

South Asia Biosafety Program

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BANGLADESH

Field Day and Farmers' Training Program on Late Blight Resistant 3R-Gene Potato in Bangladesh

Mohammad Kamrul Hasan, Principal Scientific Officer and Md. Nurul Amin, Senior Scientific Officer–Biotechnology Division, Bangladesh Agricultural Research Institute (BARI)



Field day demonstration of late blight resistant 3R-gene potato in Rangpur, Bangladesh.

A field day followed by a farmers' training program on late blight resistant 3R-gene potato was successfully held on 6 March 2026 at the Regional Agricultural Research Station (RARS) of the Bangladesh Agricultural Research Institute (BARI) in Burirhat, Rangpur, Bangladesh.

The program convened a diverse group of stakeholders, including farmers, agricultural extension personnel, scientists, and officials from relevant organizations. The program was formally inaugurated by Mr. Md. Serajul Islam, Additional Director, Department of Agricultural Extension (DAE), Rangpur Region, who attended as the Chief Guest. Dr. A.K.M. Quamruzzaman, Chief Scientific Officer and Head of the Biotechnology Division, BARI, and Mr. Md. Hasan E Mubarak, Senior Chemist, Department of Environment, Rangpur, participated as Special Guests. The program was presided over by Dr. Md. Kamrul Islam,

Sixty local farmers participated in the program. In the confined field trial, Diamant 3 R-gene late blight resistant lines were compared to non-genetically modified Diamant varieties in fungicide sprayed and non-sprayed plots.

Chief Scientific Officer, and conducted by Dr. Muzahid-E-Rahman and Dr. Mohammad Kamrul Hasan, Principal Scientific Officer, BARI.

Sixty local farmers participated in the program. In the confined field trial, Diamant 3 R-gene late blight resistant lines were compared to non-genetically modified Diamant varieties in fungicide sprayed and non-sprayed plots. Late blight ratings began upon symptom appearance in non-sprayed control plots. No late blight foliar infection was observed in 3R-gene plots, indicating complete resistance to late blight disease. During the field visit, participants observed confined field plots of the 3R-gene potato. Scientists explained the unique characteristics of these genetically improved lines, particularly their strong resistance to late blight disease, one of the most destructive threats to potato cultivation in Bangladesh.

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Aerial view of a confined field trial site for 3R gene late blight-resistant potato in Rangpur, Bangladesh (6 March 2026).

Compared to conventional varieties, the 3R-gene potato events MSU-DIA-0255 and MSU-DIA-015 showed healthy growth with significantly lower disease incidence, even under favorable conditions for infection. In addition to Rangpur, participants were informed that confined field trials for 3R-gene potato are currently being conducted at multiple locations across Bangladesh, including Gazipur, Munshiganj, Chattogram, Jashore, and Moulvibazar, to evaluate its performance under different agro-ecological conditions. The farmers' training was organized following the field visit, where farmers received guidance and knowledge on the cultivation and management of the 3R-gene late blight resistant potato. Scientists and extension experts explained improved agronomic practices, disease management strategies, and the potential benefits of the technology, enabling farmers to better understand its application under field conditions.

The introduction of 3R-gene potato offers a sustainable solution by reducing crop losses, minimizing chemical use, lowering production costs, and improving farmers' income.

Late blight, caused by the pathogen *Phytophthora infestans*, leads to severe yield losses and forces farmers to apply frequent fungicide sprays, increasing production costs and environmental risks. The introduction of 3R-gene potato offers a sustainable solution by reducing crop losses, minimizing chemical use, lowering production costs, and improving farmers' income. The 3R-gene potato events were developed by incorporating three late blight resistance genes originally identified from wild potato species (*Rpi-blb1* from *Solanum bulbocastanum*, *Rpi-mcq1* from *Solanum mochiquense*, and *Rpi-vnt1* from *Solanum venturii*). These genes were later stacked into the popular cultivated potato Diamant variety through advanced genetic engineering techniques, with technical collaboration from Michigan State University. This technology could play a vital role in strengthening national food security and promoting environmentally sustainable agriculture in Bangladesh.



