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Innovative Culturing Approaches for Qualitative Mass Production of Biological Control Agents and Bio-pesticides



Period: 09.12.2025 to 18.12.2025

Venue:

ICAR - Indian Sugarcane Research Institute,
P.O. Dilkusha, Lucknow - 226002, Uttar Pradesh (India)

Winter School has been sponsored by the **Uttar Pradesh Council of Agricultural Research (UPCAR), Government office in Lucknow, Uttar Pradesh**. The guidelines of the UPCAR, Lucknow will be followed in execution of various activities like providing boarding and lodging to trainees, scheduling lecture/practical, no of participants, TA/DA reimbursements, honorarium to speakers etc.

About the Crop Protection Division

ICAR-ISRI, Lucknow, Uttar Pradesh

The Crop Protection Division, ICAR-ISRI, Lucknow was established in 2001 with the merge of Division of Plant Pathology and Division of Entomology. The Mandate of the Crop Protection Division is to conduct advanced research on sugarcane diseases and insect pests management and other sugar crops. The Division is playing a vital role in ensuring the crop health and productivity of sugarcane crop in India by developing and promoting effective management strategies for diseases and insect pests. The Division has identified various potential bio-agents like *Trichodema harzianum*, *Bacillus subtilis*, *B. amyloliquefaciens*, *Pseudomonas fluorescens* for sugarcane diseases, and *Metarhizium anisopliae*, *Beauveria bassiana*, *Trichogramma chilonis*, *Trichogramma japonicum*, *Cotesia flavipes* and *Tetrastichus howardi* for sugarcane insect pests. These bio-agents are being applied for the management of insect pests and diseases in the sugarcane as well as other sugar crops. Besides this, some microbial inoculants strains have also been identified as plant growth promoters (*Trichodema harzianum* and *Pseudomonas fluorescens*) for plant growth promotion in the sugarcane crop.

The ICAR - Indian Sugarcane Research Institute (ISRI), Lucknow was established in February 16, 1952 by the erstwhile Indian Central Sugarcane Committee for conducting research on fundamental and applied aspects of sugarcane cultivation as well as to coordinate the research work done on sugarcane crop in different states of the country.

About Winter School

Biological control agents and Biopesticides play an important role in managing various deadly insect pests and diseases of various crops. The genes like *Trichoderma*, *Bacillus*, *Pseudomonas*, *Metarhizium*, *Beauveria*, *Serratia*, and *Streptomyces* are well-studied and characterized for their biocontrol activities and biopesticides for insect pests and disease management. Among them, *Trichoderma* spp. and *Pseudomonas* spp. are model microorganisms used to manage soil-borne plant pathogens in various crops. So, keeping the importance of biofertilizers and biopesticides, the current Winter School entitled on “Innovative Culturing Approaches for Qualitative Mass Production of Biological Control agents and Bio-pesticides” has been planned to inculcate participants on the isolation of biocontrol agents and biopesticides, identification and quality check, mass multiplication, storage, and application methods in the various crops.

In this winter school, participants will be acquainted for various activities from sampling methods (soil/plant/water), sample preparation and processing, culture media preparation, media selection and autoclaving, pouring, colony forming units (CFUs) for quality check using the spread plate method and population concentration by serial dilution plating method using formula - colony forming units/ml = (no. of colonies x dilution factor) / volume of culture plate, principles of pure culture techniques, antagonism assay using dual culture studies, culture filtrate screening method and cross inoculation methods, compatibility assay, storage and preservation methods for working microbial cultures, methods and techniques for mass multiplication using locally available substrates (solid state fermentation / bioformulation preparation techniques / biofortification of FYM, adjuvants concentration for long term storage, formulation packaging and storage and quality testing methods, application methods through sett treatment, soil application and foliar spraying and trench application.

Eligibility Qualification

for the participants in the Winter School:

Master's Degree in Agricultural Sciences and or working not below the rank of Assistant Professor/Subject Matter Specialist and equivalent in the concerned subject in Agricultural University / ICAR Institutes. The list of participants will be finalised by the Selection Committee and cannot be challenged.

Boarding and Lodging:

Participants are to be provided accommodation in the Institutional Guest House / Hostel and facilities for whole some meals and refreshments to be made available by the Institutional Head in keeping with the local conditions **free of cost**. Local participants are **not** eligible for boarding and lodging, however, local hospitality i.e. working lunch, tea, etc. to be provided subject to a limit of Rs. 100/- per participant per day as per UPCAR, Lucknow guidelines.

Travel:

The participants will be paid for the journey, to and fro, **restricted to AC-II-tier train fare or bus or any other means of transport in vogue**, as the case may be, Actual TA is to be paid normally on production of a certificate by the participants. TA may be paid from the place of duty to the Winter School location and back by the shortest route. **No TA will be paid to the participants for Flight journey**

How to Apply?

Application is invited through proper channel to the email id of Course Director and Course Coordinators as detailed given below. The last date of submission of application is **31st October, 2025**. The application of candidate should be submitted in prescribed format (please find the attachment).

How to reach ICAR-ISRI, Lucknow, Uttar Pradesh:

The ICAR-ISRI, Lucknow is situated 5.0 km from Lucknow railway station (Charbagh), 8.0 km from Alambagh bus station and 13.0 km from Kaisarbagh bus station at near Telibagh, Rai Bareli Road (26.56 N and o 80.52 E). ICAR-ISRI, Lucknow is well connected to all major cities of the country.

Climate:

The climate of Lucknow will be cold and may lead to low temperature during the December month. Woollen cloths will be required during the mentioned training period for comfortable stay at ICAR-ISRI, Lucknow.

APPLICATION FORM FOR WINTER SCHOOL

(funded by UPCAR, LUCKNOW)

1. Name of Winter School	2. Period for Winter School

3. Name (in capital letters)	4. Date of Birth (dd/mm/year)	5. Gender (M/F)

6. Office Address (Posting)	7. Address for correspondence

8. Applicant designation	9. Phone/ Mobile No.	10. Email id

11. Category you belong (Tick the appropriate)					
ST	SC	OBC	BC	General	Others

12. Present Professional profile (Tick the appropriate)				
Teaching	Research	Extension	Training	Others (specify)

13. Service You belong (Tick the appropriate)					
Central	State	ICAR	University	Govt. undertaking bodies	Others

14. Area of Specialization	15. No. of Publications (≥ NAAS rating 6.0, if any)	16. Patent (if any)

17. Academic record	Degree	University	Major subjects	Year of Passing

DECLARATION - I hereby declare that all the information furnished above by me are true and correct to the best of my knowledge and belief. I agree to abide by all codes and conduct and rules as may be framed from time to time by the institute authorities for smooth conduct of the programme.

(Signature of the Applicant)

Forwarding from the Head of Institution / Competent Authority