Report

on

National Outreach Workshop on

All India Coordinated Research Projects (AICRPs) and National-Forest Genetic Resources Programme

5th and 6th August, 2025

The ICFRE-Forest Research Institute (ICFRE-FRI), Dehradun, under the Indian Council of Forestry Research and Education (ICFRE), organized a National Outreach Workshop on All India Coordinated Research Projects (AICRP) and National-Forest Genetic Resources Programme on 5th and 6th August, 2025.

Day 1: 5th August, 2025

Inaugural session

The workshop commenced with a welcome address delivered by Dr. Renu Singh, IFS, Director, ICFRE-FRI. She welcomed the Chief Guest Dr. Samir Sinha, IFS, PCCF & HoFF, Uttarakhand, and Dr. Rajesh Sharma, DDG (Research), ICFRE along with all the participants of the workshop attending in offline as well as online mode. The event witnessed the participation of officers from various state forest departments, senior faculty members from various research and academic institutions, scientists, academicians and stakeholders, including technocrats and farmers, community members and industry representatives.

Dr. Renu Singh highlighted that All India Coordinated Research Projects (AICRPs) and Forest Genetic Resources Programme have made a significant progress, with five projects being successfully implemented by FRI. ICFRE-FRI has generated baseline data on fire-prone zones, and soil nutrient dynamics across 15 states representing five major climatic zones. Collaboration with IIT Roorkee and DRDO has led to the development tools and gear, extension materials on prevention of forest fire, in seven regional languages, alongside a short media film and podcast to disseminate key messages on forest fire awareness and management.

Efforts in seed health and quality improvement were emphasized, including protocols for seed testing, storage, and handling across 15 states, 7 forest types, and 78 species. Seed collection and

conservation strategies were developed for ecologically important species across arid, semi-arid, Himalayan, tropical, and rainforest regions to mitigate climate change impacts. These initiatives aim to bridge gaps among stakeholders and foster community-based conservation of genetic resources.

She also emphasised on bioprospecting of forest resources, lesser known timber species (LKTS), innovation, enrichment, capacity building, and sustainable utilization of bioresources. Conservation of germplasm resources, climate resilience, ecosystem sustainability, and livelihood generation were highlighted as critical themes.

Dr. Rajesh Sharma presented the scope of the workshop, emphasizing its objectives and expected outcomes. He discussed the CAMPA-funded scheme initiated in 2020, which has involved all ICFRE institutes and 70 non-ICFRE institutions. He shared key findings across 13 species-specific and 18 theme-based studies, underscoring the importance of forestry seeds, FGRs, and forest fire management. He emphasized that the insights and gaps identified must be shared with stakeholders and serve as a foundation for future ICFRE research.

The release of various extension materials developed under AICRPs and NFGR programmes marked a significant milestone of the event.

The inaugural address was delivered by Dr. Samir Sinha, PCCF and HoFF Uttrakhand, who provided valuable insights into policy integration and on-ground implementation strategies. He underlined the collaborative and holistic nature of forestry-based research covering themes such as forest fires, seed systems, soil health, bioprospecting, and genetic resources. Referring to forest fire as a "good tool but a bad master," he called for enhanced administrative, legal, and technical interventions to address fire and human-wildlife conflict. Traditional tools like 'Jhapa' must be reinvented using modern, sophisticated technologies, and protective equipment.

On the occasion of '*Harela'*, forest soil health cards were released for the first time in Uttrakhand by the effort of Forest Research Institute research team. He also stressed on the need to develop these forest soil cards up to Range level also. He also quoted the local wisdom: "*Kos kos pe pani badle, char kos pe vani*," reflecting the ecological diversity of India's forests. He stressed the importance of developing standardized protocols not just for India but for the broader Southeast Asian region, highlighting that the future lies not only in biodiversity but in the scientists, taxonomists, and geneticists who conserve it.

The next generation of researchers and forest practitioners must be nurtured through nature-based enterprises, capacity building, and effective knowledge transfer. He also noted the importance of story-telling in science communication and advocated for translating research into policy and community

action. Dr. Sinha congratulated all National Project Coordinators, Principal Investigators, Co-Investigators, project staff, and the CAMPA authorities for their commitment and contributions.

At the conclusion of the Inaugural session, a vote of thanks was proposed by Dr. Manisha Thapliyal, Scientist-G, Coordinator AICRP & NPFGR Workshop. A group photograph session was also held, followed by high tea.

Technical Session – I

The session was chaired by Dr. K. Ilango, IFS Chief Conservator of Forests, Meerut Zone, Uttar Pradesh SFD.