Farmers' training program on 3R gene late blight-resistant potato held in Rangpur, Bangladesh (6 March 2026).



Field day demonstration of late blight resistant 3R-gene potato in Rangpur, Bangladesh (6 March 2026).

Seminar on Bt Brinjal Research and Prospects in Bangladesh

Md. Nurul Amin, Senior Scientific Officer and Mohammad Kamrul Hasan, Principal Scientific Officer–Biotechnology Division, Bangladesh Agricultural Research Institute (BARI)



Dr. Mohammad Kamrul Hasan delivering a presentation on the current status and future prospects of Bt brinjal in Bangladesh (18 April 2026).

The Biotechnology Division and Training & Communication Wing of the Bangladesh Agricultural Research Institute (BARI) jointly organized a seminar on Bt brinjal research and prospects in Bangladesh on 18 April 2026 at BARI.

A total of 52 participants attended the seminar—39 in-person and 13 virtually. The seminar brought together a wide range of stakeholders, including university professors, agricultural extension personnel, scientists, and representatives from the Ministry of Agriculture (MoA), the Ministry of Environment, Forest and Climate Change (MoEFCC), and the Department of Environment (DoE). The program was inaugurated by Dr. Muhammad Aatur Rahman, Director General of BARI, and was presided over by Dr. Reshma Sultana, Director of the Training & Communication Wing of BARI.

During the technical session, three presentations were delivered to set the context for subsequent discussions. The keynote speaker, Dr. Mohammad Kamrul Hasan, head of the Biotechnology Division, presented the current status and future prospects of Bt brinjal in Bangladesh. He outlined the scientific basis of Bt technology and the

agronomic and environmental impacts of released Bt brinjal varieties in Bangladesh, particularly in reducing insecticide application and crop losses. He further emphasized strict adherence to biosafety regulations, integrated field management, and resistance stewardship strategies to ensure durability and long-term efficacy of the technology. He also underscored the importance of transgenic BARI Begun-10 and transgenic BARI Begun-11 varieties.

Dr. Aparna Islam, Professor and Assistant Dean, Department of Biotechnology, School of Life Sciences at BRAC University, delivered a talk on “Transgenic Crop Research in Bangladesh: Research and Readiness to Adopt.” Prof. Islam discussed the stepwise process of developing genetically engineered crops—from laboratory research, to greenhouse evaluation, confined field trials, and eventual commercial release—while underscoring the importance of strict biosafety compliance at every stage. She also recounted the compliance activities that Dr. Hasan mentioned in the earlier presentation. She provided some suggestions on the capacity building of both scientists and regulators for effective compliance with biosafety regulations and timely decision-making to

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Dr. Muhammad Aatur Rahman, Director General of BARI, speaking at the seminar (18 April 2026).

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facilitate the safe adoption of innovative agricultural technologies. Her key message underscored safety protocols to be followed at every step, within a stipulated time frame, as detailed in the biosafety protocols of Bangladesh, to harness the benefit of modern biotechnology.

A presentation on “Biosafety Regulations for Transgenic Crops in Bangladesh: Present Status and Future Directions for Facilitating Research” was delivered by Ms. Farhana Mustari, Deputy Director, Department of Environment. The presentation thoughtfully outlined the existing biosafety guidelines and regulatory framework governing GM crops in Bangladesh. The speaker further emphasized the need to strengthen GMO detection laboratories, improve inter-institutional coordination, improve risk assessment and monitoring mechanisms, and ensure regular training and capacity building for regulators. She provided details on the committees and their functions in Bangladesh’s overall regulatory process. Further, she delivered updates on the current status of various R&D projects on genetically engineered crops being reviewed by the Biosafety Core Committee (BCC) of Bangladesh.

