

**National Agricultural Higher  
Education Project (NAHEP)**

**Sponsored**

**Training programme on**

**Genome assisted diagnosis of plant  
viruses, viroids and phytoplasmas**

15.10.2019 to 24.10.2019

at

Advanced Centre for Plant Virology,  
Division of Plant Pathology,  
ICAR-IARI, New Delhi-110012



**Organized under**

*Center for Advanced Agricultural  
Science and Technology (CAAST)  
NAHEP, ICAR, New Delhi*

Advanced Centre for Plant Virology,  
Division of Plant Pathology,  
ICAR-Indian Agricultural Research Institute,  
New Delhi-110012

**Organizers**

**Course Director**

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**Course Coordinators**

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The Indian Agricultural Research Institute, New Delhi, invites applications from M.Sc. and Ph.D. students of State Agricultural Universities for 10 days training programme on “**Genome assisted diagnosis of plant viruses, viroids and phytoplasmas**” sponsored by **NAHEP-Centre for Advanced Agricultural Science and Technology (CAAST)**, on Genomics – Assisted Crop Improvement and Management, ICAR - IARI

**WHO CAN PARTICIPATE**

**MSc and PhD students** of State Agricultural Universities are eligible to apply. The number of participants will be limited to **twenty ONLY**

**REGISTRATION FEES:** No registration fee is to be paid; the programme is fully sponsored by NAHEP-CAAST

**HOW TO APPLY**

Complete application form in the prescribed format forwarded by Head of the Institution/Department/Division should reach to the Course Director, Training programme on *genome assisted diagnosis of plant viruses, viroids and phytoplasmas*, Advanced Centre for Plant Virology, Division of Plant Pathology, ICAR-IARI, New Delhi on or before 30th September 2019; application form can be downloaded from [www.iari.res.in](http://www.iari.res.in)

**TRAVEL**

Travelling allowance will be met by the organizers; depending on the availability of funds, reimbursement will be restricted to II or III tier train AC class fare.

**FOOD and ACCOMMODATION**

Food and accommodation will be arranged at the ICAR-IARI campus only for the participants and expenditure will be met from the training budget.

**DURATION**

10 days – October 15.10.2019 to 24.10.2019

**Venue:**

Lectures: Auditorium, Division of Plant Pathology, ICAR-Indian Agricultural Research Institute, Pusa Campus, New Delhi-110012.

Practicals: PG laboratory, Division of Plant Pathology, ICAR-Indian Agricultural Research Institute, Pusa Campus, New Delhi-110012.

## About NAHEP-CAAST

**Centre for Advanced Agricultural Science and Technology** (CAAST) is a new initiative and student centric sub-component of **World Bank** sponsored **National Agricultural Higher Education Project** (NAHEP) granted to IARI to provide a platform for strengthening educational and research activities of post graduate and doctoral students. CAAST theme this training programme is **genome assisted diagnosis of plant viruses, viroids and phytoplasmas** that specifically aims at inculcating genomics literacy and skills among the student of SAUs.

## Background

Plant viruses, viroids and phytoplasma are causing huge economic losses in agriculture. It has been estimated that per year plant viruses can cause as much as 56 billion dollar loss worldwide. This situation may be worsened by recent climate change events and the associated changes in disease epidemiology. Reliable and early detection methods are still one of the main and most effective actions to develop control strategies for plant viral diseases. During the last two decades, considerable progress has been made to develop tools with high specificity and low detection limits for use in the detection of these plant pathogens.

Nowadays the genomic sequences of most of the plant viruses, viroids and phytoplasma are available which have provided foundation for designing molecular tools for diagnosis and control of these pathogens. For most of plant viruses coat protein gene sequences have been used for in-vitro expression and expressed proteins have been used for production of antibodies and standardization of ELISA. Novel approaches have been developed for genome amplification for linear and circular viruses for their characterization and detection. 16S rRNA and other housekeeping genes have been used for detection and characterization of phytoplasma. The main objective of this training programme is to train young students and research scholars on advances made in the genome assisted detection of viruses, viroids and phytoplasma using advanced molecular tool. The training programme will focus on hands on training in various diagnostic methods in the laboratory as well as lectures by eminent experts on current topics so as to enable the participants to apply the same in their research areas particularly plant disease diagnostics.

## COURSE OUTLINE

The training programme has the following components:

### A. Lectures on principles and practices of basic & advanced diagnostics techniques used in detection of viruses, viroids and phytoplasma

The lectures will be delivered in the forenoon session during the training period. Development of various diagnostic techniques used in detection of viruses, viroids and phytoplasma will be discussed

### B. Demonstration and visits for Sequencing and computing facilities

Trainees will be exposed to all the laboratories in Advanced Centre for Plant Virology. Visit to facilities like TEM, SEM, Confocal Microscope etc. will also be done.

### C. Group activities for case studies

Student groups will be allotted a set of plant pathogens to detect using different diagnostic tools

### D. Interactive discussion presentation and Quiz

Each student is expected to make a short presentation of their present work and future work plan on diagnostics of their choice organism. Presentation will be facilitated by coordinators during evening hours on all days during the programme. Students are also encouraged to bring their own biological material to work with.



**Application deadline: 30<sup>th</sup> September 2019**