

## Seven days training on “Nursery Technology” held from January 18-24, 2023 under NAHEP- IDP Programme at CCSHAU College of Agriculture, Bawal

A seven-days practical training programme on “Nursery Technology” was organized at CCS Haryana Agricultural University College of Agriculture, Bawal under NAHEP-IDP Scheme from 18<sup>th</sup> January to 24<sup>th</sup> January, 2023. The training was provided to UG students of CCS HAU, Hisar to update practical knowledge, startup ideas and business in nursery raising of fruits, ornamental and forest plants. The selection of participants was made on the basis of request invited through Google form and selection priority was given to final year students followed by the rest of students. Twenty-five participants were selected for this training.



The trainees were trained for propagation and multiplication of plants using different propagation methods. The propagation methods include sexual (by seeds) and asexual methods viz., budding, grafting, layering, cutting, inarching and specialized plant parts used for multiplication are bulb, corm, rhizome, sucker, runner, tuber etc. were practiced by participants for depth knowledge of technical know-how and their cost analysis. Various experienced speakers were invited from reputed universities and institutes who trained the trainees on various aspects and taught different multiplication methods.

**18.01.2023**

### **1<sup>st</sup>Session - Inaugural Session - Dr. Naresh Kaushik and Dr. R.K. Sharma**

This Training was inaugurated by Dr. Naresh Kaushik and Dr. R.K. Sharma. Participants were welcomed by Principal with some motivational & knowledgeable words. He advised students to

participate actively and regularly in all the training activities/ sessions. The Teaching staff of COA, RRS and KVK Bawal also attended the inaugural session.

**2<sup>nd</sup> Session: Vegetative propagation of tropical and sub -tropical fruit plant- Dr. R.K. Sharma**

This lecture was delivered by Dr. R.K. Sharma, Rtd. Professor Department of Horticulture, CCS HAU, Hisar. He discussed about different sexual as well as asexual methods of propagation. The vegetative propagation methods such as grafting, layering, budding, cutting and specialized plants parts used for propagation are runners, rhizome, tuber, bulb, corm, suckers etc. were discussed thoroughly with suitable example of different plants.

**3<sup>rd</sup> Session: Importance and management of rootstocks for tropical and subtropical fruit plants - Dr. R.K. Sharma**

This lecture was delivered by Dr. R.K. Sharma, Rtd. Professor Department of Horticulture, CCS HAU, Hisar. He told about various rootstocks used in different fruit crops. He also discussed about the importance of rootstocks, compatibility of rootstocks, management practices, raising techniques of rootstocks.

**19.01.2023**

**1<sup>st</sup> Session: Method of multiplication of forest plants - Dr. K S Bangarwa**

This lecture was delivered by Dr. K S Bangarwa, Rtd. HOD Department of Forestry, CCS HAU, Hisar. He told about method of multiplication of different forestry trees species especially eucalyptus, poplar and other commercial important forest species. He also described about management of forest nurseries.

**2<sup>nd</sup> Session: Sexual propagation methods- Dr. K S Bangarwa**

This lecture was delivered by Dr. K S Bangarwa, Rtd. HOD Department of Forestry, CCS HAU, Hisar. He told about the propagation of forest trees by seed, importance of sexual method in nursery raising and its necessity present scenario. He also discussed about scarification and seed treatment methods for better germination and growth of seedlings.

### **3<sup>rd</sup> Session: Importance and scope of Nursery - Dr. S.K. Bhatia**

This knowledgeable lecture was delivered by Dr. S.K. Bhatia, Rtd. HOD Department of Horticulture, CCS HAU, Hisar. He told about techniques of raising fruit nursery, their importance in healthy plant production. He also told about popular varieties of different fruit crop especially citrus, mango, ber, guava and many more. He also discussed about various plant propagation techniques, propagation structure, soil less media and routine operations in nursery etc.

### **4<sup>th</sup> Session: Entrepreneurship Development in fruit nursery - Dr. S.K. Bhatia**

This lecture was delivered by Dr. S.K. Bhatia, Rtd. HOD Department of Horticulture, CCS HAU, Hisar. He told about improvement in quality and demand of quality planting material for commercial as well as home scale requirement. He also discussed about profitability of nursery raising business and basic requirements for nursery, cost of production, expenditure and net benefit in nursery raising business.

**20.01.2023**

### **1<sup>st</sup> Session: Exposure visit and method demonstration of fruit nursery IARI, New Delhi - Dr. Jai Parkash**

This exposure visit was arranged by Dr. Mukesh Kumar at IARI, New Delhi. At IARI, exposure visit, fruit plants nursery was conducted and Dr. Jai Parkash (Principal Scientist, Department of Fruit Science, IARI, New Delhi) demonstrated different propagation methods. He told about propagation of grapes and mango. He also showed practical work of propagation by cutting, methods of raising cuttings, treatment of cuttings with hormones and sterilization of nursery beds.

### **2<sup>nd</sup> Session: Exposure visit, Hi-tech nursery raising techniques- Dr. Avni Kumar Singh**

In this visit at IARI (New Delhi), Dr. Avni Kumar Singh, Principal Scientist at Centre for Protected cultivation Technology described about the hi-tech nursery raising methods and precautions while raising nursery under protected structures. The nursery raising of tomato,

Brinjal and capsicum etc. was described in details. He also showed different protected structures such as polyhouse, net houses, greenhouses, hydroponics and aeroponics.

