Mohammad Nur Alam, PhD

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Address: Bangladesh Wheat and Maize Research Institute
Nashipur, Dinajpur, 5200, Bangladesh

Professional Summery

Plant Scientist focused on developing climate-resilient, early-maturing, and stress-tolerant wheat for Bangladesh. With expertise in crop physiology and breeding, combined with conventional and molecular tools to enhance food security and sustainability. Collaborated with FAO, CGIAR, CIMMYT, ACIAR, BWMRI, BARI, and KGF-funded projects, contributing to SDG-aligned agricultural advancement.

Career Objectives

To contribute to sustainable crop improvement by developing plant varieties with enhanced tolerance to abiotic stresses such as drought, heat, and salinity through integrated approaches combining physiology, breeding, and molecular tools. Aiming to support global food security and climate-resilient agriculture by advancing research in stress-adaptive mechanisms and innovative breeding strategies.

Core Competence

- Plant molecular biology
- Genetics and plant breeding,
- Plant phenomics and genomics,
- Abiotic stress
- Crop science,
- Bioinformatics
- Crop and soil management,
- Project planning, designing, and executing,
- Supervising and teaching MS & PhD students, researchers/fellows, and
- Paper writing, editing, handling, publishing, and reviewing, etc.

Professional Experience

Senior Scientific Officer (Wheat Breeding), Bangladesh Wheat and Maize Research Institute, Nashipur, Dinajpur, Bangladesh, from 29 March 2023 to present.

Duties and Responsibilities

- Study gene structure, expression, and function in plants.
- Identify and isolate genes related to important traits such as stress tolerance, disease resistance, yield, and nutritional quality.
- Conduct mutagenesis, gene editing (e.g., CRISPR-Cas9), and transformation experiments.
- Assist in marker-assisted selection (MAS) and genomic selection (GS) programs.
- Develop molecular markers linked to desirable agronomic traits.
- Generate transgenic or genome-edited plants for trait improvement.

- Design, execute, and optimize molecular biology protocols (e.g., PCR, qRT-PCR, gel electrophoresis, DNA/RNA/protein extraction).
- Conduct gene cloning, sequencing, and functional validation studies.
- Analyze gene expression using techniques like RNA-Seq or microarrays.
- Analyze genomic, transcriptomic, proteomic, and metabolomic data using computational tools.
- Interpret high-throughput sequencing data and conduct pathway analysis.
- Design and implement breeding programs to develop high-yielding, disease-resistant, and climate-resilient wheat varieties.
- Incorporate desirable traits such as early maturity, heat/drought tolerance, and improved grain quality.
- Collect, maintain, and evaluate diverse wheat germplasm (local and exotic) for agronomic and physiological traits.
- Screen genotypes under various environments to identify superior lines.
- Perform controlled crosses and handle generations from F1 to advanced lines.
- Apply conventional and modern breeding methods (e.g., pedigree, bulk, SSD, marker-assisted selection).
- Conduct multi-location and multi-year trials to evaluate yield performance, adaptability, and stability.
- Collaborate with plant breeders, agronomists, and biotechnologists to integrate molecular insights into breeding pipelines.
- Participate in multidisciplinary research projects focused on crop improvement.
- Maintain accurate and detailed lab records, notebooks, and data files.
- Prepare scientific reports, manuscripts, and grant proposals.
- Present findings at scientific meetings, workshops, or conferences.
- Train and supervise junior researchers, technicians, and students.
- Ensure compliance with biosafety, ethical, and quality standards in the lab.
- Troubleshoot molecular techniques and develop improved protocols.
- Contribute to the development of innovative technologies for plant improvement.
- Apply molecular biology knowledge to solve real-world agricultural challenges.
- Contribute to the development of climate-resilient and high-yielding crop varieties.
- Design and implement breeding programs to develop high-yielding, disease-resistant, and climate-resilient wheat varieties.
- Incorporate desirable traits such as early maturity, heat/drought tolerance, and improved grain quality.
- Collect, maintain, and evaluate diverse wheat germplasm (local and exotic) for agronomic and physiological traits.
- Screen genotypes under various environments to identify superior lines.
- Perform controlled crosses and handle generations from F1 to advanced lines.
- Apply conventional and modern breeding methods (e.g., pedigree, bulk, SSD, marker-assisted selection).
- Conduct multi-location and multi-year trials to evaluate yield performance, adaptability, and stability.
- Record data on phenological, morphological, and yield-related traits.
- Evaluate genotypes under abiotic (heat, drought, salinity) and biotic (disease, pests) stresses.
- Collaborate with pathologists and physiologists to assess resistance mechanisms.
- Integrate molecular markers, genomics, and digital phenotyping tools in the breeding process.
- Utilize software for breeding data analysis (e.g., R, GenStat, Breeding View).

