

PROCEEDINGS OF THE INSTITUTE LEVEL SEMINAR OF HIMALAYAN FOREST RESEARCH INSTITUTE, SHIMLA HELD ON 03.11.2020

Monthly seminar on the topic “**Application of Modern Nursery Techniques in Forestry for Production of Quality Planting Stock and Enhancement of Field Survival in North-Western Himalaya**” under the theme “*Managing Forests and Forests Products for Livelihood Support and Economic Growth*” was presented by **Shri Jawala Prashad, Technical Officer**, Silviculture and Forest Management Division on 3th November, 2020. All the Scientists, Forest Officers, Technical Officers and Technical/ Research staff were present in the conference hall and other staff of the institute joined through Google Meet.

The seminar was chaired by **Dr. S. S. Samant, Director, HFRI, Shimla**. **Dr. Rajesh Sharma, Group Coordinator Research** welcomed all the participants and apprised about the overview of the topic and requested for active participation in the discussion and suggestions.

The presenter elaborated upon the need and background of the topic and explained present scenario of tree seedling production worldwide. He deliberated upon forest nursery and its significance, types of nursery and its advantages and disadvantages, nursery maintenance and culling procedure, Model Forest nursery, its characteristics and facilities required, types of model nurseries on the basis of planting material and method of production i.e., Model nursery for bared-root plants and containerized plants. The presenter also discussed containerized seedling production systems i.e. Conventional Polybag Production System and Root-trainer Production System and their advantages and disadvantages. He explained various types of Polyhouse and low cost Polyhouse, Polyhut and Poly globule and also provided information about Quality Planting Stock (QPM) and pre-requisite, for morphological and physiological parameters of Quality Planting Stock and seedling quality indices. Sh. Prasad discussed Model Nursery for Plants Produced through Vegetative Propagation and seed and also presented HFRI’ work on nursery techniques of important tree species i.e. conifer and broadleaves species of the North-Western Himalayan region.

Following points were highlighted for future research studies:

- Nursery techniques of important species viz., *Betula utilis*, *Rhododendron* spp., *Juniperus* spp. and lesser known but important forestry species need to be developed and quality parameters need to be standardised.
- Nursery techniques of important wild edible species viz., *Sorbus lanata*, *Malus baccata*, *Hippophae tibetana*, *Ribes*, etc., needs to be developed.
- Standardization of Nursery Techniques of important species of the rare and endangered medicinal plants of NW Himalayas viz., Ashtavarga group.
- Establishment of germplasm/ Field Gene Bank in nearby area to conserve the germplasm of threatened and genetically superior individuals.
- Identification of superior seed sources of important forestry species on priority basis.
- Reduction in nursery period of important conifers having long gestation period (Juniper, Deodar, Chilgoza, Spruce, Fir,) for future research needs.

Dr. S. S. Samant, Director, appreciated the efforts of the presenter on providing detailed information about modern nursery techniques in raising Quality Planting Material which will help in achieving better survival in the field. He also emphasized the need of advance technological intervention in ensuring healthy and vigorous seedlings in the nursery so that target of afforestation programme can be achieved successfully. He also interacted with the research scholars and replied their queries on nursery management and Polyhouse techniques.

Ms. Monika Chauhan, Junior Project Fellow inquired about the role of model forest nursery and its benefits in the production of QPM and ensuring better survival in the field conditions. Ms. Anu Rani Sharma, Project Assistant sought information about basic requirement after seedlings transfer to field for out plating. Ms. Kamakshi, Junior Project Fellow enquired about the risks and challenges associated with adoption of polyhouse techniques in farming and nursery practices. Sh. Ajay Katoch, JRF suggested for construction of glasshouse near the HFRI campus and solar sterilization of the soil in the nursery beds. Ms. Savita Kumari Banyal, CTO enquired about certification protocol if developed for defining Quality Planting Material (QPM). Sh. Vinod kumar, CTO opined that Polyhouse technique is beneficial only for the degraded, barren land and is helpful in management of extreme weather conditions with poor soil fertility and least required for hilly and fertile land.

The presenter responded to the queries of participants and **Dr Sandeep Sharma, Scientist-G & Head** provided in-depth information about the various topics of modern nursery techniques application *viz.*, nursery and Polyhouse techniques through his vast research experience and subject expertise in the related field. He provided detailed information about various topics *viz.*, risks in Polyhouse techniques, nursery soil treatment, auto solar sterilization, pit digging, certification of Quality Planting Material and categorization of nursery stock before dispatch from nursery for better field survival etc.

Outcomes of the seminar were as follow:

- A. Identification of research needs:** The deliberation and discussion on the topic agreed that in future research must revolve around;
- Application of advance nursery technologies in raising quality planting stock of important forestry species will play significant role for ensuring better survival in field and early establishment
 - Identification of gaps in conventional practices in forest nurseries to be done on priority basis for modernizing various practices
 - Up scaling and strengthening of existing forest nurseries with modern technologies/infrastructure facility
 - Quality parameters/indices should be applied before out planting for grading the stock for higher success of plantation programmes.
- B.** Each nursery should be well equipped to meet out the production targets of QPM of desired species
- C.** Formulation of future strategies/ road map: It was decided that the institute needs to work on following topics:
- Modern technology i.e. Application of bio-technology tools for raising the quality planting stock should be adopted.
 - Collaborative studies with other research organizations and university for development of nursery techniques of important forestry species of the region.
 - Packages of nursery practices of important forestry species of the North-Western Himalayan regions should be developed.
 - Nursery techniques of lesser known but important forestry species of Himalayan region need to be developed and quality parameters need to be standardised as per the requirement of SFD's.
 - Projects will be formulated to standardize Nursery techniques of important wild edible species.
 - Efforts will be initiated for standardization of Nursery Techniques of important species of the rare and endangered medicinal plants of NW

Himalayas for initiating their commercial cultivation.

- . Projects should be formulated to reduce the nursery period of important conifers having long gestation period (Juniper, Deodar, Chilgoza, Spruce, Fir,) with all desirable in the stock.

D. Networking research options identified:

SFD, HIMCOSTE, GBPNIHESD, SKUAST, NBPGR, CSK HPKV, IHBT, SFRI, YSPUHF, and HPU

D: Future research directions discussed for implementation and opportunities for funding:

In collaboration with the aforesaid agencies and primarily State forest Department, the Institute can make endeavor by formulating projects on “**Standardization of Nursery-Techniques of selected important species of the rare and endangered medicinal plants of NW Himalayas viz., Ashtavarga and Dashmool group**” and ecologically important temperate and cold desert forestry species.

In the end, **Dr. Rajesh Sharma GCR** thanked Dr. S.S. Samant, Director HFRI and Chairman, the Presenter, Forest Officers, Scientists, Technical Officers & staff and all the researchers for their active participation and inputs for making the seminar successful.

Glimpses of Seminar


