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South Asia Biosafety Program

NEWSLETTER FOR PRIVATE CIRCULATION ONLY – NOT FOR SALE

INDIA

Workshop on Biotechnology Applications for Crop Improvement: Key Developments

Dr. Vibha Ahuja, Chief General Manager, Biotech Consortium India Limited (BCIL)

Speakers at the Biotechnology Applications for Crop Improvement: Key Developments workshop (7 August 2025).

A one-day workshop titled "Biotechnology Applications for Crop Improvement: Key Developments" was held on 7 August 2025, jointly organized by Professor Jayashankar Telangana Agricultural University (PJTAU) in Hyderabad and Biotech Consortium India Limited (BCIL), with support from the Federation of Seed Industry of India (FSII). The event focused on biotech innovations, including genetic engineering and gene editing for sustainable farming. About 120 participants attended the workshop, which included scientists, researchers, students, state agriculture officials, and industry representatives from Telangana.

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Dr. C. V. Sameer Kumar, Director of the PJTAU Institute of Biotechnology, welcomed the participants. Dr. Y. G. Prasad, Former Director of the ICAR-Central Institute for Cotton Research (ICAR-CICR) in Nagpur, stated that while India has made strides in cotton productivity over the decades due to the introduction of Bt cotton, continuous infusion of new technologies like herbicide tolerant Bt cotton (HTBt cotton) and pink bollworm resistance is essential for future gains. Dr. S.K. Rao, Former Vice Chancellor of Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya (RVSKVV) in Gwalior, stressed the need for wider public awareness and trust. Dr. R. M. Sundaram, Director of the ICAR-Indian Institute of Rice Research (IIRR) in Hyderabad, highlighted the success story of gene edited rice developed at his institute and released by the Minister of Agriculture and Farmers Welfare. He further stressed the urgent need to build capacity within the agricultural ecosystem, from frontline officers to policymakers, to understand, communicate, and responsibly implement biotechnological innovations.

Dr. M. Balram, PJTAU Director of Research, informed participants that the university had played an important role in the introduction of Bt cotton. He indicated that Telangana has been a leader in the adoption of Bt cotton, which helped increase yields by 3-4 quintals (300-400 kilograms) per acre, while reducing pesticide use. Such advancements support sustainable, climate-resilient agriculture.

Continued on page 2

Continued from page 1

Participants at the workshop (7 August 2025).

Dr. Satendra Kumar Mangrauthia, Senior Scientist at ICAR-IIRR, delivered a technical presentation on gene edited crops. He spoke about applications of gene editing for crop improvement, presented the case study of gene editing BPT 5204 to increase the number of grains and evolving the mutant rice variety KAMALA (gene edited BPT 5204). He also informed participants about other gene edited crops under development at various institutions in the country.

Dr. Paresh Verma, Executive Director of the Bioseeds Division at DCM Shriram Limited of Hyderabad, delivered a technical presentation on GM crops. He stressed that biotechnology is not an end in itself but a critical means to achieve broader sustainability goals, stating: "Genetically modified crops, when appropriately deployed, can improve input-use efficiency, reduce the environmental footprint, and increase yield stability. For farmers, this translates to lower costs and greater resilience." He added that both GM and gene edited crops offer opportunities to tackle long-standing challenges, such as pest resistance and nutrient deficiencies.

The workshop saw participation from academic researchers, students, and private sector representatives, all of whom echoed the need for more evidence-based conversations around agricultural biotechnology.

Dr. Vibha Ahuja, BCIL Chief General Manager, observed that proactive engagement with state governments, universities, and the farming community is essential to translate scientific progress into impact. "There is already tremendous research happening across India, in public institutions and private labs alike. But much of this knowledge remains locked away unless we create pathways for safe and effective deployment. That is why workshops like these are so critical," she said. She further noted that BCIL's aim is to work collaboratively with stakeholders to demystify biotechnology and build consensus on responsible use.

Dr. J. M. Nidagundi, Cotton Breeder and Head of the All India Coordinated Research Project on Cotton (AICRP-Cotton) and Professor and University Head (GPB) at the University of Agricultural Sciences (UAS), Raichur, provided a detailed account of the trials being conducted in the university, including the standard operating procedures (SOPs) being followed.

The workshop saw participation from academic researchers, students, and private sector representatives, all of whom echoed the need for more evidence-based conversations around agricultural biotechnology. Speakers emphasized that while the central government has laid out broad policy frameworks, it is the states that will ultimately determine the pace and scale of adoption.

