kalita. This initiative was part of ICFRE-RFRI's commitment to fostering a culture of health and wellness within the organization, encouraging individuals to incorporate yoga into their daily routines for improved overall health.



### **Activities Performed Under Mission LiFE**



On May 22, 2024, during the observance of International Day for Biological Diversity, Shri R.K. Kalita, Scientist-F at ICFRE-RFRI, Jorhat, conducted a sensitization session for the students of Teok Girls' Higher Secondary School in Teok, Jorhat. In this meeting, he discussed various actionable aspects of the LiFE Mission, emphasizing its significance in promoting environmental sustainability and biodiversity conservation. The session aimed to raise awareness among students about the importance of their role in these initiatives and how they can contribute to a healthier planet.



### **Great Quotes**

"Adults keep saying we owe it to the young people, to give them hope, but I don't want your hope. I don't want you to be hopeful. I want you to panic. I want you to feel the fear I feel every day. I want you to act. I want you to act as you would in a crisis. I want you to act as if the house is on fire, because it is."

Greta Thunberg, 17 year-old Swedish Activist





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On May 27 and 28, 2024, the Assam Science Technology and Environment Council (ASTEC), in collaboration with the Internal Quality Assurance Cell (IQAC) and ECO-CELL of Devi Charan Barua Girls' College, Jorhat, organized a workshop on "Solid Waste Management and Vermicomposting" as part of the Environment Education Programme Mission LiFE in Assam, supported by the Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India. Over 100 students from 10 Eco-Clubs of various educational institutions in Jorhat District participated in the event. In his inaugural address, Dr. Kulkarni emphasized the significance of the Mission LiFE program and the need for adopting sustainable lifestyles to protect and preserve the environment. He advocated for a better lifestyle focused on minimizing waste through the principles of the 3 Rs: Reducing, Reusing, and Recycling. Mr. Rajarishi Bhattacharyya, Senior Technical Officer at ICFRE-RFRI, also contributed to the workshop as a resource person delivering an informative presentation on the topic and conducted a hands-on session, providing practical insights into effective waste management and vermicomposting techniques.



### **Great Quotes**

One can see from space how the human race has changed the Earth. Nearly all of the available land has been cleared of forest and is now used for agriculture or urban development. The polar icecaps are shrinking and the desert areas are increasing. At night, the Earth is no longer dark, but large areas are lit up. All of this is evidence that human exploitation of the planet is reaching a critical limit. But human demands and expectations are ever-increasing. We cannot continue to pollute the atmosphere, poison the ocean and exhaust the land. There isn't any more available."

#### Stephen Hawking, Physicist & Author



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### **Awareness & Demonstration Programmes**

On April 9, 2024, ICFRE-RFRI, Jorhat, hosted 31 students and teachers from Rebakanta Baruah Public High School, Kenduguri, Assam, as part of an Environmental Awareness Programme. During their visit, the students were introduced to various research and development activities undertaken by the institute. The sessions included demonstrations and insights on: Bamboo Cultivation, Propagation and Nursery Management, Propagation and Nursery Management, Value Addition and Preservation Techniques, Biotechnology and Tissue Culture, Identification of Wild Edible Mushrooms, Lac Cultivation, Vermicomposting, Agar Plantation. This initiative aimed to enhance the students' understanding of sustainable practices and the importance of biodiversity conservation.



On April 30, 2024, ICFRE-RFRI, Jorhat, hosted a group of approximately 140 students and teachers from

Mariani Railway High School, Mariani, Jorhat, Assam. Sri R.K. Kalita, Head of the Extension Division highlighted the LiFE Mission, encouraging students to adopt environmentally friendly lifestyles. He shared simple yet impactful actions they could take, such as avoiding plastics, planting saplings, and conserving water. Following the introductory session, the students toured various facilities, including the Botanical Garden, Insectarium, Bambusetum, Bamboo Composite Centre, Vermicomposting Unit, and Orchidarium. This visit aimed to enhance the students' understanding of environmental conservation and the importance of sustainable practices.







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On April 30, 2024, a group of 29 women participating in a Skill Development Training program on Livelihood and Enterprise Development for Bamboo Value Added Products visited ICFRE-RFRI, Jorhat. This initiative was implemented by the Hub of Bosco Institute, Baghchung, Jorhat, with financial support from NABARD. During the visit, Dr. R.D. Borthakur conducted a session on bamboo preservation techniques and the process of making bamboo charcoal, providing valuable insights into sustainable practices. Following the informative session, the group toured several facilities, including the Bamboo Composite Centre, Bamboo Charcoal Unit, Nursery, and Bambusetum. Shri Abinash Hazarika, a Master Trainer, accompanied the group to support their learning experience. This visit aimed to enhance the participants' knowledge and skills in bamboo value-added products, empowering them for sustainable livelihood opportunities.



