क्षेत्रीय अनुसंधान सम्मेलन–2024
REGIONAL RESEARCH CONFERENCE [RRC]-2024

"कीटों और बीमारियों के विरूद्ध वन प्रबंधन के लिए एकीकृत दृष्टिकोणः चुनौतियां एवं समाधान रणनीतियां"

"Integrated Approaches for Managing Forests against Emerging Threats of Insect Pests and Diseases: Challenges and Solution Strategies"

भा.वा.अ.शि.प.-हिमालयन वन अनुसंधान संस्थान, शिमला (हाईब्रिड मोड़)

Venue: ICFRE-HFRI, Shimla (Hybrid mode)

शुक्रवार, 9 अगस्त, 2024 (प्रातः 09:30 बजे से)

Friday, 9th August, 2024 (09:30AM Onwards)

ICFRE-Himalayan Forest Research Institute (HFRI), Shimla in collaboration with ICFRE-Forest Research Institute (FRI), Dehradun organized one day **"Regional Research Conference"** through hybrid mode (Online/Offline) on **9th August, 2024** on the theme **"Integrated Approaches for Managing Forests against Emerging Threats of Insect Pests and Diseases: Challenges and Solution Strategies".**

The conference comprised an inaugural session with two technical sessions, followed by brainstorming and chalking out the research agenda on the theme of the conference. The PCCFs of the Northern States/UTs, different stakeholders involving State Forest Departments of Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Uttarakhand and Union Territories of Jammu & Kashmir, Ladakh, Chandigarh, Delhi, State/UT Forestry and other Universities, Central and State Govt. Organizations, Non-governmental organizations and representatives of local Panchayat, etc., participated in the conference. The main objective of this conference is to discuss and identify the research needs and solution stretegies on the regional basis so that new proposals can be formulated on the priority theme suggested by the stakeholders.

At the outset, **Dr. Sandeep Sharma, Director (In-charge) ICFRE-HFRI,** extended a warm welcome to **Sh. Jagdish Chander, IFS, PCCF-cum-MD, HFDC**, **Haryana** and all dignitaries of Forest department of 5 States Himachal Pradesh, Punjab, Haryana, Uttarakhand and Uttar Pradesh and 4 UTs i.e Jammu and Kashmir; Ladakh, Chandigarh and Delhi and other participants, who attended workshop online as well as offline. He touched upon the forestry research needs of state forest departments and other stakeholders. He asserted that the recommendations emerging from the discussion in this conference will prove helpful in making new projects. He said that the problem of pests is increasing due to climate change. Therefore, more research is needed on their control measures. It is very important to reduce the damage caused by insects in forests, in this context this conference is being organized.

Chief Guest, Shri Jagdish Chander, IFS Principal Chief Conservator cum Managing Director, Haryana Forest Development Corporation spoke about the challenges and solution strategies of integrated approach to forest management against emerging threats of pests and diseases by forest departments of Northern States and Union Territories. He explained about the importance of insects, pests, mites, mycoplasma etc. and the possibilities of their diagnoses. He said that forest pests should be managed by adopting integrated pest management measures and it is very important to give priority to pest control through biological methods as much as possible so that the environment and ecology can be protected.

Dr. Rajesh Sharma, Deputy Director General, Research, ICFRE, Dehradun emphasized to undertake collaborative projects with sister institutes under NIRANTAR vertical and propose project by keeping in mind the national and international commitments.

Dr. S.P. Bahrdwaj, Retd. Prof. UHF Nauni elaborated up on the ecologically and economically important insect-pests. He also suggested using the modern tools and technologies for the early and prompt detection of the insect-pest and disease incidences. He was of opinion that the field functionaries and native peoples should be sensitized and trained for effective and wise use of recommended pesticides.