Throughout the technical and stakeholder sessions, discussions ranged from field experiences in cotton to the regulatory landscape for gene-edited crops. Participants called for faster decision-making, streamlined approvals for field trials, and improved communication strategies to engage farmers and the general public.

RESOURCE

EUginius: The European GMO Initiative for a Unified Database System

Dr. Vibha Ahuja, Chief General Manager, Biotech Consortium India Limited

EUginius, the **EU**ropean **G**MO **INI**tiative for a **U**nified Database **S**ystem, provides reliable information on detection and identification of genetically modified organisms (GMOs). It is an initiative of the Federal Office of Consumer Protection and Food Safety of Germany (BVL) and Wageningen Food Safety Research (WFSR, formerly RIKILT) of Wageningen University and Research (UR), based in the Netherlands. Although the focus of this resource is on the situation in the European Union, the information coverage is for worldwide usage.

Predominantly, real-time PCR-based methods are used to detect DNA insertions in GMOs. Certified reference materials (CRMs) are essential for verifying the presence and identity of GMOs in food, feed, or seed. They are used to ensure the accuracy and reliability of analytical methods, particularly in regulatory compliance and labelling. Efficient GMO analysis depends on access to accurate and up-to-date molecular information on GMOs developed worldwide, as well as on corresponding detection methods and available reference materials.

EUginius provides information about commercialised organisms, as well as about published ones, which present market-relevant traits. Free-text keyword search on GMOs and literature can be performed. The database contains a wide range of cross-linked information supporting GMO detection and analysis, combined with information on GMO development. The database consists of four searchable modules that are tailored to specific applications (GMO, Detection, Analysis, and Authorisation). The GMO module summarises specific information on the characteristics of a GMO event and its development. It is accessible via different identifiers, such as name, UID, trade name, species, or developer. The Detection module provides a search function for PCR-based GMO screening, identification, and quantification methods, with various selection and filtering options.

Continued on page 3

Continued from page 2

CRMs for a wide range of GMOs can be found under "Reference Material." The "GMO/method matrix" plays a key role in facilitating the identification of the PCR methods that detect a specific GMO. It displays all methods targeting sequences that are either specific to the species, the event, a construct, or an element present in the GMO. The Analysis module was developed to assist control laboratories in analysing samples for the presence of GMOs. The user enters information about PCR targets, either detected or not detected, in a sample. The system then suggests matching GMOs based on assumptions the user enters. The module can also be used to check whether the screening strategy applied is still necessary and sufficient. The Authorisation module facilitates the query of EU applications for GMOs and access to information on their authorisation status. The "Search" tab combines all the search options of the four modules mentioned above. Links to other databases, including the Biosafety Clearing House (BCH), are an important feature.

More information about the database can be accessed at:
https://www.euginius.eu/euginius/pages/home.jsf

Source: Dagand et al. 2025 EUginius - a comprehensive database facilitating GMO detection and identification, Journal of Consumer Protection and Food Safety, Published Online: 18 July 2025, ***https://doi.org/10.1007/s00003-025-01568-2***

INDIA

M.S. Swaminathan Centenary International Conference 2025

Dr. Arlene Asthana Ali, Senior Project Executive, Biotech Consortium India Limited (BCIL)

The M.S. Swaminathan Centenary International Conference 2025 was held from 7-9 August 2025 at the Pusa campus of the National Agricultural Science Complex (NASC) in New Delhi. The conference's theme was "Evergreen Revolution – The Pathway to Biohappiness" and marked the centenary of a visionary agricultural scientist, Prof. M.S. Swaminathan, the father of India's "Green Revolution," who transformed India from a food-deficit to a food-surplus nation. This landmark event brought together scientists, policymakers, farmers, students, and leaders from the private agriculture and seed sector from across the world.

The conference was inaugurated by the Prime Minister of India, Shri Narendra Modi. In his address, the Prime Minister recalled Prof. Swaminathan's pioneering role in ensuring food security for millions of Indians while upholding ecological sustainability and the dignity of farmers. To honour the contributions of Prof. Swaminathan, the Prime Minister released a commemorative coin and a postal stamp.

