



**NAHEP**  
Component 2-RAES



Blended Learning Platform

Six days training programme on

# Phenomics and High Throughput Phenotyping: Dissection of Traits for Abiotic Stress Tolerance

August 25 – August 30, 2024







**Training Mode: Self Learning (Online)**

**Platform: NARES - Blended Learning Platform (BLP)**

## Brief About the Programme:

This training programme is designed to provide a comprehensive overview of the Phenomics and High-Throughput Phenotyping to bridge the genotype-phenotype gap and identify the physiological, genetic and molecular basis of complex traits of stress tolerance.

## Training Objectives

-  Understanding basics of Phenomics and High-Throughput Phenotyping methods
-  Learning different modules for image processing and data mining from sensors
-  Overview of Hyperspectral Remote sensing for Plant Phenomics
-  Overview of GWAS and QTL analysis
-  Introduction to low-cost phenotyping methods
-  Understanding the importance of computer vision for non-destructive trait characterization

## Who can participate

This program is designed for students, faculty members, and scientists of State Agricultural Universities (SAUs) and ICAR Institutes.

## Participation Fee

Free of Cost

## Maximum number of participants

50

## Course Coordinators, ICAR-IARI, New Delhi

### Dr. Sudhir Kumar

Senior Scientist, NDPPC,  
Plant Physiology, ICAR-IARI

### Dr. Madhurima Das

Scientist, NDPPC  
Plant Physiology,  
ICAR-IARI

### Dr. Mahesh Kumar

Senior Scientist, NDPPC,  
Plant Physiology, ICAR-IARI

## Course Coordinators, ICAR-IASRI, New Delhi

### Dr. Sudeep Marwaha

Head(CA) &PI, NAHEP Component-2  
& RAES, ICAR-IARI

### Dr. Chandan Kumar Deb

Scientist, Computer Applications,  
ICAR-IASRI

## Course Director

### Dr. Viswanathan Chinnusamy

JDR, ICAR-IARI

Scan here register

<https://forms.gle/DRwFeud3PL9tMNk76>





**ICAR – Indian Agricultural Research Institute**  
**Library Avenue, Pusa, New Delhi-110 012**



**Training Program**  
**on**  
**“Phenomics and High-Throughput Phenotyping: Dissection of Traits for**  
**Abiotic Stress Tolerance”**  
**(August 25-30, 2024)**

**Inaugural session: August 25, 2024 at 11:30 AM**  
**Venue: Virtual Mode through BLP, ICAR-IARI & ICAR-IASRI**

11:30 AM-11:40 AM	Welcome Address	:	Dr.Madhurima Das Course Coordinator
11:40 AM-11:50 AM	Remarks about the training	:	Dr. Renu Pandey Head (PP), ICAR-IASRI
11:50 AM-12:00 PM	Brief about the training	:	Dr. Sudeep Marwaha Head (CA), ICAR-IASRI
12:00 PM -12:10 PM	Brief about the training	:	Dr. Viswanathan Chinnusamy
12:10 PM -12:20 PM	Inauguration Address	:	Dr. Rajender Parsad Director, ICAR-IASRI
12:20 PM -12:30 PM	Vote of Thanks	:	Dr. Sudhir Kumar Course Coordinator

**Lecture Schedule for Training Programme on “Phenomics and High-Throughput Phenotyping: Dissection of Traits for Abiotic Stress Tolerance” (August 25 to August 30)**  
**(Online Mode Using Blended Learning Platform)**  
**NDPPC, ICAR-IARI, New Delhi**

Date		
	11:00-12:00	12:00-1:00
DAY 1 25 <sup>th</sup> August	<b>Phenomics, the next Generation Phenotyping (NGP) for trait dissection and crop improvement</b> (Dr. Viswanathan Chinnusamy)	<b>High Throughput Phenotyping using Phenomic approaches for abiotic stress tolerance</b> (Dr. Sudhir Kumar)
DAY 2 26 <sup>th</sup> August	Hyperspectral Remote sensing for Plant Phenomics (Dr. R.N. Sahoo)	Different modules for image processing and data mining from sensors ( Dr. Sudhir Kumar)
DAY 3 27 <sup>th</sup> August	<b>Prediction of genetic variants using phenome based image data (Phenotype to genotype tools) using GWAS analysis</b> (Dr. Ellur R.K.)	<b>GWAS and QTL analysis using genotyping and phenotyping data</b> (Dr. Ritwika Das)
DAY 4 28 <sup>th</sup> August	Non invasive tools to assess plant responses to abiotic stresses: drought, heat and salinity (Dr. Jagadish Rane)	Computer vision aided data analytics for non-destructive characterization of abiotic stress tolerance traits using low cost digital sensors (Dr. Madhurima Das)
DAY 5 29 <sup>th</sup> August	<b>Phenotyping for Nitrogen Use Efficiency</b> (Dr. Lekshmy Sathee)	<b>Breeding for climate resilience in wheat using Phenomic approaches( Dr. Hari Krishna)</b>



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**(August 25-30, 2024)**

**Valedictory Session: August 30, 2024 at 11:00 AM**  
**Venue: Virtual Mode through BLP, ICAR-IARI & ICAR-IASRI**

11:00 AM-11:10AM	Welcome Address	:	Dr. Madhurima Das Course Coordinator
11:10 AM-11:20AM	Report on the training	:	Dr. Madhurima Das Course Coordinator
11:20 AM-11:30AM	Remarks about the training	:	Dr. Renu Pandey Head (PP), ICAR-IARI
11:30AM-11:40AM	Remarks about the training	:	Dr.Sudeep Marwaha PI, NAHEP & Head (CA), ICAR-IASRI
11:40AM-11:50AM	Feedback by Participants	:	Participants
11:50AM -12:00 NOON	Valedictory Address	:	Dr. Viswanathan Chinnusamy Course Director & JDR, ICAR- IARI
12:00 NOON-12:10 PM	Vote of Thanks	:	Dr. Sudhir Kumar Course Coordinator