On May 10, 2024, a group of 32 students and teachers from Mariani High School, Jorhat (Assam), visited ICFRE-RFRI, Jorhat. Dr. R.D. Borthakur, Chief Technical Officer, provided an overview of the Institute's activities and objectives. During their visit, the students explored several facilities, including the Insectarium, Bambusetum, Bamboo Composite Centre, Bamboo Charcoal Unit, and the Bamboo Preservation Treatment Unit. The tour aimed to enhance their understanding of bamboo cultivation and its various applications. This visit not only educated the students about the significance of bamboo in sustainable practices but also inspired them to consider environmental conservation in their future endeavors.



On May 13, 2024, a group of 42 students and 6 teachers from Jawaharlal Nehru High School, Komar Khartowal, Jorhat (Assam), visited ICFRE-Rain Forest Research Institute, Jorhat. The visit aimed to enhance students' understanding of environmental conservation and biodiversity. The students visited several key facilities, including the Insectarium, Botanical Garden, Bambusetum, Orchidarium, Bamboo Composite Centre, Bamboo Charcoal Unit, and Bamboo Preservation Unit. During the visit, Shri Akshay Mishra provided insights into various aspects of insects, enriching the students' knowledge about their ecological importance.



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On May 27, 2024, 25 students and 3 teachers from Karanga Gazpuria High School, Karanga, Jorhat (Assam), visited the ICFRE-Rain Forest Research Institute in Jorhat. The visit was designed to enhance the students' understanding of environmental science and biodiversity. The group visited several key facilities, including the Insectarium, Herbarium, Botanical Garden, Bambusetum, and Nursery. Throughout the visit, Dr. Tajum Doni, Shri Protul Hazarika, Dr. Bebija, and Shri Akshay Mishra briefed the students on various research and development activities conducted at the institute. This interaction provided the students with valuable insights into the importance of conservation and the role of scientific research in environmental protection.







On May 27, 2024, a team of 11 individuals, including forest officials, journalists, members of self-help groups and village volunteers from Tamenglong district in Manipur, visited the ICFRE-Rain Forest Research Institute in Jorhat, Assam. The purpose of the visit was to gain exposure to bamboo and its potential for sustainable livelihoods. Shri R. K. Kalita, Head of the Extension Division, highlighted the importance of bamboo-based entrepreneurship for livelihood generation. The team participated in several informative sessions. Shri Kumud Bora, Senior Technical Officer, demonstrated the propagation methods, nursery practices, and the comdercial cultivation of bamboo. Additionally, Dr. R. D. Borthakur, Chief Technical Officer, spoke on bamboo preservation treatment and bamboo charcoal making. The visit included a tour to the Bambusetum, Tissue Culture Lab, Bamboo Nursery, Bamboo Composite Centre, Charcoal Unit, and Bamboo Preservation Unit and a hands-on demonstration on bamboo propagation methods. The participants expressed their appreciation for the institute's efforts and reported high satisfaction with their visit, highlighting the valuable knowledge gained about bamboo cultivation and its applications.



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On June 11, 2024, around 40 students and teachers from two schools in Jorhat—124 Hatigarh Meteli Medhi Lower Primary School and Chenijan Auguri Lower Primary School—visited the ICFRE-Rain Forest Research Institute in Jorhat, Assam. This visit was organized under the Mission LiFE programme by Samagra Siksha, Government of Assam. During the visit, the students toured several key facilities, including the Botanical Garden, Bamboo Treatment Unit, Bamboo Charcoal Making Unit, Bamboo Composite Centre, Forest Pathology Laboratory, Insectarium, and Herbarium. They received briefings on the different activities they would be engaging in under the Mission LiFE initiative. The students were particularly excited to see a wide array of bamboo products, numerous insect species, bamboo charcoal, and the diverse plant species featured in the Botanical Garden. The visit not only enhanced their understanding of environmental science but also inspired them to engage in sustainable practices.







On June 12, 2024, approximately 30 students and teachers from two schools in Jorhat — Tinikunia Nadipar Lower Primary School and 421 Dolakashoria Sotai Kheronimati Mazdur Lower Primary School—visited the ICFRE-Rain Forest Research Institute in Jorhat, Assam, organized under the Mission LiFE programme by Samagra Siksha, Government of Assam. During their tour, the students explored several key facilities including the Bambusetum, Bamboo Charcoal Making Unit,

Bamboo Composite Centre, and Insectarium. They received information about the different activities they would undertake as part of the Mission LiFE initiative.