The first technical session commenced with a presentation on AICRP-10: Developing Seed Testing and Seed Storage Protocols of Selected Forestry Species from Diverse Forest Types, delivered by Dr. Manisha Thapliyal, Scientist-G and National Project Coordinator, ICFRE-FRI. Her presentation highlighted the scientific methodologies adopted for handling the seeds, to enhance the viability and longevity of forest seeds from various ecological zones. She also apprised the gathering about the extension material developed (more than 100 species brochures, flyers, technical manual, etc.) and 17 capacity building programmes on Quality seed production and nursery techniques for SFDs, nursery growers, SHGs, students, etc.

This was followed by a session on AICRP-22: Preparation of Forest Soil Health Cards under Different Forest Vegetation in All the Forest Divisions of India, led by Dr. V.P. Panwar, Scientist-F and NPC, ICFRE-FRI. He discussed in detail the preparation of soil health cards under different vegetation in all the forest divisions of India. He further emphasized on "*swasth dhara, khet hara*" and role of forest soil health cards on this aspect. He also discussed on soil fertility management constraints. Quantum of soil sample sampling in this project was more than 5 lakhs. He further discussed all methodology including field data sheet, GPS tools, etc. for achieving the results under this project (44,000 soil samples from 28 states).

Technical Session – II

The second technical session commenced with a presentation on AICRP-16: Bioprospecting for Industrial Utilization of Lesser Known Forest Plants, delivered by Dr. V.K. Varshney, Scientist-G and National Project Coordinator, ICFRE-FRI. The session focused on research aimed at exploring the industrial potential of underutilized forest species, particularly in sectors such as pharmaceuticals, cosmetics, perfumery, and other bio-based industries. A total of 50 Lesser Known Forest Plants (LKFPs) were identified and systematically documented. Population-wise mapping of these species was carried out, and samples were chemically characterized to screen for bioactive compounds and phytochemicals,

including essential oils, fatty oils, dyes, gums, resins, flavonoids, alkaloids, and others. These compounds demonstrated significant potential for use in aromatics, aesthetics, and various cosmetic formulations. Notably, the project led to the filing of 10 patent applications for functionally active compounds bio-prospected during the study, out of which one patent has been granted. The research outcomes also resulted in the publication of 18 research papers, 2 review articles, 4 book chapters, and 5 popular articles, highlighting the scientific depth and industrial relevance of the work.

After that a detailed presentation on the National Programme on Forest Genetic Resources was made by Dr. Santan Barthwal, Scientist-G and National Project Coordinator, ICFRE-FRI. He outlined the comprehensive strategies adopted for conserving genetic diversity in Indian forests, including the establishment of gene banks and field-level implementation measures. Under NFGR, key activities focused on the exploration, documentation, characterization, and conservation of 750 Forest Genetic Resources (FGRs). This involved population surveys, assessment of regeneration status, population structure analysis, and eco-distribution mapping. Conservation efforts also included the collection and storage of FGR seeds and germplasm, with seed samples deposited in the Seedbank of National Bureau of Plant Genetic Resources (ICAR-NBPGR). Further, the program undertook biochemical and molecular characterization of FGRs, along with reporting of diseases and insect-pests. Research was also conducted on species-specific nursery protocols, establishment of field gene banks, and enrichment of arboreta with diverse forestry tree species to ensure long-term *in situ* and *ex situ* conservation. A National Seed Research and Referral Centre has also been created at ICFRE-FRI.

Day 2: 6th August 2025

Technical Session – III

This session was chaired by Dr. Rajesh Sharma, Deputy Director General (Research), ICFRE.

The second day of the workshop commenced with an in-depth session on AICRP-14: Forest Fire Research and Knowledge Management, led by Smt. Richa Mishra, IFS, Head of the Silviculture & Forest Management Division and National Project Coordinator, ICFRE-FRI, Dehradun. She elaborated on integrated forest fire management strategies, emphasizing the role of early warning systems, fire ecology studies, and community-based fire preparedness. She highlighted the severe impact of forest fires in pine-dominated ecosystems, especially during the pre-monsoon and peak summer seasons, when high temperatures and dry litter increase fire susceptibility. Though ecosystems have a natural regenerative ability and often return to equilibrium post-fire, it is crucial to determine ecological threshold levels. Beyond this threshold, human intervention becomes essential to prevent irreversible damage. Hence, scientific assessment of fire regimes and intervention triggers are necessary for effective fire management.

In collaboration with the Defence Research and Development Organization (DRDO), advancements have been made in designing new forest fire equipment/s, safety tools, and protective gears. Smt. Mishra also discussed the development of extension materials, including brochures, pamphlets, and social media campaigns, to enhance public awareness and stakeholder outreach on forest fire.