During the open discussion, participants highlighted the promising transgenic BARI Begun-10 and BARI Begun-11, noting their heat tolerance and suitability for year-round cultivation. These traits are expected to play a significant role in strengthening sustainable brinjal production systems and enhancing farmer profitability in Bangladesh. Md. Amirul Kyser, Deputy Secretary, MoEFCC, underscored strict compliance with the Cartagena Protocol on Biosafety in transgenic crop research. Mr. Golam

Azam, Deputy Secretary, emphasized safeguarding farmers’ interests in technology adoption and deployment.

The discussions were further enriched by distinguished discussants, including Dr. Rakha Hari Sarker, Professor at the Department of Botany, University of Dhaka, and Dr. Abdullah Yousuf Akhond, former Director General of BARI. Prof. Sarker mentioned during his talk that Bangladeshi scientists had expertise introducing four Bt-brinjal cultivars in the country. Programs to introduce two additional Bt-brinjal cultivars with the same event for improved agronomic qualities can therefore be initiated immediately. Additionally, Dr. Sarker talked about the importance of bolstering institutional and regulatory capacity for efficient biosafety governance.

Dr. Akhond expressed his opinion that the labeling of transgenic crops must be practical, considering Bangladesh’s socio-economic and market realities. He also advocated shifting to an event-based approval system-aligning with global practice from the outset.

The rapporteurs recorded feedback, comments, and suggestions from participants, along with recommendations for future actions. The seminar highlighted the significant progress of transgenic eggplant in Bangladesh, demonstrating its effectiveness in reducing pesticide use and increasing yield and farmers’ incomes. The discussion strongly supported the wider adoption of climate-resilient transgenic varieties in response to demand from farmers.

INDIA

Advanced Training on CRISPR/Cas-based Genome Editing for Crop Improvement

Dr. Anil Singh, Principal Scientist (Agri. Biotechnology), ICAR-National Institute for Plant Biotechnology (ICAR-NIPB)



Group photo of guests, speakers, and participants at the Advanced Training on CRISPR/Cas-based Genome Editing for Crop Improvement (17 March 2026).

The Indian Council of Agricultural Research National Institute for Plant Biotechnology (ICAR-NIPB) jointly organized the “Advanced Training on CRISPR/Cas-based Genome Editing for Crop Improvement” on 17-26 March 2026 in New Delhi with the Trust for Advancement of Agricultural Sciences (TAAS).

The idea behind conducting this training was to provide practical experience to early- and mid-career scientists and young researchers (Ph.D. candidates and postdoctoral fellows) in genome editing for crop improvement, encompassing fundamental knowledge and hands-on skills to independently design and execute genome editing projects. Trainees had the opportunity to interact with Dr. R. S. Paroda, TAAS Chairman, Dr. D. K. Yadava, ICAR Deputy Director General (Crop Sciences), Dr. C. Viswanathan, Joint Director of Research at the Indian Agricultural Research Institute, and Dr. R.C. Bhattacharya, ICAR-NIPB Director.

The idea of conducting training on genome editing for crop improvement was to provide practical training to early- and mid-career scientists and young researchers.

The lectures were arranged by well-established experts in this area from across different institutes (India and abroad), including those at ICAR-NIPB. All practical sessions (bioinformatics-based and wet-lab experiments) were conducted entirely by ICAR-NIPB scientists and research scholars. The status of genome editing research in India and related regulatory aspects were also discussed in talks and among participants. To instil confidence among participants, a group-wise presentation on various genome-editing-based proposals was arranged, and coordinators suggested necessary improvements during their presentations. The level of confidence in their presentations demonstrated the knowledge and experience they gained during this training period. Finally, a panel discussion on key issues, including IP regimes, dossier preparation, etc., was also organized, attracting great interest from participants.

