

Curriculum Vitae

ZAHEER AHMED (Ph.D.)

Professor/ Scientific Director

Department of Plant Breeding and Genetics.

Biotechnology Chair, US-PAK Center for Advanced Studies
in Agriculture and Food Security (CAS-AFS).

Soybean Genetics and Seed Supply Chain Center (SGSSCC),

University of Agriculture, Faisalabad, Pakistan

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Academic & Professional Experience:

➤ Current Appointments

- **Professor (2024 – Present)**

Department of Plant Breeding & Genetics / Biotechnology Chair

US-Pakistan Center for Advanced Studies in Agriculture & Food Security (CAS-AFS)

University of Agriculture, Faisalabad, Pakistan

- **Scientific Director (2024 – Present)**

Soybean Genetics & Seed Supply Chain Center (SGSSCC)

University of Agriculture, Faisalabad, Pakistan

➤ Administrative Experience

- **Deputy Director, Student Affairs (2017 – Present)**

University of Agriculture, Faisalabad, Pakistan

- **Focal Person (2024 – Present)**

Engro Fertilizers Learning Center

University of Agriculture, Faisalabad, Pakistan

- **Assistant Superintendent, Student Residences (2016 – 2024)**

University of Agriculture, Faisalabad, Pakistan

➤ Previous Academic Positions

- **Associate Professor / In-Charge, Soybean Program (2022 – 2024)**

Department of Plant Breeding & Genetics / Biotechnology Chair

US-Pakistan Center for Advanced Studies in Agriculture & Food Security (CAS-AFS)

University of Agriculture, Faisalabad, Pakistan

- **Assistant Professor / In-Charge, Soybean Program (2016 – 2022)**

Department of Plant Breeding & Genetics / Biotechnology Chair

US-Pakistan Center for Advanced Studies in Agriculture & Food Security (CAS-AFS)

University of Agriculture, Faisalabad, Pakistan

- **Lecturer (2007 – 2008)**

Department of Plant Breeding & Genetics

Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, Pakistan

➤ Research Experience

- **Postdoctoral Research Scientist (NSERC Fellowship) (2014 – 2015)**
Plant Genetic Diversity Laboratory
Saskatoon Research Centre, Agriculture & Agri-Food Canada, Saskatoon, Canada
- **Research Associate (2013 – 2014)**
Department of Molecular & Cellular Biology
University of Guelph, Ontario, Canada
- **Graduate Research Assistant (2009 – 2013)**
Department of Molecular & Cellular Biology
University of Guelph, Ontario, Canada
- **Research Fellow (2006 – 2007)**
Department of Plant Breeding & Genetics
Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, Pakistan

➤ Professional & Academic Affiliations

- **Member (2019 – Present)**
Missouri Soybean Center, University of Missouri, USA
 - **Focal Person (2017 – Present)**
Joint Degree Programs
Canadian Universities & University of Agriculture, Faisalabad, Pakistan
 - **Policy Work (2023)**
Designed the First National Soybean Policy of Pakistan
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➤ Education

- **Ph.D. in Molecular and Cellular Biology (2009 – 2014)**
University of Guelph, Ontario, Canada
 - **M.Sc. (Hons) in Plant Breeding & Genetics (2004 – 2006)**
Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, Pakistan
 - **B.Sc. (Hons) in Plant Breeding & Genetics (2000 – 2004)**
Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, Pakistan
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Ongoing Research Projects:

➤ Principal Investigator (PI)

- **Gene Editing of Biological Agents for Nutritional, Biochemical, and Therapeutic Purposes (2021–2025)**
Funded by the Ministry of Science and Technology, Government of Pakistan (PKR 1,750.00 million)
- **Demonstration of Heat-Resistant Soybean Elite Lines and Industry Linkages (2023–2027)**
Funded by the Endowment Fund Secretariat, University of Agriculture Faisalabad, and Higher Education Commission (HEC), Pakistan (Up to PKR 100 million)

➤ Project Lead / Principal Scientist

- **Import Substitution and Export Enhancement through Promotion of Sesame, Soybean, and Canola (2024–2027)**
Annual Development Program, Government of Punjab, Pakistan (PKR 857.386 million)

➤ Project Manager (PM)

- **Development of Soybean in Pakistan to Reduce Import Bills (2021–2026)**
Funded by the Punjab Agricultural Research Board (PARB), Pakistan (PKR 99.70 million)
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Completed Research Projects:

➤ Principal Investigator (PI)

- **Demonstration of Elite Soybean Lines at Farmers' Fields (2023–2024)**
Funded by the Endowment Fund Secretariat, University of Agriculture Faisalabad (PKR 0.8 million)
- **Increasing Soybean Adaptability, Yield, and Oil Content by Conventional Plant Breeding and Genetic Improvement Practices (2017–2020)**
Funded by the United States Agency for International Development (USAID) (PKR 7.50 million)
- **Increasing Soybean Adaptability, Yield, and Oil Content by Conventional Plant Breeding and Genetic Improvement Practices (Continuation of USAID Project) (2018–2021)**
Funded by the Punjab Agricultural Research Board (PARB), Pakistan (PKR 6.59 million)
- **Profiling of Wheat Germplasm to Identify High-Resistant Starch Genotypes for Utilization as a Food Source for Type-2 Diabetic Patients (2017–2019)**
Funded by the Higher Education Commission (HEC), Pakistan (PKR 0.464 million)