- Work with national and international research institutions (e.g., CIMMYT, ICARDA).
- Contribute to regional testing networks and participatory varietal selection (PVS).
- Produce breeder and foundation seeds of promising lines.
- Prepare documentation for national variety release and registration.
- Publish research findings in peer-reviewed journals and technical bulletins.
- Prepare project proposals, technical reports, and presentations.
- Guide junior scientists, students, and technical staff in breeding operations.

Scientific Officer (Wheat Breeding), Bangladesh Wheat and Maize Research Institute, Nashipur, Dinajpur, Bangladesh from 07 November 2019 to 28 March 2023.

Duties and Responsibilities

- Same as the above

Scientific Officer (Agronomy), Bangladesh Wheat and Maize Research Institute, Nashipur, Dinajpur, Bangladesh. 22 November 2017 to 28 March 2023.

Duties and Responsibilities

- Develop and implement best practices for crop production (e.g., sowing time, spacing, irrigation, and fertilization).
- Improve crop yield, quality, and sustainability through agronomic interventions.
- Evaluate the performance of different crop varieties under varying environmental and soil conditions.
- Conduct soil testing and recommend appropriate nutrient management plans.
- Promote the efficient use of fertilizers and soil amendments to enhance soil fertility and productivity.
- Research sustainable practices for soil conservation and organic matter improvement.
- Design and conduct field experiments to evaluate agronomic practices and technologies.
- Collect, analyze, and interpret data on crop growth, yield, and resource use efficiency.
- Work on optimizing tillage, planting methods, irrigation scheduling, and crop rotation.
- Collaborate with plant protection specialists to manage crop pests, diseases, and weeds.
- Recommend integrated pest management (IPM) strategies.
- Promote conservation agriculture and climate-resilient cropping systems.
- Develop adaptive agronomic strategies for drought, heat, salinity, and flood conditions.
- Provide training, technical guidance, and support to farmers, extension workers, and agri-businesses.
- Demonstrate improved practices through farmer field schools (FFS) and on-farm trials.
- Develop educational materials and conduct outreach programs.
- Work with plant breeders, soil scientists, economists, and other stakeholders on multidisciplinary projects.
- Participate in agricultural development projects funded by government or international donors.
- Monitor field operations and crop performance throughout the growing season.
- Prepare technical reports, research publications, and policy recommendations.
- Utilize remote sensing, GIS, and precision agriculture tools for crop monitoring and decision-making.
- Analyze data using software such as Excel, R, or statistical packages.
- Promote sustainable land use practices and support the development of agricultural policy frameworks.
- Contribute to achieving food security and the United Nations Sustainable Development Goals (SDGs).

Scientific Officer (Agronomy), Wheat Research Center, Bangladesh Agricultural Research Institute, Nashipur, Dinajpur, Bangladesh, 10 January 2011 to 21 November 2017.

Duties and Responsibilities

- Same as the above.

Market Development Officer, AKOTA, Gaibandha, Bangladesh, 01 Feb 2009 to 07 Dec 2010. I worked as Market Development Officer in Char livelihoods Program (CLP), Funded by DFID.

Duties and Responsibilities

- Select the vulnerable and poor people through PRA (Participatory Rural Appraisals);
- Organize the training programs for the beneficiaries on how to rear poultry, cow, buffalos, and cultivate the hybrid grasses, especially jumbo hybrid grass;
- Establish the marketing channels for the target beneficiaries with the buyers to get the maximum returns from the On-Farm activities;
- Establish the model village farms (Horticulture & poultry) in the service providing areas;
- Ensure the poultry, livestock & horticulture related inputs to the cultivators timely;
- Develop the livestock & poultry services providers through skill development training to serve to the beneficiaries;
- Organize the workshops with producers, collectors, buyers, processors, feeds sellers, shopkeepers and stakeholders;
- Liaison with product producers and collectors, milk vita, brac chilling center and representatives of livestock and poultry farms; and
- Organizing the cross field visit for the beneficiaries.