The inaugural session ended with vote of thanks by **Dr. Ashwani Tapwal, Scientist-F, ICFRE-HFRI.**

Technical Session I: "Integrated Approaches for Managing Forest against Emerging Threats of Insect Pests and Diseases: Challenges and Solution Strategies" of the Northern States and UTs Forest Departments

The session was chaired by **Sh. Jagdish Chander, IFS, PCCF & MD HFDC, Haryana** and 8 presentations were given by the representatives from different State/UT Forest Departments and Universities. **Sh. Jagdish Chander** in his initial remarks highlighted the importance of the RRC 2024 and stressed upon the emerging diseases in NW Himalayan region due to changing climate scenario. He was of the opinion that more research efforts are required in the filed of pest control of wood and wood products, weeds, problems caused by phytoplasma, viruses etc. He also suggested that the researchers should recommend the insecticide/ pesticide/ fungicide/ weedicide after reviewing safety concerns of human and wildlife and he also emphasized on ecofriendly management of insect-pests and diseases.

Dr. N.K. Upreti, Scientist-G and GCR, ICFRE-FRI Dehradun presented the overview of FRI, ongoing research, education and extension activities. He has also elaborated upon the technologies, products and facilities developed and various services provided by FRI Dehradun.

Dr. A.P. Singh, Scientist-G and Head Forest Protection Division, ICFRE-FRI Dehradun presented the current initiatives, ongoing research and future prospects in respect to the entomological work of the institute. He highlighted that the FRI has developed the online portal of insect database, database of oak pests of western Himalaya and mobile app on Poplar insect-pests, which are freely available to the stakeholders. He has also shared the success story on management of gall insect of Eucalyptus in Punjab by using biocontrol agents.

Dr. Vipin Parkash, Scientist-F, Forest Protection Division, ICFRE-FRI Dehradun shared that *Rhizobium* sp. Which was isolated from Khair was successfully utilized for cultivating Shisham. He also told that fungal endophytes isolated from the roots of *Angelica glauca* were successfully utilized in the production of secondary metabolites of *A. glauca.* He elaborated the research being carried on the management of *Pinus wallichiana* mortality in Nanda Devi Biosphere Reserve, Uttarakhand, Shisham mortality in Gangetic plains.

Sh. T.C. Nautiyal, IFS CCF, Chandigarh highlighted the problems of urban setups, including stem rots, tree drying and he also requested to suggest strategies for urban greening and healthy environment.

Dr. Pushpendra Rana, IFS APCCF (Management) HPFD discussed the needs of HP forest department. He flagged the following issues:

- Silvicultural plan and canopy management for removal of old Deodar trees and natural regeneration in urban forest areas and long term monitoring of climate change on vegetation composition and diversity.
- Control measures for the invasive alien species like *Eupatorium* and *Ageratum* etc.
- Rejuvenation of hills lacking vegetation and develop improved technologies for the soil moisture conservation and ecological restoration.
- Use of advanced technologies for the detection of insect-pest and diseases, and fire incidences in the forests
- Mechanism to measure ecosystem services like clean air, water flow and forest accounting and economics protocols, etc.

Sh. Satnam Singh, IFS Conservator of Forest (Research and Training) Punjab Forest Department, highlighted the problem of defoliation of Poplar and drying of Neem, Khair, Eucalyptus and Alstonia in Punjab areas. He also requested to initiate the research on development of plantation technology for the saline soil of Punjab.

Dr. Harpreet Kaur, DFO (Research), Forest Research Institute, Jammu & Kashmir UT highlighted that forest survey are required to study the insect-pests and diseases in landscape level, excluding the state boundaries. She enquired about the use of insect data base developed by FRI Dehradun in the identification of nursery insect-pests. She stressed upon the application

of advance tools like remote sensing and drone technologies in the assessment of insect-pest and disease incidences.

Sh. Satbir Singh, DFO, Haryana Forest Department, highlighted the insect-pest and diseases of Haryana including gall of Eucalyptus and Arjun, defoliation and heartwood rot of Poplar, blotch of *Pongamia*, Shisham mortality, phytoplasma invasion on toon, khair, bamboo.

Dr. Sandeep Sharma, Scientist G and Director HFRI Shimla presented the overview of research and extension activities of the institute. He has also highlighted the varieties of medicinal plants released and the biopesticide/ biofertilizer products developed by the institute.