➤ Co-Principal Investigator (Co-PI)

- **Rapid Development of High-Yielding, Drought-Tolerant Lines of Wheat (2018–2020)**
Funded by the Punjab Agricultural Research Board (PARB), Pakistan (PKR 6.00 million)
 - **Molecular Characterization of *Laurus nobilis* Germplasm Collected from Various Regions of Turkey (2018–2020)**
Funded by TUBITAK, Turkey (PKR 0.40 million)
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Current Doctoral Research Projects:

➤ Thesis Submitted

- **Muhammad Salman (2020–2025) (Reg. No. 2010-ag-3557)**
Determination of Soybean Genetic Stability and Transformation Efficiency
- **Samra Siddique (2020–2025) (Reg. No. 2012-ag-3367)**
*Genetics of Yield and Quality-Related Traits in Soybean (*Glycine max* L.)*

➤ Research Completed/ ongoing

- **Kirammat Din (2020–2025) (Reg. No. 2020-ag-1979)**
Identification of Loci Related to Drought Resistance in Soybean through Bulk Segregant Analysis
 - **Memoona Amam (2021–2026) (Reg. No. 2007-ag-1970)**
CRISPR-Cas9 Mediated Resistance Induction in Soybean Against Soybean Mosaic Virus
 - **Muhammad Atif (2021–2026) (Reg. No. 2015-ag-6274)**
Molecular Mechanisms and Functional Analysis of Root Nodule Initiation in Soybean
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Teaching Experience:

➤ Professor, University of Agriculture, Faisalabad, Pakistan (2016–Present)

Teaching various courses at the Doctorate, Graduate, and Undergraduate levels:

Doctoral Level Courses

- Plant Breeding Methodology and Genetic Resources
- Recent Trends in Plant Breeding
- Trends in Crop Genetics and Cytogenetics

Graduate Level Courses

- Physiological Plant Breeding
- Genetics of Cereals

Undergraduate Level Courses

- Germplasm Resources of Crop Plants
- Genomics-Based Agriculture
- Biosafety Measures in GM Crops

➤ **Teaching Assistant, University of Guelph, Ontario, Canada (2009–2013)**

Assisted in teaching and supervising laboratory courses in the Department of Molecular and Cellular Biology, including:

- Laboratory Methods in Molecular Biology
- Introductory Biochemistry
- Plant Anatomy
- Life Strategies of Plants

➤ **Lecturer, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, Pakistan (2007–2008)**

Taught undergraduate and graduate courses in the Department of Plant Breeding and Genetics, including:

- Genetic Engineering and Biotechnology
 - Advanced Methods in Plant Breeding
 - Mutation Breeding
 - Breeding Cereal Crops
 - Biometrical Genetics
 - Breeding Pulses and Forage Crops
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Awards and Distinctions:

- Established the **first-ever commodity-based center** at the University and subsequently became its inaugural **Scientific Director** (2024).
 - **Michael D. Gale Travel Award**, Plant and Animal Genome Conference (2020).
 - **Wheat Phenotyping Using UAVs Travel Award**, Wheat Initiative (2019).
 - **Precision Genomics and Soybean Mutant Finder Day Workshop Travel Award**, University of Nebraska, USA (2019).
 - **NSERC Post-Doctoral Fellowship Award**, Govt of Canada (2014-2016).
 - **Travel Grant Fund**, Canadian Society of Plant Biologists (2012).
 - **International Student Award**, University of Guelph (2019).
 - **Fully Funded Ph.D. Scholarship**, University of Agriculture, Faisalabad, Higher Education Commission of Pakistan, and Government of Pakistan (2008).
 - **National Internship Award**, Government of Pakistan (2007).
 - **Vice Chancellor's Merit Scholarship** during M.Sc. (Hons) (4 times) (2004-2006).
 - **University Merit Scholarship** during B.Sc. (5 times) (2000-2004).
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Selected Publications:

- Arshad, M. A., Abbas, R. N., Khaliq, A., & **Ahmed, Z.** (2025). Ecological approaches to sustainable soybean production with sequential herbicide applications and their impact on weed dynamics and crop yield. *Journal of Ecological Engineering*, 26(2).
- Raza A., Wahid M.A., Saleem M.F., **Ahmed Z.** (2024). Genotypic effect of morphophysiological, seed yield, and yield quality attributes of soybean (*Glycine max*. (L.) Merrill) across diverse sowing times. *Journal of Xian Shiyu University, Natural Sciences*. 67(6).
- Ghuman, H. F., **Ahmed, Z.**, Sadia, B., & Awan, F. S. (2024). Genetic dissection of advanced soybean (*Glycine max* L.) germplasm for spring season cultivation in Pakistan. *Plant Genetic Resources*, 22(3), 158-164.
- Zahid, S., Afzal, I., **Ahmed, Z.**, & Shakeel, A. (2024). Physiological and biochemical responses of a wide range of quinoa accessions to accelerated ageing conditions. *Seed Science and Technology*, 52(3), 343-365.