Field Coordinator, UST (Unnayan Shahojogy Team), Bangladesh**,** 03 Jan 2008 to 31 Jan 2009
I worked as a Field Coordinator in the project, "Food security project for the poor and poorest people of Bangladesh", funded by Interchurch Organisation for Development Cooperation (ICCO), Netherlands.

Duties and Responsibilities:

1. Train up, supervise, follow up and monitoring the beneficiaries on crop, vegetables and seed production and management; organic farming; nursery management; leadership building up;
2. Conduct Household Livelihoods Security Assessment (HLSA); Farmer's Group Discussion (FGD); Farmer's Information Need Assessment (FINA); Training Need Assessment (TNA);
3. Feasibility study, program planning and budgeting;
4. Develop monthly, quarterly, six monthly and annual action plan;
5. Organize monthly coordination meeting to share and to review the action plan and the progresses of assigned activities;
6. Exhibition of outputs and participating in various fairs, organized by GOs and NGOs;
7. Arrange workshop, seminar and training program at district, Upazila and Union levels with the representatives of GOs and NGOs; and Networking and liaison with DC office, UNO office, Union parishad and Local elites; and Observing of the National Days with GOs and NGOs.

Program Organizer (Agriculture), brac, Bangladesh, 21 Jan 2007 to 02 Jan 2008
I worked as a Program Organizer in the project, "Targeting the Ultra-poor", funded by EC, Malaysia, Germany, etc.

Duties and Responsibilities

1. Select the vulnerable and poor people through PRA (Participatory Rural Appraisals);
2. Train up the selected beneficiaries on crop vegetables and seed production and management; nursery management; small enterprise management (SEM);
3. Supervise cereal, pulse, oilseed, and horticultural seed production, seed processing, and storage;
4. Council the beneficiaries of the usefulness of pure water, sanitation and health hygiene.

Educational Qualification

Ph.D., University of Chinese Academy of Sciences, Beijing, China in 2018

Major Research Area: Genomics, Abiotic stress, Gene cloning/transfer, Gene expression observation through qPCR; Transcriptomic profiling, Antioxidant metabolisms, Measurement of Antioxidant enzymes and ROS/RNS, Plant stress physiology, Melatonin, Brassinosteroids, Plant hormones, etc.

Coursework: Molecular Biology and Genomics, Biophysics and Immunology, Elementary Chinese Reading, Writing, Speaking, Listening; Chinese Culture and History.

Master of Science in Agronomy, Bangladesh Agricultural University, Mymensingh, 2202, Bangladesh in 2006

Major Subjects: Weed Management, Advanced Crop Husbandry, Soil Fertility Management in Crop Production Stress, Water Management in Crop Production, Cropland Agroforestry, Stress Agronomy, Environmental Agronomy, Plant Physiology, Agricultural Systems, Agronomic Research Methodology, Crop Yield Processes, Seed Technology, Production and Post-Harvest Management of Minor Crops.

Bachelor of Science in Agriculture (Hons), Bangladesh Agricultural University, Mymensingh, 2202, Bangladesh in 2001 (held in 2003)

Major Subjects: Agronomy, Horticulture, Crop Botany (Crop Physiology and Ecology), Genetics and Plant Breeding, Soil Science, Plant Pathology, Entomology, Statistics, Biochemistry, Agricultural Chemistry, General Chemistry, Agroforestry, Agricultural Extension Education, Agricultural Economics, Agricultural Engineering, Animal Husbandry.

Higher Secondary Certificate (HSC), Carmichael College, Rangpur, Bangladesh in 1996

Major Subjects: English Literature, English Grammar, Chemistry (I & II), Physics (I &II), General Mathematics (Arithmetic, Algebra, Geometry, Trigonometry), Elective Mathematics, Biology (Botany and Zoology), Bengali Literature, Bengali Grammar.

