

Circular and Registration Form

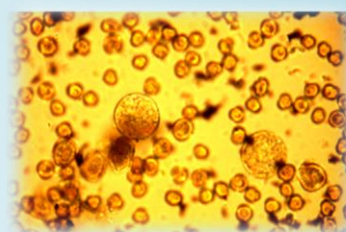
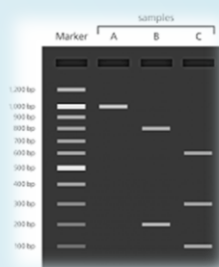
SHORT TRAINING COURSE (2018-19)

June 25– July 04, 2018 (10 Days)

Sponsored by:



Indian Council of Agricultural Research, New Delhi



Genomics Assisted Pre breeding in Vegetable Crops

Organized by:

**Division of Vegetable Science, ICAR-Indian
Agricultural Research Institute, New Delhi-
110012**

Course Director : Dr. B. S. Tomar
Course Coordinators: Dr. Zakir Hussain
Dr. Gograj Singh Jat



IMPORTANT DATES:

Last date for receipt of application : 11/06/2018
Intimation of selection : 15/06/2018
Confirmation of participation by candidates : 18/06/2018

INTRODUCTION

Vegetables are inseparable component in our diet because of their nutritional traits. Vegetable crops occupy 10.1 million hectares producing 169 million tonnes of vegetables annually (NHB Database, 2016). Vegetable diseases and pests have major effect on its production and quality. Besides, different abiotic stresses also cause havoc in vegetable production under the changing climatic scenario. However, breeding for the development of biotic and abiotic stress tolerant and resistant varieties have become more relevant under changing climate. For the development of resistant varieties and pre-breed lines, sources of resistance having genetic information is prerequisite and backbone of breeding programme. Crop wild relatives (CWR) have a high level of genetic diversity that enabled them to survive in natural and adverse environments. Wild relatives with enhanced levels of resistance/tolerance to multiple stresses provide important sources of genetic diversity for crop improvement. Though efforts to conserve CWR world wide have increased but their use in breeding has not kept pace largely because of undesirable linkage drag and the long time taken to release varieties when CWR are used. However, their exploitation for cultivar improvement is limited by cross-incompatibility barriers and linkage drags. Pre-breeding provides a unique opportunity through introgression of desirable genes from wild germplasm into desirable genetic backgrounds with minimum linkage drag. The integration of molecular marker techniques can play important role in reducing linkage drags and increasing the efficiency of introgression in pre-breeding programs. Further, different genomic tools provide precise information of genes/sequences and their utilization.

This training course is designed to raise understanding and enable participants how important CWR are for vegetable crops and that genomic tools can be used to help to increase their efficient use in crop improvement. The trainees are expected to understand the potential benefits of CWR and get the confidence that these benefits are easily achievable based on the examples provided in the training

OBJECTIVE

The objective of the program is to encourage the trainees to use wild species in breeding programs through various genomic tools. This should enable the trainees to plan and apply for pre-breeding projects, forge collaborations and also to strategically accelerate breeding of vegetable crops for sustainable yield using wild species.

ABOUT THE COURSE

The course consists of both lectures and hands-on practical classes. Division of Vegetable Science at ICAR-IARI has well equipped laboratories to carry out molecular works. Tissue culture laboratory in the division facilitates application of *in vitro* tools in pre-breeding of vegetable crops. Lecture notes and presentations will be provided to all the participants. The faculty consists of eminent researchers working in different crops and in the area of germplasm resources, pre-breeding, genomics and gene discovery. The trainees will be provided up to date information and research development in pre-breeding of all important vegetable crops. They will also be acquainted with genomic resources and tools which could be effectively used to strengthen the on-going pre-breeding programme of vegetable crops.

MAJOR SUBJECT AREAS OF THE TRAINING

- Allele mining, genomics assisted pre-breeding in vegetable crops.
- Problems and prospects of using wild species in breeding of important vegetable crops.
- Manipulation in ploidy level and cross compatibility.
- CWR to improve yield and nutritional traits, tolerance to biotic and abiotic stresses.
- Genomic tools and their application in CWR conservation, selection, trait transfer, gene discovery and genome editing.
- Development of mapping populations using CWR.
- QTL mapping and allele mining for yield and other complex traits from CWR.
- Development and use of chromosome segment substitution lines as a national resource.

VENUE AND OTHER DETAILS

The programme will be conducted at Division of Vegetable Science at ICAR-IARI, New Delhi. The programme is residential and participants are required to stay at the ICAR-IARI campus, New Delhi. Accommodation will be provided on twin-sharing basis at the Guest House. Candidates should bring relieving letter from their Institute. Selected participants will be paid travel fare to and fro for the journey only by AC II Class train fare as per their entitlement or bus or other means of transport. Actual TA will be paid on production of train/ bus ticket(s) by the participants. TA will be paid from the place of duty to ICAR-IARI, New Delhi and back by the shortest route. Free boarding and lodging will be provided to the participants during the training programme as per ICAR's guidelines. No DA is admissible to the participants. The participants are advised not to bring family members with them. The climate will be warmer and the day temperature during June-July ranges from 30 to 45°C.

TRAVEL ALLOWANCES

Participants shall be reimbursed the travel fare by shortest 2nd AC rail/road route as per ICAR norms for fares on production of valid travel documents. Prepaid taxis/DTC Buses and Metro are available at Railway Stations for which payment will be reimbursed to the participants on production of bills. Rajender Place Metro Station is nearest to IARI. Outstation participants shall be provided free boarding & lodging.

ELIGIBILITY OF PARTICIPANTS

Young active researchers/teachers not below the rank of Assistant Professor or equivalent working in SAUs/CU/ DUs/ ICAR/ National institutes having research/teaching experiences in the field of Horticulture, Genetics, Plant Breeding or any other related discipline having experience in vegetable crops are eligible to apply. Only **25** participants shall be selected for the course by a Screening Committee as per ICAR guidelines.

HOW TO APPLY

Application for participation in the short training course in the given format and forwarded by the competent authority of the institute should be sent to the Course Director at the address given below. It is also necessary to apply online <http://cbp.icar.gov.in>. Application not forward of the competent authority shall not be considered. Advanced copy of application will be considered for final selection only after receipt of the original copy through proper channel. **A Postal Order/DD of Rs. 50/** (non-refundable) drawn in favour of the **Director, IARI, payable at IARI Post office, New Delhi-110012** must be sent along with the application. **Last date of application is 11-06-2018.** Once selected, candidates will be intimated through e-mail, fax or by post to which they should reply with firm acceptance immediately.

EVALUATION

The participants will evaluate the course programme for the quality of contents, suitability and usefulness to the target clientele through well designed questionnaire. Similarly, the participants will be assessed through quiz and group discussions, etc.

All correspondence may kindly be addressed to:

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