Dr. Pawan Kumar, Scientist F, HFRI Shimla highlighted the insect-pest problems of NW Himalaya and management strategies developed by the institute. He has also discussed the insect-pest and disease queries raised by the forest department of Himachal Pradesh, Jammu & Kashmir and Ladakh and subsequent solution strategies suggested.

Technical Session 2: "Integrated Approaches for Managing Forest against Emerging Threats of Insect Pests and Diseases: Challenges and Solution Strategies" of the States/UTs Forest Departments and Universities

The **second session** of the **Regional Research Conference** organized by ICFRE-HFRI, Shimla covered 8 lectures by the representatives from different State/UT Forest Departments, Universities and forestry based industry. This session was chaired by **Dr. S.P. Bhardwaj, Prof. (Retd.) UHF, Nauni, Solan, Himachal Pradesh** and after his initial remarks session was initiated with the lecture of **Dr. Sanjeev Chaturvedi, IFS, CCF (Research) Uttarakhand** in which he informed about various Initiatives of State Forest Department related to vegetation conservation, research, demonstration and tourism. He discussed the establishment of several specialized gardens in Uttarakhand, including the Moss Garden, Lichen Garden, Cryptogenic Garden, Ficus Garden, High Altitude Herbal Garden, and Pollinator Park. These gardens aim to conserve various plant groups and species while also demonstrating their ecosystem services and ecological roles to visitors, including students and tourists. Additionally, he mentioned that the State Forest Department has developed various vatikas (themed gardens) based on plant species referenced in religious scriptures. For example, the Ramayan Vatika features diverse forest types mentioned in the Valmiki Ramayana, showcasing around 139 plant species that were part of Lord Rama's journey. Similarly, Mahabharat Vatika, Budha Vatika and Bharat vatika have been developed in the state of Uttarakhand. At the end he also discussed about various Miyawaki plantation activities carried out by the state.

The second lecture was delivered by **Dr. S.K. Chauhan, Director (Research) University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh**. He provided an overview of the University's structure and its extensive work in various aspects of forestry, with a particular emphasis on the importance and need for agroforestry in India. Dr. Chauhan highlighted the key research areas of his University, including agroforestry, ecosystem restoration, water management, insect pests and disease control, invasive weeds, forest fire management, and the development of quality planting stocks. He also underscored the critical need for researchers to engage in these sectors to address the emerging challenges in forestry. He was highly concerned about the increasing incidences of land slide, soil erosion and emerging problems of insect pest. Suggested to develop biological control majors to control the forestry insect pests and avoid monoculture practices. He also emphasized on digitization of data, need to assess the impact of forest fire on soil moisture content and ground water status and development of cultivation practices for RET species including *Pinus gerardiana* and Junipers.

Third lecture was of **Dr. Deepika Shandil, Scientist, Entomology, UHF, Solan, Himachal Pradesh** in which she highlighted the problem of insect pest outbreak due to climate change and issues associated with the use of chemical insecticides. She informed that even 1°C change in temperature leads to shortening in life cycles and increase in number of generation. She discussed briefly about various elements of Integrated Pest Management and their potential applications in agriculture and forestry as well.

Dr. Sandeep Sehgal, Associate Professor, SKUAST, Jammu presented about Forestry research Initiatives and needs in the University. He informed about the mandates of the University and pointed out the flagship areas of research viz., Evaluation of short rotation trees, tree crop intercropping in agroforestry, Standardization of sexual and asexual reproduction in forestry species etc. He discussed about the various activities carried out on improvement of *Terminalia chebula* and Poplars and promotion of agroforestry systems in Jammu.

Dr. S.A. Gangoo, Dean, College of Forestry, SKUAST, Kashmir informed the gathering about various forestry research activities and initiatives in the university. He briefly informed about the germplasm bank of important medicinal plants, Rose garden, forest cooperatives and Nursery of *Salix alba* established by the University for demonstration and practical training of farmers and various research activities including evaluation of apricot based agroforestry and

GIS mapping. He pointed out the problems of insect pest and threats to the forestry species in the Kashmir region such as the problem of Chir Pine defoliator, Deodar defoliator, Chilgoza cone borer, Poplar defoliator, Forest tent defoliator and Nematode attack on Pinaceae family. He stressed on the use of mechanical and physical methods of pest management instead of using chemical pesticides.