Secondary School Certificate (SSC), Dhantola R. U. Bl. High School, Dhantola, Sadar, Rangpur, Bangladesh in 1994

Major Subjects: English (Literature & Grammar), Chemistry, Physics, General Mathematics (Arithmetic, Algebra, Geometry, and Trigonometry), Higher Mathematics, Biology (Botany and Zoology), Islamic Religion, Bengali (Literature & Grammar), and Geography

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Publications

P**ublished Articles**

- Amin MF, **Alam MN***, Rahman A. 2025. Depicting DNA Makeup of Wheat Genotypes Using SSR Markers and Their Association with Thermotolerance. Bangladesh Journal of Agriculture 50(1): 20-35. https://doi.org/10.3329/bjagri.v50i1.78297
- **Alam MN***, Islam MZ, Farukh MA, Chan Z, Akhter MM, Abedin MT, Hossain MM. 2024. Detrimental effects of abiotic stress on wheat and its management techniques. Cereal Research Communications 53(6): 1-14. https://doi.org/ 10.1007/s42976-024-00588-2 (Review paper)
- **Alam MN**, Li Yang L, Yi X, Wang Q-F*, Robin AHK*. 2021. Role of melatonin in inducing the physiological and biochemical processes associated with heat stress tolerance in tall fescue (*Festuca arundinaceous*). Journal of Plant Growth Regulation 41: 2759–2768. https://doi.org/10.1007/s00344-021-10472-6
- **Alam MN**, Zhang L, Yang L, Islam MR, Liu Y, Luo H, Yang P, Wang Q-F*, Chan Z*. 2018. Transcriptomic profiling of tall fescue in response to heat stress and improved thermotolerance by melatonin and 24-epibrassinolide. BMC Genomics 19: 224. https://doi.10.1186/s12864-018-4588-y

- **Alam MN**, Wang Y, Chan Z*. 2018. Physiological and biochemical analyses reveal drought tolerance in cool-season tall fescue (*Festuca arundinacea*) turf grass with the application of melatonin. Crop and Pasture Science 69: 1041-1049. https://doi.org/10.1071/CP18394
- Islam MR, Li ZZ, Gichira AW, **Alam MN**, Fu PC, Hu GW, Wang Q-F*, Chen LY*. 2019. Population genetics of *Calotropis gigantea*, a medicinal and fiber resource, plant, as inferred from microsatellite marker variation in two native countries. Biochemical Genetics 57(4): 522-539. https://doi.org/10.1007/s10528-019-09904-6
- Hossain MM, **Alam MN***, Hakim MA, Islam MZ, et al. 2023. Development of short duration, tolerance to high temperature and bipolaris leaf blight, and moderately susceptible to blast disease of wheat genotype with trials in various agroecological zones in Bangladesh. International Journal of Scientific Research and Management 11 (09): 395-410. DOI: 10.18535/ijsrm/v11i09.ah02
- Hossain MZ, **Alam MN**, Ekram MSE, Islam MA, Md. A. Wadud Mollah MMAW, Hasan MK, Hossain M. 2024. Effect of fertilizer placement in different depth for different tillage options on wheat yield. European Academic Research, XI(12): 1505-15011.
- **Alam MN***, Hakim MA, Islam MZ, Mamun MAA, Mandal MSN, Hossain MM, et al. 2023. Physiological and yield contributing characters depicting a high yield potential triticale line (x *Triticosecale* Wittm.). International Journal of Environmental & Agriculture Research, 9(10): 1-12.
- **Alam MN***, Islam MZ, Mamun MAA, Md. MSN, Hossain MM, et al. 2023. Searching high-yielding durum wheat genotype (s) through assessing the physiology, yield, and yield contributing attributes. International Journal of Agronomy and Agricultural Research, 23(3):1-9.
- Hossain MM, **Alam MN*,** Islam MZ, Ekram MSB, Islam R, Atiquzzaman M. 2021. Spring wheat genotypes exhibit physiological and yield potentiality under late sowing conditions in Bangladesh. International Journal of Agronomy and Agricultural Research 18 (2): 1-7.
- Jahan AHS, Hossain A*, **Alam MN**, Ali A, Saif HB, Kizilgeci F, Omer K, Barutcular C, Sabagh AE. 2020. Yield and grain protein of wheat (*Triticum aestivum* L.) is influenced by the application of different levels of nitrogen. Fresenius Environmental, 29 (07A/2020): 5704-5714.
- Hossain MM, Rahman MM, Islam R**, Alam MN**, Ahmed A, Begum AR, Islam MZ*. 2019. Evaluation of some wheat genotypes growing under heat stress condition in two environments in Bangladesh. Journal of Multidiscipline Science, 1(1): 1-7. https://doi.org/10.33888/jms.2019.113
- Akhter MM, Sabagh AEL, **Alam MN**, Hasan MK, Hafez E, Barutçular C, Islam MS*. 2017. Determination of seed rate of wheat (Triticum aestivum L.) varieties with varying seed size. Scientific Journal of Crop Science, 6(3): 161-167. https://doi.org/10.14196/sjcs.v6i3.2384
- **Alam MN***, Bodruzzaman M, Hossain MM, Sadekuzzaman M. 2014. Growth performance of spring wheat under heat stress conditions. International Journal of Agronomy and Agricultural Research, 4(6): 91-103.
- **Alam MN*,** Akhter MM, Hossain M, Alam SMM. 2013. Phenological changes of different wheat genotypes (*Triticum aestivum* L.) in high temperature imposed by late seeding. Journal of Biodiversity and Environmental Science, 3(8): 83-93.
- **Alam MN*,** Akhter MM, Hossain M, Rokonuzzaman, 2013. Performance of different genotypes of wheat (*Triticum aestivum* L.) in heat stress conditions. International Journal of Bioscience, 3(8): 295-306.