### **3<sup>rd</sup> Session: Exposure visit and method demonstration and major operations in ornamental nursery- Dr. Satbir Singh Bhatotia**

This nursery was managed by Dr. Satbir Singh Bhatotia, Managing Director Taruvar Nursery, Ishaki, Gurugram. Participants visited his nursery during evening hours. He showed different ornamental plants which include cactus, kalpvriksh, Bryophyllum and some medicinal plants. He told about importance of ornamental plants and various operations performed in ornamental nursery. Students also got an exposure about raising of bonsai plants at his nursery.

### **4<sup>th</sup> Session: Keys for successful nursery production - Dr. Satbir Singh Bhatotia**

This lecture was delivered by Dr. S.S Bhatotia, Managing Director Taruvar Nursery, Ishaki, Gurugram at his nursery where he told about different media used for successful nursery raising e.g. Vermiwash, Leaf manure, cocopeat and castor cake. He also demonstrated potting, repotting, filling trays and preparation of media.

**21.01.2023**

### **1<sup>st</sup> Session: Nursery production technology for elite germplasm - Dr. R.K Meena**

This lecture was delivered by Dr. R.K Meena, Senior Scientist Hort., CIAH, Bikaner. He told about nursery raising of different arid and semi-arid plants especially khejri, bael, date palm, mulberry, lasora, aonla, karnda and ber etc. He also told about management of semiarid fruit nursery and their cultural operations. He showed the pics of different nursery operations conducted in fruit nursery at CIAH, Bikaner.

### **2<sup>nd</sup> Session: Aftercare and management of Arid fruit nursery - Dr. R.K Meena**

This lecture was delivered by Dr. R. K. Meena, Senior Scientist Hort., CIAH, Bikaner. He told about nursery raising and management of arid fruits especially ber, aonla, date palm, bael etc. He also told about various popular elite varieties of these species. He also discussed about the special care and operations required for nursery in arid zone area.

### **3<sup>rd</sup> Session: Production of disease-free planting material in fruit nursery- Dr. R.P. Meena**

This lecture was delivered Dr. R.P. Meena, Senior Scientist, Plant Pathology, CIAH, Bikaner. He told about disease free seedling production, planting media and planting structure required particular for fruit crop of arid region. He told about the various disease prevalent in nursery, their symptoms and integrated management practices.

### **4<sup>th</sup> Session: Integrated disease management in ornamental and forest nursery- Dr. R.P. Meena**

This lecture was delivered Dr. R.P. Meena, Senior Scientist, Plant Pathology, CIAH, Bikaner. In this lecture he told about management of nursery plant disease through host resistance method. He also told about production of disease and virus free seedlings and their management through integrated disease management.

**22.01.2023**

### **1<sup>st</sup> Session: Hands on Vegetative propagation of Fruit plants / method Demonstration- Dr. Mukesh Kumar**

This practical lecture was conducted by Dr. Mukesh Kumar, Assistant Professor, CCS HAU COA, Bawal. He demonstrated different nursery raising methods for raising karonda, ber, bael, lehsuaetc at nursery. He demonstrated propagation methods like cutting, budding, layering, inarching air layering etc

**23.01.2023**

### **1<sup>st</sup> Session: Seed production and storage of seed in forest plants- Dr. Manmohan J. Dobariyal**

This lecture was delivered by Dr. Manmohan J. Dobariyal, HOD, Forestry, RLBCAU, Jhansi. He told about method of seed production of forest trees and its safe storage in different moisture and storage conditions. He also told about various controlled storage conditions and cryopreservation.

### **2<sup>nd</sup> Session: Maintenance and after care of forest nursery - Dr. Manmohan J. Dobariyal**

This lecture was delivered by Dr. Manmohan J. Dobariyal, HOD, Forestry, RLBCAU, Jhansi. He told about management practices of nursery. He discussed about major routine operations and after care of forest nursery. He also told about economic importance of forest nursery raising.

**24.01.2023**

### **1<sup>st</sup> Session: Hands on propagation methods of forest nursery - Dr. Naresh Kaushik**

This lecture was delivered by Dr. Naresh Kaushik, Principal, COA Bawal. He told about different sexual and asexual methods of propagation, their merits and demerits, scope of forest nursery raising in Indian economy. He also shared his life experience and practical knowledge with the participants.

### **2<sup>nd</sup> Session: Feedback - Dr. Mukesh Kumar**

Feedback was taken after completion of training from each participant. A feedback form was filled by each participant to share their experiences during training. The aim of the feedback was to invite the valuable suggestions from the participants for improvement and incorporation in the trainings to be conducted in future. The repetition of expert for future training also depends on the feedback of the participants.

### **Valedictory- Dr. R.K. Malik, Dr. Naresh Kaushik and Dr. Mukesh Kumar**

Chief guest of the valedictory function was Dr. R. K. Malik, Consultant faculty, CIMMYT, Mexico. Dr. Naresh Kaushik principal College of Agriculture, Bawal and Dr. Mukesh Kumar, Training coordinator and all teaching faculty college, RRS and KVK, Bawal also attended this valedictory function. Students presented the highlight of this training. Dr Malik motivates students and shared his life experience. He also interacted with students and motivated students to start their own business in the field of nursery raising. Dr Malik also told that the nursery raising is one of the important business in agriculture. Other faculty members also interacted with trainees and congratulates them on successful completion of this training.