Dr. R.S. Minhas, Director, HIMORD, Rampur, Shimla, highlighted the needs and challenges in forestry research within tribal areas in his talk. He expressed concern about the root knot diseases caused by nematodes, which significantly affect apple orchards and forestry species in these regions. Many farmers, unaware of the actual cause, resort to using pesticides, which exacerbates the problem, leading to increased crop damage and loss. Dr. Minhas voiced his deep concern over the indiscriminate use of pesticides and their hazardous impact on human health, drawing attention to the infamous pesticide tragedy in Kasargod, Kerala, as a cautionary example. He advocated for the promotion of traditional crops, including millets, in tribal areas as a sustainable alternative.

Ms. Anuradha Vemuri, IFS, PCCF (RT), SFD, Uttar Pradesh showed her concern about the invasive weeds. She enquired about the suitable technique of Lantana eradication from forests. PCCF Hariyana replied that the Lantana was introduced in India about 170 to 180 years back as an ornamental plant and now it has become an invasive weed. Its complete removal may leads to the problem of soil erosion and it has become a habitat for butter flies birds and my other species. However it can be controlled by uprooting in patches and exposed areas should be immediately planted by the native species.

Sh. Sudhir Sood, Proprietor (Resin and Turpentine Industries), Solan, H.P. shared insights about his company's operations, which focus on the extraction of turpentine and rosins from pine resins. These products are supplied to manufacturers in various sectors, including soap, paint, adhesive, perfume, beverages, and medicine, both in India and abroad. Mr. Sood highlighted that the turpentine and rosin yields from pines in Indonesia, Malaysia, and Brazil are significantly higher compared to those from Indian pines. He emphasized the need to introduce and improve pine species in India to enhance resin yield. Additionally, he pointed out that forest fires pose a significant threat, leading to reduction in both the quantity and quality of resin produced.

Recommendations:

The Chair of the session commended the presentation and the valuable suggestions provided. The following research priorities were recommended:

- Emphasize the need for studies on mites, which are ubiquitous and have the potential to become serious pests in the future.
- Encourage the adoption of mixed cropping systems over monoculture to enhance crop resilience and biodiversity.
- Focus on the selection and development of pest-resistant varieties of key plant species for sustainable propagation.
- Implement strategies for early detection of insect-pests attack and establish periodic monitoring systems to prevent large-scale problems.
- Advocate for the sharing of collected materials to support collective research efforts and maximize resources.
- Prioritize the development and promotion of bio-pesticides as safer alternatives to chemical control methods.
- Recommend the use of chemical pesticides only in cases of extreme necessity to minimize environmental impact.