- **Alam MN*,** Mannaf MA, Sarker MAZ, Akhter MM. 2013. Effect of terminal high temperature imposed by late sowing on phenological traits of wheat (*Triticum aestivum* L.). International Journal of Agronomy and Agricultural Research, 3(3): 6-10.

Published Review Article

- Basnet BB, Bishwakarma JK, Alam MN, Bhattarai SS, Baniya B. 2019. COVID-19 Outbreak: Impacts on Environment and Food Security. Asian Journal of Multidisciplinary Studies, 8(10) 19-29.

Published Book Chapter

- Akbar H, Alam MN, Chan Z, Sabagh AEL, Fahad S, Hasanuzzaman M. 2022. Heat-Induced Oxidative Stress in Plants: Consequences and Survival Mechanisms. In Fahad S, Adnan M & Saud S (Eds.), Improvement of Plant Production in the Era of Climate Change (1st ed.). https://doi.org/10.1201/9781003286417. (p. 30). CRC Press.

Accepted Book Chapter

- Rahman A, Islam MZ, Alam MN*, Rahman MM, Islam MZ*. Nutritional value of wheat and health impact, Wheat. Manuscript ID_295006, IntechOpen publication, London.

Thesis for PhD

- Exogenous melatonin and 2,4-epibrassinolide enhance heat and drought tolerance of tall fescue, University of Chinese Academy of Sciences, Beijing, China, June 2018.

Thesis for MS

- Responses of *boro* rice to differential ages of seedlings and plant spacings under system of rice intensification, Bangladesh Agricultural University, Mymensingh, August 2005.

Technical Skills

- RNA extraction and purification from plant samples
- DNA extraction and purification from plant samples;
- Protein extraction, purification, and electrophoresis;
- cDNA preparation;
- Real-time PCR; Reverse Transcription PCR (RT-PCR), qPCR;
- Gene expression observation, Cloning of genes;
- Primer design with gene segments;
- Assays of POD, CAT, SOD, GSH, MDA, ROS (H_2O_2, Superoxide anion), RNS, EL, Protein, Chl, etc.,
- Preparation of agarose gel plate; PEG-infused plate preparation;
- Centrifuge and autoclave machine; Experiment conducted with MS media;
- Pathogen culture in different media;
- Handling glasshouse, greenhouse, growth room & growth chamber;
- Seed sterilization & stratification;
- Laboratory management;
- Conducting field and Lab experiments with cereal, legumes, oil seeds, horticultural, and pulse crops;
- Molecular, phenotypic, and morphological data recording and analysis, etc..
- R, gene expression analysis; clustering analysis, pathway analysis, enrichment analysis SPSS, Statistic 10, MSTAT C; and
- MS Office package, Email, Social media, Internet, etc.

Projects conducted

❖ **As a Principal Investigator**:

- Evaluation of yield and yield contributing characters of advanced lines in optimum and late sowing conditions. Finished in 2018-2019.
- Effect of terminal high temperature imposed by late sowing on physiological traits of wheat. Finished in 2012-2014.
- Effect of pesticides in repelling birds from wheat fields. Research report on crop management. Finished in 2013-20120.
- Screening and improving *Bipolaris* leaf blight, leaf rust and blast tolerant/resistant spring wheat varieties through marker-assisted selection (MAS); Status: Core program of the institute (On going)
- Screening and improving heat and drought tolerant/resistant spring wheat and maize genotype (s) through marker assisted selection (MAS); Core program of the institute (On going);
- Evaluation of salinity stress on growth, and physiology and measurement of mineral content in different wheat and maize genotypes in hydroponic conditions; Ongoing (2022-25)
- Germination and seedling vigor of wheat and maize genotypes under different saline regimes, Ongoing (2022-25)
- Evaluation of growth, ion distribution in different plant parts, and yield and yield contributing characters of some selected wheat and maize genotypes under salinity stress, Ongoing (2022-25)
- Verification of sowing time of newly released maize varieties. Status: Ongoing
- Optimization of potassium fertilizer dose and plant spacing in controlling of fusarium stalk rot disease of maize. Status: Ongoing
- Evaluation of yield and yield contributing characters of advanced lines in optimum and late sowing conditions. Completed: 2018-2019.
- Physiological and biochemical analyses reveal drought tolerance in cool-season tall fescue (*Festuca arundinacea*) turf grass with the application of melatonin. Completed: 2015-2018
- Comparative analysis of exogenous melatonin and 24-epibrassinolide on heat stress tolerance of cool-season tall fescue (*Festuca arundinacea* Schreb.). Completed: 2014-2017
- Effect of terminal high temperature imposed by late sowing on physiological traits of wheat. Completed: 2012-2014.

As a Co-Principal Investigator/ Associate Coordinator

- The effect of variety and time of de-topping on grain and forage yield of maize. Status: Completed: (2022-24)
- Accelerating the Mainstreaming of Elevated Zinc in Global Wheat Breeding: A "Fluoride in the Water" Approach to Nutrition (BMGF and DFID) - 'Subgrant BWMRI'." Duration: 2020-2024; Subgrant Reference number: GWP-2019-008, Status: Completed: (2019-2024)
- Transformation of agriculture for the food security of Bangladesh. Completed: 2019-2021
- Screening of wheat genotypes for water deficit. Completed: 2014-2018
- Determination of seed rate of wheat varieties with varying seed size. Completed: 2013-2015
- Feasibility study of wheat-based cropping patterns in light soil. Completed: 2010-2014
- Effect of nitrogen application in different doses at maximum tillering stage of wheat. Completed: 2012-2015
- Optimization of sowing time for advanced lines and recently released wheat varieties in different agro-ecological zones of Bangladesh. Completed: 2012-2015
- Performance of wheat varieties under different tillage options. Completed: 2011-2014
- Feasibility study of wheat-based cropping patterns in light soil. Completed: 2012-2014
- Effect of nitrogen application in different doses at maximum tillering stage of wheat. Completed: 2012-2015

- During conducting research jointly in the Bangladesh Wheat and Maize Research Institute, the technologies were developed:

Variety Development

Actively participated in Variety Development:

1. BARI Gom 27 (BARI Wheat 27), Release year: 2012: Race Ug99 resistance, *Bipolaris* Leaf blight (BpLB) and terminal high temperature (THT) tolerance, and High Yielding Variety (HYV).
2. BARI Gom 28 (BARI Wheat 28), Release year: 2012: BpLB and heat stress tolerance and HYV.
3. BARI Gom 29, (BARI Wheat 29), Release year: 2014: BpLB and heat stress tolerance and HYV
4. BARI Gom 30 (BARI Wheat 30), Release year: 2014: BpLB, leaf rust, blast, and heat stress tolerance, and HYV, having salinity tolerance up to 10 dS/m.
5. BARI Gom 31 (BARI Wheat 31), Release year: 2017: BpLB and heat stress tolerance and HYV
6. BARI Gom 32 (BARI Wheat 32), Release year: 2017: BpLB, leaf rust, blast and heat stress tolerance, and HYV, having medium duration compared to other varieties, dwarf sized.
7. BARI Gom 33 (BARI Wheat 33), Release year: 2017: Blast resistance, BpLB, rust, and heat stress tolerance and HYV, culm robust, having salinity tolerance up to 10 dS/m.
8. BWMRI Gom 1 (BWMRI Wheat 1), Release year: 2019: Blast, BpLB, rust, heat stress tolerance, and HYV, having short duration compared to other varieties, dwarf.
9. BWMRI Gom 2, (BWMRI Wheat 2), Release year: 2020: Blast, BpLB, rust, and heat stress tolerance, and HYV
10. BWMRI Gom 3 (BWMRI Wheat 3), Release year: 2020: Blast resistance, BpLB, rust, heat stress tolerance, and HYV.
11. BWMRI Gom 4 (BWMRI Wheat 4), Release year: 2022: Blast, BpLB, rust, and heat stress tolerance, and HYV
12. Development of BWMRI Gom 5 (BWMRI Wheat 5), Release year: 2023: Blast, BpLB, rust, heat stress tolerance, and HYV.