On June 27, 2024, a group of around thirty women from The HUB, Bosco Institute, Baghchung, Jorhat, visited the ICFRE-Rain Forest Research Institute in Jorhat, Assam. These women were participating in a 17-day training program focused on "Livelihood and Enterprise Development Programme on Bamboo and Value-Added Products," funded by NABARD. Dr. Nitin Kulkarni, the Director of ICFRE-RFRI, encouraged them to collaborate in groups to generate sustainable livelihoods. emphasizing the importance of future partnerships with The HUB and the development of an Incubation Center that could benefit both institutions. Ms. Kabita Borchetia, an officer from The HUB, provided insights into the training program and the various activities conducted at The HUB. Shri R.K. Kalita, Head of the Extension Division, coordinated the visit and presented a short documentary on bamboo charcoal production and its diverse applications. The participants toured several facilities at the institute, including the Bamboo Nursery, Bambusetum, Bamboo Composite Centre, Bamboo Charcoal Making Unit, Bamboo Preservation Treatment Unit, and Bah Bithika.





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### **Recent Publications**





Kumar, A., Meena, D.K., Chaudhary, H.C. and Kulkarni, N. (2024). Rotation and Volume Estimation of Khasi Pine in Meghalaya Volume-I., Jointly published by ICFRE-RFRI, Jorhat and Forests and Environment Department, Meghalaya, ISBN : 978-81-978824-01, Vol-I, 56p.

# **Workshop Compendium**

Bhutia K.G. and Sharma, V. (2024). Workshop compendium on Quality Planting Material for promting agroforestry in Assam, ICFRE-Rain Forest Research Institute, Jorhat (Assam).

Borah, R.K. and Baruah, N. (2024). *Aquilaria malaccensis*, a Potential Agroforestry Species for Livelihood Greneration in North East India. Workshop compendium on quality planting material for promoting Agroforestry in Assam. ICFRE-RFRI, pp. 1-4.

Bordoloi, S. (2024). The Concept of Quality Planting Material and Its Significance in Forestry. Workshop compendium on quality planting material for promoting Agroforestry in Assam. ICFRE-RFRI, pp. 14-22.

Sharma, V. (2024). Basic concept of seed technology in relation to quality planting material. Workshop compendium on quality planting material for promoting Agroforestry in Assam. ICFRE-RFRI, pp. 23-30.

Bhutia, K.G. and Bhutia P.L. (2024). Concept of nursery techniques in context of quality planting materials. Workshop compendium on quality planting material for promoting Agroforestry in Assam. ICFRE-RFRI, pp. 37-42.



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### Abstracts

Chowdhury, S., and Borah, R.K. (2024). Mutualistic interaction between Aquilaria tree and microbe for the sustainable cultivation of agarwood. Published in the abstarct of the National seminar (NCBS-2024) on "Bioresource and Sustainablity: Current Trends and Future Prospects" held at University of Science and Technology, Meghalaya, organized by the Department of Applied Biology from 2nd to 3rd April, 2024,pp. 92.

### **Research Papers**

Karmakar, P., Das, D., Mishra, A., Bharadwaj, G. and Borah, C.(2024). Seasonal diversity and abundance distribution of butterflies in Dihing Patkai National Park, North East India. International Journal of Tropical Insect Science. https://doi.org/10.1007/s42690-024-01232-6.

Karmakar, P., Singh, M.K., Srikanth, P.S., Sha, John., Pamei, Thaithuilung. and Mishra, A. (2024). First Report of Poinciana Looper, *Pericyma cruegeri* (Butler) (Lepidoptera: Erebidae) Infestation on Tree Bean (*Perkia timoriana Merr.*) from Manipur, India. National Academy of Science Letters. 47, 293-296 (2024).

Gogoi, Girish., Das, D.J., Kumar, R., Medhi, A. (2024). Macrofungi diversity in a tropical wet evergreen forest of Eastern Himalayan foothills. A case study of DihingPatkai National Park, Assam, India. Emergent Life Science Research, 10(1): 104-122, https://doi.org/10.31783/elsr.2024.101104122.

Bhutia P.L., Bhutia K.G., Kawikhonliu Z, Singh N.R., Sarkar, P.K., Bhutia, T.L. and Kalita, H. (2024). Designing Agroforestry Models: A Step-by-Step Guide. Indian Farming Digest 3(2): 15-17.

Roy, A., Dutta, S. and Choudhury, M.R. (2024). Next- Geneartion Sequencing in the Development of Climate-Resilient and Stress- Responsive Crops- A Review. The Open Biotechnology Journal, 18(1).

### **Human Resource News**

Shri Manoranjan Das, undersecretary, retired from ICFRE-RFRI on 31st May, 2024







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