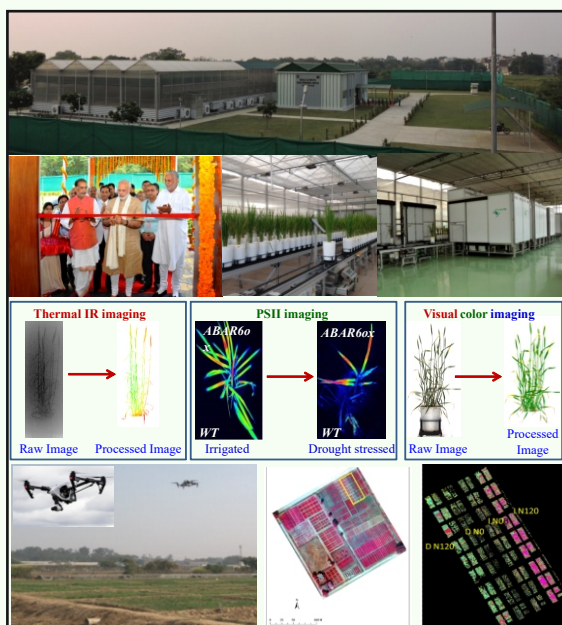




DST-SERB Sponsored high-end workshop ("Karyashala") on Phenomics, the Next Generation Phenotyping (NGP), for Trait Dissection and Crop Improvement

(10-19 July, 2023)



Organized by

Nanaji Deshmukh Plant Phenomics center
Department of Plant Physiology
ICAR-Indian Agricultural Research Institute
New Delhi-110012

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About The Institute

The Indian Agricultural Research Institute (IARI) is the country's premier institution for agricultural research, education and extension. It has been serving the cause of science and society with distinction through basic research, generation of appropriate technologies and development of human resources. The Division of Plant Physiology, a constituent of School of Basic Sciences of IARI, was established in 1966. The mandates of the Division are to conduct basic and strategic research with a view to understand the processes leading to solution of problems in crop productivity, to train Post-Graduate students leading to M.Sc. and Ph.D. degree and to impart training in physiological tools to agricultural scientists of SAUs/ICAR Institutes. The Division has contributed significantly in identification of factors limiting crop yield, proposed crop ideotypes and impact of climate change on crops. This Division has developed high throughput screening methods such as membrane stability index and chlorophyll stability index, and demonstrated the utility of canopy temperature and chlorophyll fluorescence as selection criteria for abiotic stress tolerance. Recently, the Division has established a state-of-the-art automated plant phenomics facility. It was inaugurated and dedicated to the nation by Hon'ble Prime Minister of India, Shri Narendra Modi in the name of Nanaji Deshmukh Plant Phenomics Centre.

Introduction

Crop yield under abiotic stress environments needs to be increased significantly for food, feed, fodder, fibre and fuel security in near future. This problem is expected to increase further due to global climate change. Utilization of germplasm resources in analytical/physiological breeding is advocated for significant gain in yield under abiotic stress environments. Today, phenotyping is the major rate limiting factor that limits the power of genomics for high-resolution linkage mapping, genome-wide association mapping and training genomic selection models.

Thus, phenomics is necessary to bridge phenotype-genotype gap. Phenome is defined as expression of the genome as traits in a given environment, while phenomics is defined as acquisition and analysis of high-dimensional phenotypic data on an organism-wide scale. This workshop aims to introduce the participants to the emerging field of non-destructive high throughput phenotyping, which will be useful to study the genotype-phenotype map and identify the physiological genetic basis of complex traits. The participants will also be provided with hands on training in both conventional phenotyping and simple low-cost non-destructive image based phenotyping for obtaining biologically meaningful information with minimal environmental and experimental noise.

Theme

With the availability of next generation sequencing and modern automated genotyping technologies, generating accurate genotypic data for large set of germplasm and breeding population has become easier. However, the rate limiting step in utilization of these genomic data to identify genes and QTLs associated with economically important traits are limited by the lack of accurate high throughput phenotyping methods. This workshop aims to impart training on recent development in high throughput phenotyping of crops.

Objectives

'KARYASHALA' is aimed to provide hands-on experience to the students primarily from universities, colleges, private academic institutions, and newly established institutes in handling/troubleshooting of high-end scientific instruments and such skill development on the non-destructive phenotyping and phenomics for dissection of abiotic stress tolerance.

Venue

The venue of the training is Division of Plant Physiology, ICAR-Indian Agricultural Research Institute, New Delhi-110012

Duration of the Course

The workshop has been planned for 10 days duration from 10-19 July, 2023. The workshop will comprise of lecture and practical sessions by experts from the IARI

and also by invited experts from premier University/ Institutions.

