Winter School
on
Harnessing Conventional and Molecular Breeding Approaches to Enhance Biotic and Abiotic Stress Resilience in Vegetable Crops

5–25 January, 2027

ICAR-Indian Agricultural Research Institute

Sponsored by:

Agricultural Education Division

Indian Council of Agricultural Research, New Delhi



Course Directors: Dr. K. K. Gangopadhyay
Dr. Manisha Mangal

Course Coordinators: Dr. Arpita Srivastava
Dr. Gograj Singh Jat

Division of Vegetable Science

ICAR-Indian Agricultural Research Institute

New Delhi-110 012

BACKGROUND: Vegetables play an important role in human health and nutrition. Improvement in vegetable productivity and quality forms a key strategy to maximize our economic benefits and nutritional security. The major problem in the vegetable production is the heavy incidences of diseases and pests. Due to greater susceptibility of vegetable crops to diseases and insect pests, it becomes hard to achieve the maximum yield potential. Therefore at this junction, breeding for the development of biotic stress resistant cultivars is the major objective of vegetable breeders. For the development of resistant varieties and pre-breeding lines, sources of resistance having genetic information is pre-requisite and backbone of breeding program. Apart from diseases and pests, abiotic stresses are major causes of crop losses worldwide, resulting in significant yield reductions and threatening global food security. Major abiotic stresses, including drought, high salinity, cold and heat adversely affect the survival, yield and quality of vegetable crops. To address these challenges, many plant breeding programmes have increasingly focused on developing stress tolerant crop varieties in recent years.

PEDAGOGY: The course has been designed to give participants a complete exposure to the novel breeding and genomic tools for imparting stress resistance in vegetable crops. It will comprise lectures and practical sessions by experienced scientists from IARI as well as other institutions across the country. Visits to fields and laboratories shall be arranged to expose the participants to the practical applications. Provision shall also be made for interim review to assess the progress of the participants through group discussion, quiz, debate, etc.

COURSE CONTENT:

- Novel breeding and biotechnological strategies for biotic and abiotic stress resistance in vegetable crops.
- Physiological basis of abiotic stress resistance.
- Diagnostic tools of vegetable crop diseases.
- RNAi technology and its application in resistance breeding.
- Screening techniques for bacterial, viral, fungal diseases and nematodes in vegetable crops
- Allele mining for stress resistance in vegetable crop genetic resources.
- TILLING and ECO TILLING for stress resistance.
- Overview of Next Generation Sequencing techniques.
- Genome analysis and its implication in breeding for stress resistance.
- Functional genomics tools for stress resistance.

ELIGIBILITY: Scientists, teachers and researchers not below Assistant Professor/ Scientist or equivalent, working in ICAR Institutes, Agricultural Universities/ Recognized Colleges, Research Institutes/ Farms/Stations and KVKs, with a Master's degree in Agricultural/Horticultural Sciences or allied disciplines, are eligible. Preference will be given to those working in vegetable breeding, genetics, biotechnology and stress resilience. Participants will be selected by following ICAR guidelines.

HOST INSTITUTE: ICAR-Indian Agricultural Research Institute (IARI) is a premier institution for agricultural research, education, extension, technology development and human resource development. The Division of Vegetable Science conducts applied and strategic research to develop improved varieties and F_1 hybrids for stress resistance, productivity, quality, nutritional and nutraceutical value, edible colour, value addition and export. It also produces nucleus and breeder seed of popular and newly released varieties and parental lines of hybrid. Research is supported by state of the art tissue culture, molecular biology and biochemistry laboratories, research farms, polyhouses and net houses.

WEATHER: The climate during January is generally cool and pleasant in Delhi, making it a suitable time to visit the city. The weather remains comfortable during the day, although mornings and evenings can be quite cold. Participants are advised to bring warm woollen clothing.

NOMINATIONS: Nominations through proper channel may be sent so as to reach on or before December 10, 2026.

HOW TO APPLY: Interested candidates may download and fill the prescribed Application Form and submit the completed form along with the registration fee of Rs. 50/- and relevant documents.

Payment can be made through Demand Draft/Postal Order/NEFT

- Demand Draft/Postal Order: The DD/Postal Order should be drawn in favor of "Director, IARI", payable at IARI Post Office, New Delhi–110012, and must be sent along with the completed Application Form.
- **Account Holder Name:** Director, IARI,New Delhi
- **Bank Name:** Canara Bank
- **Account No:** 90293050000074
- **IFSC Code:** CNRB0019029

- Applicants opting for digital payment should attach the transaction receipt/proof of payment along with the application form.
- The completed application form, along with the prescribed fee/payment proof and necessary documents, should be submitted through the proper channel and reach the Course Director by the stipulated deadline.
- Advance copy of application can be sent by E-mail to Course Director/Course Coordinators.
- The selected candidates will be informed by email in advance.
- Once the candidates are intimated about their selection for winter school, they need to confirm their acceptance by 15.12.26

HOW TO REACH: IARI (locally known as Pusa Institute) is located (~ 8 Km from New Delhi railway station, ~12 Km from Hazrat Nizamuddin Railway station) and air (~20 Km from the IGI Airport). The nearest Delhi Metro Stations are Patel Nagar and Rajendra Place which are only at 10 minutes walking distance from IARI campus. An auto/taxi could be hired from railway station/bus stand to reach Pusa Campus.