Development of Cropping pattern: Development of four crops-based cropping patterns: 1. Early Potato (Variety: Granula) - Wheat (BARI Gom 25) - Mungbean (BARI Mug 6) - Transplanted (T) Aman Rice (BINA Dhan 7). 2. Early Potato (Variety: Granula) - Wheat (BARI Gom 25) - Maize (Variety: Pacific) - T. Aman Rice (BINA Dhan 7), (N.B.: Dhan means paddy).

Professional Training

- Technical Reporting writing and Editing, organized by Bangladesh Agricultural Research Council, Farmgate, Dhaka, Bangladesh, 20-24 January 2025
- Hybrid Maize Seed Production Technology, organized by the Bangladesh Wheat Maize Research Institute, Nashipur, Dinajpur, Bangladesh, Duration: 10-11 Jun 2022
- Master Trainer's on Fighting Against Fall Armyworm: Integrated Pest Management Solutions, Dinajpur, Bangladesh, organized by the CIMMYT-Bangladesh, Duration: 20-21 Mar 2022
- Phenoapps: An Implication of Precise Phenotyping and Data Acquisition, organized by the BWMRI, Nashipur, Dinajpur, Bangladesh, Duration: 20 - 22 Jan 2019
- Seed Health Management and Seed Quality Testing, organized by World Vegetable Center/BARI/KGF, Joydebpur, Gazipur, Bangladesh, Duration: 04-05 Aug 2019
- 2016 Winter School on Frontier and Inter-Disciplinary Sciences for the Overseas Students; Co-sponsored by International College of UCAS, CAS-TWAS President's Fellowship Program; Co-held by the Shenzhen Institutes of Advanced Technology, CAS and the Guangzhou Institutes of Biomedicine and Health, CAS, Guangzhou, China, Duration: 08-13 Jan, 2017

- Crop Physiology and Climate Change, organized by Krishi Gobeshna Foundation, Farmgate, Dhaka, Bangladesh, Duration: 22-27 Jun 2013
- Multivariate Analysis, organized by Bangladesh Agricultural Research Institute (BARI), Joydebpur, Gazipur, Bangladesh, Duration: 28-30 Apr 2013
- Management of Plant Genetic Resources, organized by Plant Germplasm Research Centre, BARI, Joydebpur, Gazipur, Bangladesh, Duration: 24-25 Apr 2013
- Quality Wheat Seed Production and Preservation Technology, organized by Wheat Research Centre (WRC), BARI, Joydebpur, Gazipur, Bangladesh, Duration: 23-25 Feb, 2013
- Experimental Data Analysis and Report Writing, organized by WRC, BARI, Nashipur, Dinajpur, Bangladesh, Duration: 18-22 Jun 2011
- Wheat Improvement Training for Young Scientists, organized by WRC, BARI, Nashipur, Dinajpur, Bangladesh, Duration: 13-17 Feb 2011.

Presentation

- Evaluation of yield and yield contributing characters of advanced lines in optimum and late sowing conditions, Internal Research Review Workshop, Seminar room, Bangladesh Wheat and Maize Research Institute, Dinajpur, Bangladesh, 2019.
- **PhD Thesis:** Exogenous melatonin and 2,4-epibrassinolide enhance heat and drought tolerance of tall fescue, Wuhan Botanical Garden, Chinese Academy of Sciences, Wuhan, Hubei, China; June, 2018.
- Comparative analysis of exogenous melatonin and 24-epibrassinolide on heat stress tolerance of cool-season tall fescue (*Festuca arundinacea* Schreb.), Seminar room, Wuhan Botanical Garden, Chinese Academy of Sciences, Wuhan, Hubei, China; September, 2017.
- Physiological and biochemical analyses reveal drought tolerance in cool-season tall fescue (*Festuca arundinacea*) turf grass with the application of melatonin, Seminar room, Wuhan Botanical Garden, Chinese Academy of Sciences, Wuhan, Hubei, China; January, 2018.
- Role of melatonin in inducing the physiological and biochemical processes associated with heat stress tolerance in tall fescue (*Festuca arundinaceous*). Seminar room, Wuhan Botanical Garden, Chinese Academy of Sciences, Wuhan, Hubei, China; May, 2018.
- Effect of pesticides in repelling birds from wheat fields. Internal Research Review Workshop, Seminar room, Bangladesh Agricultural Research Institute, Joydebpur, Gazipur, Bangladesh, May, 2014.
- Effect of terminal high temperature imposed by late sowing on physiological traits of wheat. Internal Research Review Workshop, Bangladesh Agricultural Research Institute, Joydebpur, Gazipur, Bangladesh, May, 2012.
- **MS Thesis:** Response of *boro* rice to differential ages of seedlings and plant spacing under system of rice intensification, Department of Agronomy, Bangladesh Agricultural University, Mymensingh, 2202, Bangladesh; July, 2005.