Later on Prof. Inderdeep Singh from the Department of Design and the Department of Mechanical and Industrial Engineering, IIT Roorkee, also presented innovations in hand-held tools for forest fire fighting. These included:

- **Forest Fire Smothering Broom (*Jhappa*):** Asbestos-free Glass Fibre Reinforced Braided Ceramic Rope, known for its high flexibility, thermal resistance, high-temperature tolerance, and electrical non-conductivity, making it an excellent insulator in fire zones were used in designing *Jhappa*.
- **Forest Fire Rakes:**
    - Types: *Arrow-type*, *Nail-type*, and *Peg-tooth type*.
    - Fabrication involves high-carbon steel, an adjustable rod, and a V-spring clip to enhance efficiency in fire line creation and litter clearing.
- **Fire Sickle:** Specifically designed for surface fire suppression, the blade is manufactured using high-carbon steel (AISI 1080), with handles crafted from wood and aluminium rivets for durability and ergonomic use.

Further, on fire safety gears, Dr. Alips Srivastava from the Centre for Fire, Explosive and Environmental Safety (CFEES, DRDO), New Delhi, elaborately discussed hazards encountered at fire grounds or emergency scenes. She provided insights into the standard components of structural fire protective gears, which include:

- Coats and trousers
- Helmets and protective hoods
- Eye and hearing protection
- Gloves and boots
- Station work uniforms
- Self-Contained Breathing Apparatus (SCBA)
- Personal Alert Safety Systems (PASS)

These innovations and safety measures aim to enhance the capability of forest fire response teams while ensuring maximum safety for frontline workers and improved fire mitigation efficiency.

In the closing session, the way forward was presented by Dr. Rajesh Sharma, DDG (Research), ICFRE, outlining future directions and collaborative research goals. Concluding remarks were given by Dr. Renu Singh, IFS, Director, ICFRE-FRI, emphasizing the need for continued research and stakeholder's engagement together for the better tomorrow. The workshop concluded with a vote of thanks to the gathering, proposed by Dr. V.K. Varshney, Scientist-G, ICFRE-FRI.

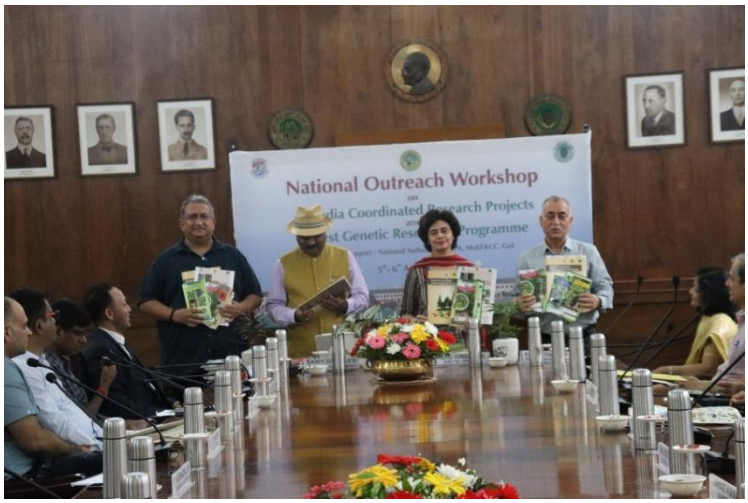
Some Glimpses of the National Outreach Workshop

Welcome address by Dr. Renu Singh, IFS, Director, ICFRE-FRI

Inaugural address by the Chief Guest Dr. Samir Sinha, IFS, PCCF and HoFF, Uttarakhand

Presenting mementoes to the dignitaries during inaugural session

Gathering at the National workshop



Releasing of extension materials of AICRPs and NPFGR during inaugural session by Chief guest, Director ICFRE-FRI, DDG (Research) and NPCs.

Vote of thanks by Dr. Manisha Thapliyal, Scientist-G, Coordinator AICRP & NPFGR Workshop

Group photograph of the participants of the National workshop

Presentation on AICRP 10 by Dr. Manisha Thapliyal, Scientist-G, NPC

Presentation on AICRP- 22 by Dr. V.P. Panwar, Scientist-F, NPC

Presentation on AICRP 16 delivered by Dr. V.K. Varshney Scientist-G, NPC

Presentation on National Programme on FGRs by Dr. Santan Barthwal, Scientist-G, NPC

Presentation on AICRP-14 by Smt. Richa Misra, NPC and other collaborators

Thoughts on Way Forward by Dr. Rajesh Sharma DDG (R) ICFRE

Concluding remarks by Dr. Renu Singh, IFS, Director, ICFRE-FRI

Vote of thanks by Dr. V.K. Varshney, Scientist G, ICFRE-FRI