As part of the conference, a session was organised on "New Technologies for Agriculture" on the first day. To highlight the importance of genome editing as a transformative new technology, Prof. K. C. Bansal, Former Director, National Bureau of Plant Genetic Resources (ICAR), New Delhi, delivered an invited talk on the topic "Genome Editing for Evergreen Revolution: Unlocking the Potential of Plant Genetic Resources for Crop Improvement." Prof. Bansal stressed the role of CRISPR-based genome editing as a powerful tool to harness genetic diversity more effectively for crop improvement, thereby accelerating the realization of the goal of achieving an "Evergreen Revolution." While traditional breeding faces limitations, such as linkage drag and low precision when transferring desirable traits from wild relatives or landraces into elite cultivars, genome editing enables targeted modifications of specific key genes and facilitates precise introgression of favourable alleles without affecting other agronomic traits. Further, genome editing tools, when integrated with genomic sequence information from thousands of germplasm collections organized as pangenomes and super pangenomes, can facilitate the introduction of important traits, such as improved water-use efficiency, nutrient-use efficiency, carbon capture potential, and climate resilience, into high-yielding elite crop cultivars. Thus, genome editing has the potential to boost the functional utilization of crop genetic diversity conserved globally in ~ 1750 gene banks, including the Indian National Gene Bank, and offers an unprecedented opportunity to usher in an Evergreen Revolution.

The event was organised by the M.S. Swaminathan Research Foundation (MSSRF), in collaboration with the Indian Council of Agricultural Research (ICAR), National Academy of Agricultural Sciences (NAAS), and Ministry of Agriculture and Farmers' Welfare.

Prof. K. C. Bansal delivering a talk at the M.S. Swaminathan Centenary International Conference 2025 (7 August 2025).

CALENDAR OF EVENTS

EVENT	ORGANIZED BY	DATE	WEBSITE
INDIA			
Brainstorming Workshop on Biotech Intervention in Maize: Challenges and Opportunities	ICAR-Indian Institute for Maize Research (IIMR) and Biotech Consortium India Limited (BCIL)	1 September 2025 Ludhiana	https://www.biotech.co.in
ThinkAg Harvesting Tomorrow Summit 2025	ThinkAg	3-4 September 2025 Goa	https://thinkag.co.in/harvesting-tomorrow-summit-2025/
Hands-on Training Program on Plant Tissue Culture and Transgenics	Gujarat Biotechnology Research Centre and Ahmedabad University	15-26 September 2025 Gandhinagar	https://io.gbrc.res.in/ptc
10th Asian PGPR India Chapter National Conference on Fostering PGPR's for Secondary Green Revolution Towards Soil and Crop Health Management	Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu	15-17 September 2025 Jammu	https://skuast.org/newsite/pdf/brochure-27-06-2026.pdf
Advances in Climate-Conscious Crop Science: Genetics, Genomics, and Breeding	Indian Society of Genetics and Plant Breeding, University of Agricultural Sciences, GKVK, Bengaluru and University of Agricultural Sciences, Dharwad	4-6 October 2025 Bengaluru	https://www.isgpb.org
7th South Asian Biotechnology Conference	South Asian University and the International Centre for Genetic Engineering & Biotechnology (ICGEB)	29-31 October 2025 New Delhi	https://sabc.sau.ac.in https://www.icgeb.org/south-asian-biotechnology-conference-india-2025/
Short-term Hands-on Training Program on Recent Advances in Mutation Breeding for Crop Improvement	Bhabha Atomic Research Centre (BARC) and Assam Agricultural University (AAU)	10-19 November 2025 Jorhat	https://www.aau.ac.in/
INTERNATIONAL			
8th Asian Short Course on Agribiotechnology, Biosafety Regulation, and Communication (ASCA8)	International Service for the Acquisition of Agri-biotech Applications (ISAAA), Inc. and Malaysian Biotechnology Information Centre (MABIC)	8-12 September 2025 Manila, Philippines	https://www.isaaa.org/kc/cropbiotechupdate/article/default.asp?ID=21394
Twenty-Seventh Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice	CBD Secretariat	20-24 October 2025 Panama City, Panama	https://www.cbd.int/meetings?thm=CPB
17th ISBR Symposium (ISBR 2025)	International Society for Biosafety Research (ISBR)	2-6 November 2025 Ghent, Belgium	https://isbr.info/
2025 Asian Seed Congress	Asia and Pacific Seed Alliance (APSA), National Seed Association of India (NSAI), and Federation of Seed Industry of India (FSII)	17-21 November 2025 Mumbai, India	https://web.apsaseed.org/asc2025

SOUTH ASIA BIOSAFETY PROGRAM

The South Asia Biosafety Program (SABP) is an international development program implemented in India and Bangladesh by the Agriculture & Food Systems Institute (AFSI). SABP aims to work with national governmental agencies and other public sector partners to facilitate the implementation of transparent, efficient, and responsive regulatory frameworks for products of modern biotechnology that meet national goals as regards the safety of novel foods and feeds, and environmental protection.

Agriculture & Food Systems Institute

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