PROCEEDINGS OF THE INSTITUTE LEVEL MONTHLY SEMINAR HELD ON 29.03.2019 IN THE CONFERENCE HALL OF HIMALAYAN FOREST RESEARCH INSTITUTE, SHIMLA

In the series of monthly seminar, a talk on **"Biological Control of Insect-Pests in Forestry and Roadmap for Capacity Building of Stakeholders"** under the thrust area **"Managing forests and forest products for livelihood support and economic growth"** was delivered by **Sh. Subhash Chander**, Scientist-D, Forest Protection Division on **29th March, 2019.** All the scientists, forest officers, researchers and technical staff were present during this seminar.

Dr. V.P. Tewari, Director, HFRI chaired the proceedings of monthly research seminar. **Dr. Rajesh Sharma**, Group Coordinator Research (GCR) welcomed the Director, HFRI and all the participant and highlighted the importance of biological control for eco-friendly management of insect-pest incidences in the forests. He briefed about the seminar topic and requested all, to actively participate in the discussion and give valuable suggestions.

In his presentation, **Sh. Subhash Chander**, Scientist-D touched various issues on Biological control and highlighted the benefits of biological control for the management of insect pests over chemical control. He emphasized on the need for the conservation of natural enemies/predators of insect pests, because excessive use of chemical pesticides for the control of hazardous insect pests also kills the natural enemies/ predators of insect-pests.

Sh. Chander elaborated upon the rearing techniques of *Trichogramma* sp. which is the parasitoid on most of the lepidopteron eggs. He further added that *Trichogramma* sp. infests into the egg and kill the insect pest before emergence. He explained the mass multiplication of two natural enemies/ predators- *Canthecona furcellata* and *Chrysoperila carnea* under the laboratory conditions and demonstrated the trio cards and their application in insect pest infected forests. He also highlighted the precautions that should be taken during the mass multiplication

of parasitoids and natural predators in the laboratory. The presenter also discussed about the research efforts made by HFRI in the field of biological control of insect pests.

Sh. Chander concluded his talk with emphasis on research needs in the field of insect pest management with the help of biological control and further stressed that the institute can collaborate with other research organizations for better, effective and eco- friendly management of insect pests.

During the discussion, **Dr. V.P. Tewari**, **Director, HFRI** queried about the work done in the field of biological control of insect pest. **Sh. Subhash Chander** responded by mentioning the work of TFRI-Jabalpur, they standardized the technique of mass multiplication and field application this parasitoid. Further, Director, HFRI advised that we should first work on the identification and classification of various insect pest species of Himachal Pradesh and J&K and should make their database. He was also of the opinion that only after proper identification and classification of the insect pest and predators, the suitable strategy for biological controls can be standardized.

Sh. Dinesh Paul, DCF suggested for developing a field manual on identification and management of common pest and disease of forestry species for the field functionaries of SFD.

Dr. Ashwani Tapwal, Scientist-E in response, said that ICFRE, Dehradun is currently working on this aspect and preparing a field manual of insect pests and diseases of forestry species, which will be quite helpful for field functionaries of SFD.

Outcome of the seminar:

A]. Identification of research needs:

1. Identification of economically important insect pests of Himalayan region.
2. Identification and screening of natural predators and parasitoids of insect pests to develop effective management strategies.
3. Prioritization of species specific IPM techniques on insect pest management and further efforts in direction to improve the techniques
4. Standardization of mass multiplication techniques of important bio-control agents for field application.

B]. Formulation of future strategies/ road map: Based on the deliberation of the seminar, the institute can formulate projects on following:

1. Identification of important insect pests of forestry species in Himachal Pradesh and J&K.
2. Screening of natural predators and parasitoids against key insect pests.
3. Development of IPM model for the management of economically important insect pests

C]. Networking research options identified: State Forest Department, HP University. UHF, Nauni and HIMCOSTE.

D]. Future research directions discussed for implementation and opportunities for funding: With collaboration of the identified agencies, like the Ministry of Environment, Forest and Climate Change, Govt. of India, New Delhi and GB Pant National Institute of Himalayan Environment and Sustainable Development- Almora (UK), the institute can come with a project for eco friendly management of various insect pests of forestry in Himachal Pradesh.

In the end, **Dr. Rajesh Sharma GCR** thanked **Dr. V.P. Tewari**, Director, HFRI and Chairman of the seminar, the presenters and all the researchers present for giving their inputs for making it successful.

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