Seminars Attended

- The role of membrane transporters in salt and heat response and tolerance in plants; presented by Dr. Huazhong Shi, Professor, Department of Biochemistry, Texas Technical University, USA, May 2015.
- Plant genetics and genomics to improve drought and salinity tolerant turf grass in the southern state of USA; presented by Dr. Y. Q. Wu & Dr. Charles M. Talioferro; Professor, Oklahoma State University, USA, July 2015.
- Genome sequencing of cotton; presented by Dr. Zhu Yu Xian, Academician and Professor, Wuhan University, Wuhan, China, September 2015.
- Integrated proteomics methods for stress study and plant response to cold stress; presented by Dr. Yi-Min She, Professor, Shanghai Center for Plant Stress Biology, CAS, 15 Nov 2015.

- Molecular mechanisms of plant responses to temperature stress in *Arabidopsis*; presented by Dr. Jianhua Zhu, Professor, Department of Plant Science and Landscape Architecture, College of Agriculture and Natural Resources, University of Maryland, College Park, MD, April 2016.
- Exploring plant micro-RNA for engineering and understanding gene regulation; presented by Dr. Ramanjulu Sunkar, Professor, Department of Biochemistry and Molecular Biology, Oklahoma State University, April 2016.
- Wax forming pathways in *Cruciferae* family; presented by Dr. Frederic Beaudion, Professor, Rothamsted Research Centre, England, September 2016.
- Discovery of different fatty acids in plants; Heriberto D. Cerutti, PhD, Professor, Plant lipid metabolism and function lab, Centre for plant science innovation, University of Nebraska, Lincoln, September 2016.
- Barley cuticle gene cloning; presented by Dr. Guoxing Chen, Professor, Northwest Institute of Eco-environment and Resources, Gansu, China, November 2016.

Award Received

- CAS-TWAS President's Fellowship Programme For PhD Candidates from Developing Countries 2014 (2014-2018) - CAS-TWAS PhD Fellowship (Jointly funded by the Chinese Academy of Sciences, Beijing, China, and The World Academy of Sciences, Trieste, Italy.
- Bangladesh Agricultural University (BAU) Merit Scholarship (1997-2001) - BAU, Mymensingh-2202, Bangladesh.
- Rangpur District Parishad Talent Scholarship (1994-2001) - Rangpur District Parishad, The Government of the People's Republic of Bangladesh, Bangladesh.
- Bangladesh Government Talent Scholarship (in Class Eight) (1992-1993)
- Directorate of Secondary and Higher Education, The Government of the People's Republic of Bangladesh, Dhaka, 1000, Bangladesh.

Professional Memberships

Member of-

- Plant Breeding and Genetics Society of Bangladesh, Dhaka, Bangladesh; 2019- Present
- Krishibid Institution Bangladesh, Dhaka, Bangladesh; 2005- Present
- Bangladesh Society of Agronomy, Dhaka, Bangladesh; 2012- Present
- Weed Science Society of Bangladesh, Dhaka, Bangladesh; 2012- Present
- Bangladesh Agricultural University Alumni Association, Mymensingh, Bangladesh; 2004- Present
- University of Chinese Academy of Sciences Alumni Association, Beijing, China; 2018- Present
- TWAS (The World Academy of Sciences) Alumni Association, Trieste, Italy; 2018- Present

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Reviewer of the Journals

- Scientific Reports
- BMC Genomics
- BMC Biology
- PLoS ONE
- Agricultural Research
- Natulae Scientia Biologicae
- Bangladesh Journal of Agriculture

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References

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