EVENT	ORGANIZED BY	DATE	WEBSITE
INDIA			
National Conference on Strategic Paradigm of Quality Seed and Planting Material for Horticultural Crops in Amrit Kaal	Maharana Pratap Horticultural University (MPHU)	28-31 May 2026 Karnal	https://www.mhu.ac.in/
Hands-on Training in In Vitro Micropropagation Techniques	Tamil Nadu Agricultural University (TNAU)	1-5 June 2026 Coimbatore	https://tnau.ac.in/
14 th International Conference on Recent Innovations and Sustainable Approaches in Agricultural, Biological, and Applied Sciences for Livelihood Security (RISAABASLS-2026)	Department and Directorate of Extension Education at Uttar Banga Krishi Vishwavidyalaya (UBKV), Agro Environmental Development Society (AEDS), and Cooch Behar Association for Cultivation of Agricultural Sciences	18-20 June 2026 Cooch Behar	https://www.ubkv.ac.in/
International Conference on Future-Ready Farming: Climate-Smart and Resilient Agricultural Solutions (ICFRF-2026)	Tamil Nadu Agricultural University (TNAU)	8-10 July 2026 Coimbatore	https://tnau.ac.in/
Genomics India Conference (GIC) 2026	Genotypic Technology, University of Agricultural Sciences (UAS), Indian Institute of Science (IISc), National Centre for Biological Sciences (NCBS), and Tata Institute for Genetics and Society (TIGS)	1-3 September 2026 Bengaluru	https://genomicsindia.co.in/
International Conference on Innovations to Transform Dryland Agriculture through South-South Cooperation	The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	10-12 September 2026 Patancheru	https://www.icrisat.org/
Training Course on Biotechnology Innovation and Biosecurity	The International Centre for Genetic Engineering and Biotechnology (ICGEB) and the Biological Weapons Convention Implementation Support Unit	12-16 October 2026 New Delhi	https://www.icgeb.org/meeting-and-courses/
1 st International Maize Conference 2026 – Next-Generation Maize: Security Pathways for 4F with Environmental Sustainability	Maize Technologists Association of India (MTAI), Indian Council of Agricultural Research (ICAR), Professor Jayashankar Telangana Agricultural University (PJTU), ICAR-Indian Institute of Maize Research (ICAR-IIMR), and International Maize and Wheat Improvement Center (CIMMYT)	26-28 October 2026 Hyderabad	https://docs.google.com/forms/d/e/1FAIpQLSfslHiMhcgrPdo5a2TFRnPIBfHxhAZ8K9u0oJlItjYN4T1dcA/viewform
4 th International Weed Conference (IWC)	Indian Society of Weed Science, Punjab Agricultural University, ICAR–Directorate of Weed Research, Indian Council of Agricultural Research (ICAR)	18-21 November 2026 Ludhiana	https://pau.edu/index.php?_act=manageBanner&DO=viewUcEventsDetail&intID=7268



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CALENDAR OF EVENTS

INTERNATIONAL			
Twenty-first Meeting of the Compliance Committee under the Cartagena Protocol on Biosafety	CBD Secretariat	10-12 June 2026 Montreal, Canada	https://www.cbd.int/meetings?thm=CPB
Fifteenth Meeting of the Liaison Group on the Cartagena Protocol on Biosafety	CBD Secretariat	16-18 June 2026 Montreal, Canada	https://www.cbd.int/meetings?thm=CPB
Bio International Convention	Biotechnology Innovation Organization (BIO)	22-25 June 2026 San Diego, USA	https://convention.bio.org/
Twenty-eighth Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA)	CBD Secretariat	27 July-1 August 2026 Nairobi, Kenya	https://www.cbd.int/meetings?thm=CPB
Twelfth Meeting of the Conference of the Parties serving as the Meeting of the Parties to the Cartagena Protocol on Biosafety	CBD Secretariat	17-18 October 2026 Yerevan, Armenia	https://www.cbd.int/meetings?thm=CPB
Asian Seed Congress 2026	Asia and Pacific Seed Association (APSA)	1-5 December 2026 Antalya, Türkiye	https://apsaseed.org/asian-seed-congress/



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.



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