GLIMPSES OF REGIONAL RESEARCH CONFERENCE-2024


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Sh. Kuldeep Sharma, IFS


Pushpendra Rana, IFS


Ms. Anita Bhardwaj, HPF
DFO, HPSFD
Ms. Deep Shikha, IFS
DCF-ICFRE-HFRI, Shimla


Dr Syed Tariq (JKFRI)
ICFRE- TFRI Jabalpur
CCF, UT Chandigarh
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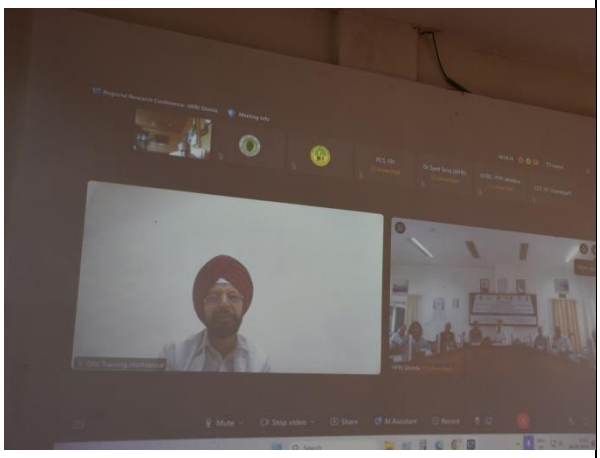
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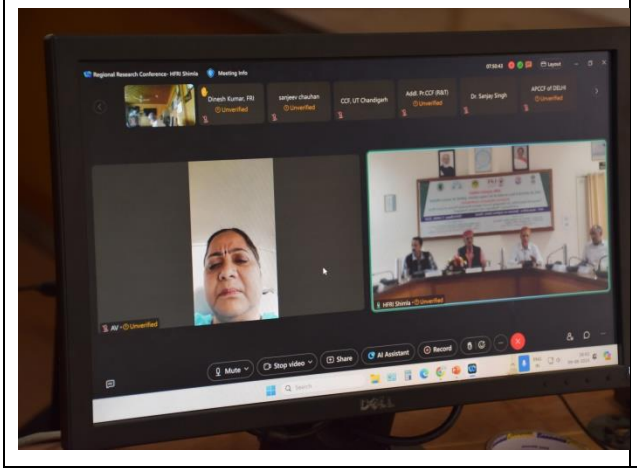
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Meeting Info
Dinesh Kumar, FRI
sanjeev chauhan
CCF, UT Chandigarh
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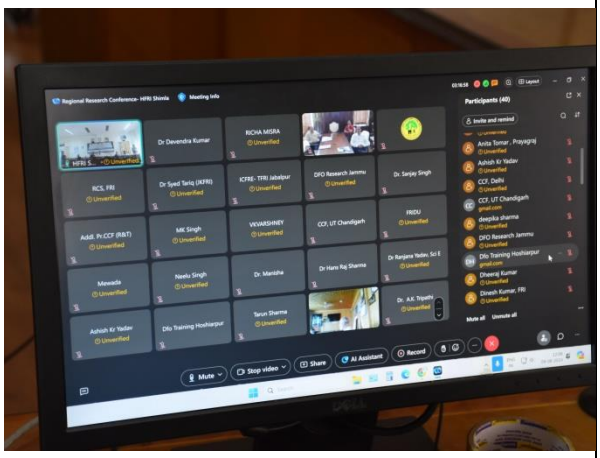
sanjeev chauhan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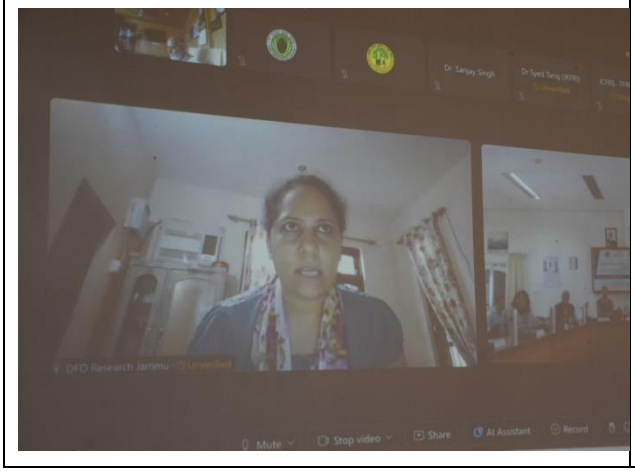
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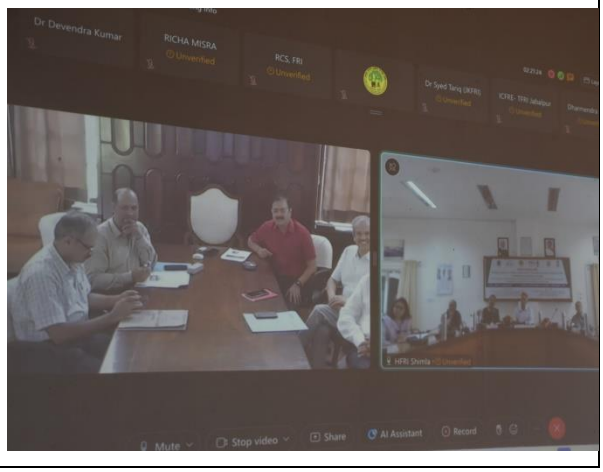
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