The participants are advised to reach a day earlier to the commencement of the programme. In case of emergency, participants may contact Course Director/ Administrative staff on telephone for necessary guidance.

ACCOMMODATION AND TRAVEL:

Participants will be accommodated in IARI/IASRI/NBPGR Guest Houses and Hotels near by Pusa campus. Participants are requested **not to bring any family member** as the accommodation is strictly limited for trainees only. No DA will be paid to the participants. The candidates selected for participation in the training will be provided traveling expenses restricted to **AC two-tier rail fare** by the shortest route after submission of original tickets.

CONTACT PERSONS:

Dr. K. K. Gangopadhyay
Head and Principal Scientist, Course Director
Mob: 09868153479

Dr. Manisha Mangal
Principal Scientist and Course Director
Mob: 09717513263

Dr. Arpita Srivastava
Senior Scientist and Course Coordinator
Mob: 09540831846

Dr. Gograj Singh Jat
Senior Scientist and Course Coordinator
Mob: 09555407848

Note:

All correspondence should be made on email: **winterschoolvsiari@gmail.com**

Organising Committee	
Course Directors	**Dr. K. K. Gangopadhyay** Head and Principal Scientist, Division of Vegetable Science, ICAR-IARI, New Delhi **Dr. Manisha Mangal** Principal Scientist, Division of Vegetable Science, ICAR-IARI, New Delhi
Course Coordinators	**Dr. Arpita Srivastava** Senior Scientist, Division of Vegetable Science, ICAR-IARI, New Delhi **Dr. Gograj Singh Jat** Senior Scientist, Division of Vegetable Science, ICAR-IARI, New Delhi
Course Co-Coordinators	**Dr. Paresh Chaukhande** Senior Scientist, Division of Vegetable Science, ICAR-IARI, New Delhi **Dr. Jogendra Singh Rathore** Senior Scientist, Division of Vegetable Science, ICAR-IARI, New Delhi **Dr. Suman Lata** Senior Scientist, Division of Vegetable Science, ICAR-IARI, New Delhi **Dr. Vinay ND** Scientist, Division of Vegetable Science, ICAR-IARI, New Delhi

Dates to Remember:

Activity	Deadline
Application Submission	**10 December 2026**
Selection Notification	**12 December 2026**
Participation Confirmation	**15 December 2026**

For Further Information Please Contact

Head
Division of Vegetable Science
ICAR-Indian Agricultural Research Institute
New Delhi-110 012
Mob: 9868153479
winterschoolvsiari@gmail.com
Website: www.iari.res.in.

Application Form for ICAR Winter School
on
Harnessing Conventional and Molecular Breeding Approaches to Enhance Biotic and Abiotic Stress Resilience in Vegetable Crops
(5-25 January, 2027)

Organized by:
Division of Vegetable Science
ICAR–Indian Agricultural Research Institute, New Delhi

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PERSONAL DETAILS

1. **Name of Applicant:** _____
2. **Gender:** _____ **Age:** _____
3. **Designation:** _____
4. **Name of Department/Division:**
   _____
5. **Name of Institution/Organization:**
   _____
6. **Complete Official Address:** _____
7. **E-mail:** _____
8. **Mobile No.:** _____

ACADEMIC QUALIFICATIONS

Degree	Subject/Specialization	University/Institute	Year
Ph.D.			
Master's			
Bachelor's			

PROFESSIONAL EXPERIENCE

Total Service Experience: _____ years

PREVIOUS TRAINING (attended during the last five years) :

Training/Workshop	Institution	Duration/Year

DECLARATION BY APPLICANT

I certify that the information furnished above is true and correct to the best of my knowledge. I agree to participate fully in the Winter School, including lectures, practical sessions, discussions and evaluation activities, if selected.

Place: _____ **Signature of Applicant**

Date: _____

CERTIFICATE/RECOMMENDATION OF HEAD OF INSTITUTION

Certified that **Dr./Mr./Ms.** _____, working as _____, is an employee of this institution and is eligible to participate in the ICAR Winter School. The applicant is **permitted to attend the Winter School for the entire duration**, if selected.

Signature: _____

Name & Designation: _____

Official Seal: _____

Date: _____

REGISTRATION FEE DETAILS

- **Mode of Payment (***Tick* ✓ *as applicable*): **DD/Postal Order/NEFT**
- **DD/Postal order no./Transaction ID:** _____
- **Date:** _____
- **Amount:** Rs. _____