Capacity Building Program on "Harnessing the Crop Wild Relatives for Breeding Future Crops"

(Under Collaborative project between Alliance of Bioversity International and CIAT and ICAR-National Institute for Plant Biotechnology)

ICAR-National Institute for Plant Biotechnology

The institute was founded in 1985 as the 'Biotechnology Centre' of Indian Agricultural Research Institute (IARI) for molecular biology and biotechnology research in crop plants. The presence of the role of biotechnology in agriculture led to a bigger responsibility for this centre and it was elevated as National Research Centre on Plant Biotechnology in the year 1993 (Now NIPB). ICAR-National Institute for Plant Biotechnology has been entrusted with the responsibility of developing new tools and techniques and to deliver breakthrough in biotechnology for crop improvement. With a humble beginning and a few dedicated scientists, the centre could successfully deliver varieties such as Pusa Jai Kisan. Moricandia based CMS system developed at NIPB has contributed to the commercial production of mustard hybrids namely NRC Sankar Sarson (DRMR, Bharatpur) and Coral 432 (Advanta India). The institute has excelled in basic and applied research for crop improvement, producing high-impact publications, patents, and fostering public-private partnerships. Its advanced infrastructure and scientific expertise have driven major genome sequencing projects for crops like rice, wheat, and tomato. NIPB offers PhD, MSc and B. Tech programs in Molecular Biology and Biotechnology and plays a pivotal role in human resource development through training and collaborative initiatives. It organizes ICAR-sponsored workshops and engages with National funding agencies for capacity building. Additionally, it leverages crop wild species in various crops, utilizing advanced molecular tools for improvement programs.

The Alliance of Bioversity International and CIAT

The International Center for Tropical Agriculture (Centro Internacional de Agricultura Tropical, or CIAT) was founded in 1967 in Palmira, Colombia. Since then, in collaboration with hundreds of partners, it helped developing countries make farming more competitive, profitable, and resilient through smarter, more sustainable natural resource management. Bioversity International, founded in Italy in 1974 as IBPGR, initially focused on plant genetic resources and genebank development. Renamed IPGRI in 1991 and Bioversity International in 2006, it broadened its mission to include agricultural and forest biodiversity and research-for-development. In 2019, Bioversity International and CIAT joined forces to create the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT), a global organization building on their complementary mandates and long collaboration, to respond to today's global challenges of climate change, biodiversity loss, environmental degradation, and malnutrition. It delivers research-based solutions that harness agricultural biodiversity and sustainably transform food systems to improve people's lives. To do so, the Alliance works with local, national and multinational partners across Latin America and the Caribbean, Asia and Africa, and with the public and private sectors. With partners, the Alliance generates evidence and mainstreams innovations in large-scale programs to create food systems and landscapes that sustain the planet, drive prosperity and nourish people in a climate crisis. The Alliance is part of CGIAR, a global research partnership for a food-secure future, dedicated to reducing poverty, enhancing food and nutrition security, and improving natural resources and ecosystem services.

About the Training

Pre-breeding expands genetic diversity and accelerates new cultivar development by introducing traits from non-adapted materials or crop wild relatives (CWR) into intermediate genetic stocks. It addresses limitations in germplasm pools by using wide hybridization and genomic tools for crop improvement. CWR are valued for resilience and resistance, offering solutions to yield and agronomic challenges. Cytogenetic studies provide insights into genomic stocks and meiotic instabilities, aiding species formation and crop diversification. This training program equips young researchers with a solid understanding of pre-breeding in crop plants. Participants will learn a range of techniques, including wide hybridization for developing genetic stocks through pre-breeding methods, hands-on training in cytological tools and techniques will enable them to characterize and analyze these genetic stocks, covering areas such as mitotic analysis, chromosome pairing, and chromosomal aberrations. The training will also address technological advancements, opportunities, and challenges related to pre-breeding and cytological analysis in crop plants.

Participation and Eligibility

Eligibility: Scientists/ Researchers from Post-doctoral to Senior Scientist/Associate Professor level working in the ICAR institutes/CAU/SAU and other approved institutes/university in the relevant field (use of crops wild relatives in breeding) of Agricultural Sciences/Biological sciences can apply for this program.

How to Apply: The online registration form should be filled by the applicant along with all the necessary documents. A valid identity card issued by the applicant's organization and/or along with a 'No Objection Certificate' from the Head of the Department/Director/Supervisor, must be submitted during the application process and presented upon selection for the training program.

Selection Criteria: Applications will be screened based on the area of specialization, experience and statement of purpose. The expected number of applicants will be limited to 15-20.

Logistics Details

Mode: The mode of the training program is offline.

Travel, Accommodation and Food: All selected participants will receive travel allowance up to AC 2 tier (as per GOI norms), accommodation (on a shared basis) and meals will be provided for the entire duration of the training program.

Venue Details: ICAR-National Institute for Plant Biotechnology (ICAR-NIPB, Delhi), LBS Building, Pusa Campus, New Delhi, India – 110012.

Registration Fee: There is no registration fee for this training.

Organizing Committee

Patrons:

Dr. R. C. Bhattacharya
Director, ICAR-NIPB, New Delhi

Dr. J. C. Rana
Country Director Alliance of Bioversity International and CIAT, India, New Delhi

Coordinators:

Dr. Mahesh Rao
Senior Scientist, ICAR-NIPB, New Delhi

Dr. Ashish Kumar
Principal Scientist, ICAR-NIPB, New Delhi

Dr. Rashmi Yadav
Principal Scientist, ICAR-NBPGR, New Delhi

Important Dates:
Registration Date: 25th December 2024 to 20th January 2025
Intimation of the Selection: 11-15 February 2025
Training Date: 03 to 08 March 2025

Contact Details:
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Email: ppeb.nipb@gmail.com
Website: https://nipb.icar.gov.in

Certificates will be provided to all participants on successful completion

Registration Link: https://docs.google.com/forms/d/19OvhkehRHWQy24JQ9y5YelAZXDUerOBr6VxOY3PWA4M/edit

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