Local & Weather Condition

Delhi is well connected through railways and roads with different parts of the country. IARI, commonly known as Pusa Institute, is centrally located in New Delhi. The weather during course duration is predicted to be warm with temperatures between 25°C and 35°C. The environment is expected to be pleasant and comfortable.

Participants' Eligibility

This program aims to provide opportunities to acquire specialized research skills. These workshops will primarily be facilitated at organizations / institutions / laboratories of national importance such as IITs, IISc, IISERs, NITs, CSIR, ICAR, ICMR etc. The program is meant to support motivated PG, PhD and UG 4th-year level students, who are having a strong willingness to get excellence in their scientific and engineering research pursuits. A total of 25 candidates will be selected for this course. The selection of the candidates will be made by a screening Committee as per the available guidelines of the SERB.

Mode of Application

Students desirous of participating in the course should apply through proper channel in the given proforma. The participants should submit their online application using google form (<https://forms.gle/or7ZH45JgGmDTKNj6>). The last for receipt of the application is 10th June, 2023. The candidate will be selected based on their specialized subject and average % of marks scored in transcripts awarded from 10th standard onward. Selected candidates will be informed by 15th June, 2023 through e-mail. There is NO REGISTRATION FEE for the participants. Applicant must produce a original letter of authentication from their Supervisor /Head of the Department / Head of the Institution indicating their association with the Institute and “No Objection Certificate (NOC)” for allowing their student to undergo Karyashala as per the prescribed format. All the selected participants shall strictly follow the rules and regulations of IARI.

Accommodation & Travelling Allowance

Boarding and lodging will be provided to the participants during the training period at the farmers trainees' hostel/IARI Farmer Hostel. Travel Allowance to the participants will be paid as per their entitlement for the class of travel, restricted to the maximum of AC III tier fare (except Rajdhani & Shatabdi trains) by the shortest route. Participants are required to produce money receipt/ tickets in support of their claim. The reimbursement for traveling allowance, boarding and lodging expenses for the workshop period will be provided as per KARYASHALA Scheme of SERB, DST. No additional stipend will be provided during Karyashala (High-End Workshops) programme. Upon successful completion of the Karyashala (High-End Workshops), the participant will be awarded “Karyashala (High-End Workshops) Completion Certificate” from ICAR-IARI, New Delhi.

Organizing Committee

Chief Patron

Dr. Ashok Kumar Singh, Director & Vice Chancellor, IARI

Patron

Dr. Viswanathan Chinnusamy, Joint Director (Res), ICAR-IARI

Dr. Anupama Singh, Joint Director (Edu.), ICAR-IARI

Advisory Committee

Dr. Renu Pandey, Prof. & Head, Div. of Plant Physiology, IARI.

Dr. Gopala Krishnan S, Head, Division of Genetics, IARI

Dr. Naresh Kumar Soora, Head, CESCRA, IARI

Dr. Rabi Narayan Sahoo, PS, Div. of Ag. Physics, IARI

Dr. Rajeev Ranjan, Senior Scientist, Div. of Ag. Physics, IARI

Dr. Ranjith Kumar Ellur, Scientist(SS), Division of Genetics, IARI

Dr. Hari Krishna, Scientist (SS), Division of Genetics, IARI

Dr. Rajkumar Dhakar, Scientist (SS), Div. of Ag. Physics, IARI

Dr. Sanjeev Kumar, Scientist, ICAR-IASRI,

Dr. Chandan Kumar Deb, Scientist, Div. of computer application, ICAR-IASRI, New Delhi.

Dr. Md Ashraf Haque, Scientist, Div. of computer application, ICAR-IASRI, New Delhi.

All the faculties of Division of Plant Physiology, IARI

Format for No Objection Certificate (NOC):

Noc to be obtained from the Supervisor / Head of the Department / Institute of the parent institution.

No Objection Certificate

It is certified that Mr. / Miss / Mrs. _____ is doing thesis/ project work under the guidance of Dr. _____ (Designation) and he/ she may be allowed for attending the said Karyashala (High-End Workshops) for ten days as per guidelines of SERB, DST, New Delhi. Institute do not have any Objection.

Head of the Department/Institute

(Signature with date, Seal)

All Correspondences May Kindly Be Addressed To

Dr. Dhandapani Raju

Course Director & Senior Scientist (Plant physiology)

Division of Plant Physiology, ICAR- Indian Agricultural Research Institute New Delhi-110012, India

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e-mail: coursedirector.pp@gmail.com

Dr. Sudhir Kumar, Dr. Mahesh Kumar & Dr. Madhurima Das

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Division of Plant Physiology, ICAR-Indian Agricultural Research Institute New Delhi-110012, India

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Last date for submission of application for the short course is 10.06.2023

The circular is also available on IARI website (<http://www.iari.res.in>)

Application form: <https://forms.gle/or7ZH45JgGmDTKNj6>