

## INFORMATION BROCHURE

### Summer School

On

### “Micropropagation Techniques and Physiological, Biochemical and Molecular Interventions for Sustainable Plant Production under Climate Change Scenario”

[6<sup>th</sup> September to 26<sup>th</sup> September 2017]

Sponsored by  
Indian Council of Agricultural Research  
(Agricultural Education Division)  
New Delhi



Organized by

DEPARTMENT OF PLANT PHYSIOLOGY  
INSTITUTE OF AGRICULTURAL SCIENCES  
BANARAS HINDU UNIVERSITY  
Varanasi – 221 005

### Introduction

Indian agriculture is facing a critical phase due to stagnancy in food grain production since last decade. Present food production is around 200 million metric tonnes which has to reach around 300 million metric tonnes by 2025 to feed the growing human population of India with constant land degradation, industrialization, over exploitation of arable land and urbanization followed by climate change. Climate change involves temperature fluctuation, change in rainfall pattern, etc. which affect the developmental patterns of plant growth followed by final sink production capacity of agricultural crops. Hence, a number of abiotic factors, nutrient factors, etc are found to impose their direct influence on the agricultural crops/vegetables. Therefore, an understanding towards the physiological approaches irrespective of various aspects of agricultural sciences is the need of the present time. Micropropagation is emerging as one of the most innovative technology in agriculture which can help sustain crops towards changing environment/abiotic stresses. The technology of plant tissue culture offers novel approaches to plant production, propagation and conservation. There is an urgent need to develop protocols for endangered plant species of commercial importance besides characterizing diversity and crop improvement through transgenic technology. Various tools of plant tissue culture can be employed for producing stress tolerant crops leading to sustainable agriculture. Keeping all these in view, the Department of Plant Physiology, Institute of Agricultural Sciences, B.H.U., Varanasi is organizing a Summer school of 21 days duration from 6<sup>th</sup> September to 26<sup>th</sup> September 2017 on “**Micropropagation techniques and physiological, biochemical and molecular interventions for sustainable plant production under climate change scenario**”. The course has been organized to acquaint the young faculty members of SAUs, ICAR Institutes and Universities having Agricultural Institutes with latest information on recent developments towards sustainable agriculture in respect to micropropagation, physiological, molecular and biotechnological advancements, to better manage adversities of climate change.

### Broad Themes

The following broad themes will be focused in the said Summer school:

- i. Micropropagation techniques and their applications.
- ii. Growth regulators and their roles in plant tissue culture
- iii. Abiotic stress management at physiological, biochemical and molecular levels
- iv. Mineral nutrition and Plant metabolism
- v. Biotechnological and molecular interventions for sustained crop/food production

### Course content

Emphasis will be given on the studies of adverse effects of abiotic stresses and their amelioration; plant soil water and mineral nutrient relationship and their interaction with soil microbes; water and nutrient harvesting efficiency of crops from soil by enhancing seed quality, at physiological and molecular levels. Further, the technology of plant tissue culture will also be focused in respect to crop improvement, germplasm conservation and evolving stress tolerant crops/plants. Post harvest physiology for maintenance of crop quality until the crop produce reaches the consumers will also be emphasized. Information will also be thrown on plant metabolism, role of plant growth regulators, biotechnological approaches and molecular interventions in improving plant production under the changing global climate scenario. Hands-on training will be provided to solve practical problems related to thematic areas, and those arising at work in laboratory to field condition.

### Eligibility

The participants should possess degree of Master in Agriculture and allied disciplines with working knowledge of computers. The participants should be from ICAR Institutes/State AUs/CAU/ Agricultural faculty of AMU, BHU, Vishwa Bharti and Nagaland University in the cadre of Assistant Professors or equivalent and above

### Duration of course

6<sup>th</sup> September to 26<sup>th</sup> September 2017 (21 days)

## Venue

Department of Plant Physiology,  
Institute of Agricultural Sciences  
Banaras Hindu University  
Varanasi – 221005 (U.P.)

## Travel, Boarding and Lodging

The boarding, lodging, TA and DA expenses of the outstation participants will be met out from ICAR fund as per norms and operational guidelines for organization of Summer/Winter School. Participants will be paid to and fro fare for journey by train or bus, preferably AC-III tier, restricted to AC-II tier. Actual TA will be paid on production of ticket by the participants. TA will be paid from the place of duty to Summer School location and back by the shortest route.

**Note:** Participants are strictly advised not to bring their spouse/children along with them during training period.

## Registration of participants

The participants should submit their application online using CBP portal of Agricultural Education Division, ICAR (<http://proj.iasri.res.in/cbp/>). After filling up the online application take a print out of application form and get it approved by the competent authority of your organization. Upload the approved form (scan copy) on CBP portal. The original copy along with Rs. 50 (postal order, Non-refundable) in the form of a Demand Draft/Indian Postal Order in favour of Course Director, Summer School payable at SBI, BHU Branch, Varanasi should be sent to Course Director. An advance copy of the application (scan copy) may be sent to the Course Director to overcome any postal delay. However, the candidature for final selection will be considered only after receipt of the approved original copy. The detail guidelines for participating in the ICAR summer/winter schools can be downloaded from the CBP portal. The number of participants selected for the course will be 25.

## Important dates

Last date for receipt of applications: 29<sup>th</sup> July, 2017  
Intimation to selected candidates: 5<sup>th</sup> August, 2017  
Confirmation of participation: 12<sup>th</sup> August, 2017

## Location

Banaras Hindu University is situated in the south-eastern part of the Varanasi city at 25°18' N latitude and 80°01' E longitude and at an altitude of 128.93 m above MSL. Varanasi is well connected by rail and road from all major cities/towns in India. The distance from Varanasi railway station is about 10 km whereas the distance from Mugalsarai Railway station is about 25 km.

## Climate

The weather in Varanasi during the training period will be generally mild hot and humid. Monsoon season makes the environment comfortable. The temperature during the period ranges between 32 to 35°C during day time and 24 to 26°C during night. It is advisable to carry umbrella/raincoat.

## Participant's Evaluation and Feed Back

Participants evaluation will be done based on topics listed in the training schedule. Participants are also required to give their feedback at the end of course programme and fill up the evaluation proforma.

## Contact Persons Course Director

**Prof. Padmanabh Dwivedi**  
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## Course Coordinator Dr. Pravin Prakash

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## APPLICATION FORM FOR PARTICIPATION IN SUMMER SCHOOL

(To be sent directly to the Course Director,  
Summer School)

1. Full Name (in block letter)
2. Designation
3. Present employer and address
4. Address to which reply should be sent (in block letters) (give telegraphic address also if available) with E-mail and Mobile No.
5. Permanent address
6. Date of Birth
7. Sex: Male/Female
8. Teaching/research/professional experience (mention post held during last 5 years and number of publication)
9. Marital status: Married / Unmarried
10. Mention if you have participated in any Research Seminar, Summer/Winter School/Short Course, etc. during the previous years under ICAR/other organizations.
11. Demand Draft No. \_\_\_\_\_ Dated \_\_\_ of Rs. 50/- (Not Refundable) for registration of application.
12. Academic record: Examination passed from Bachelor's degree onwards, other certificates, diplomas, degree, etc.; Subjects main/subsidiary; Year of passing; Class ranks, distinctions, etc.; University or Institution; Other information, if any.

Signature of the applicant

Date:

Place:

13. Recommendations of forwarding Institute:  
Signature

Designation

Date:

Address