- Raza, M.A., Zhiqi, W., Yasin, H.S., Gul, H., Qin, R., Rehman, S.U., Mahmood, A., Iqbal, Z., **Ahmed, Z.**, Luo, S. and Juan, C., 2023. Effect of crop combination on yield performance, nutrient uptake, and land use advantage of cereal/legume intercropping systems. *Field Crops Research*, 304, p.109144.
- Khalid, M.H.B., Cui, L., Abbas, G., Raza, M.A., Anwar, A., **Ahmed, Z.**, Waheed, A., Saeed, A., Ahmed, W., Babar, M.J. and Ahmad, S., 2023. Effect of row spacing under maize-soybean relay intercropping system on yield, competition, and economic returns. *Turkish Journal of Agriculture and Forestry*, 47(3), pp.390-401.
- Mustafa, A., Naeem, A., Kausar, H., Ismail, S., Mubarak, S., Kanwal, B., Abbas Naqvi, S.M.T., **Ahmed, Z.** and Maqbool, R., 2023. Genetic analysis of wheat accessions for yield contributing traits under water deficit condition. *Journal of Agricultural Research* (03681157), 61(1).
- Awan FS, Hussain S, Habib M, Sadia B, Bernardo A, St Amand P, Bai G, Ghorri N, Khan AI, **Ahmed Z.** (2022). Genotyping by Sequencing (GBS) based molecular genetic diversity, of Pakistani bread wheat (*Triticum aestivum* L.) accessions. *Frontiers in Genetics*.
- Alsamadany H, **Ahmed Z.** (2022). Assessing aging impact on growth potential of Vitamin E primed soybean seeds via biochemical profiling. *Saudi Journal of Biological Sciences*. 29(5):3717-3726. ISSN 1319-562X
- Alsamadany H, **Ahmed Z.**, Alzahrani Y. (2022). Determinants of resistant starch accumulation in wheat endosperm, *Saudi Journal of Biological Sciences*. 29(7). 103310.
- Hameed A, Atiq M, Rajput NA, Alsamadany H, Alzahrani Y, Alam MW, Shah ZH, Ali F, Afzal A, **Ahmed Z.** 2022. *In-vitro* antibacterial potential of antibiotics against *Xanthomonas axonopodis* pv. *citri*. *Fresenius Environmental Bulletin*.
- Hameed A, Atiq M, Sahi ST, Rajput NA, **Ahmed Z.**, Alam MW, Alsamadany H, Alzahrani Y, Sarfraz S, Altaf J, Awan SA, Maqbool R, Shah ZH, Liaqat N, Khan MU. 2022. Biochemical base of resistance in citrus against canker disease. *Pakistan Journal of Agriculture Sciences*. ISSN: 20760906, 05529034
- Akram Z, Ahmad Q, Ullah A, Shabbir G, Mahmood T, **Ahmed Z.**, Shah ZH. 2021. Physiological alterations in wheat during drought stress tolerance at different growth stages. *Pure and Applied Biology*. 11(1), 331-339. ISSN: 2304-2478
- Ansari B, Altaf J, Ramzan A, **Ahmed Z.**, Khalil S, Qamar SUR, Awan SA, Jehangir K, Khalid R, Aziz S, Sultana T, Sultana S, Alsamadany H, Alshamrani R, Awan FS. (2021). Molecular Phylogenetics of *Physa acuta* (Pulmonata: Basommatophora): an Invasive species in Central Punjab Pakistan. *Brazilian Journal of Biology*. 83, e246984. ISSN 2358-2731
- Hameed A, Atiq M, Rajput NA, **Ahmed Z.**, Alam MW, Sarfraz S, Liaqat N, Imran M, Fatima K. 2021. Potential of Levofloxacin and Ciprofloxacin against citrus canker caused by *Xanthomonas axonopodis* pv. *Citri*. *International Journal of Biosciences*. 18 (6), 72-81. ISSN: 2220-6655
- Aziz S, Altaf J, Ramzan A, Ahmed Z, Qamar SUR, Awan FS, Khalil S, Jehangir K, Khalid R, Ansari, Sultana T, Sultana S, Alsamadany H, Alshamrani R, Awan FS (2021). Characterization of the species of genus *Physa* on the basis of typological species concept from Central Punjab. *Brazilian Journal of Biology*. 83, e246934. ISSN 2358-2731
- Ansari B, Altaf J, Ramzan A, **Ahmed Z.**, Khalil S, Qamar SUR, Awan SA, Jehangir K, Khalid R, Aziz S, Sultana T, Sultana S, Alsamadany H, Alshamrani R, Awan FS. (2021). Molecular Phylogenetics of *Physa acuta* (Pulmonata: Basommatophora): an Invasive species in Central Punjab Pakistan. *Brazilian Journal of Biology*. 83, e246984. ISSN 2358-2731
- Alam MW, Malik A, Rehman A, Sarwar M, Muhammad S, Hameed A, Alsamadany H, Alzahrani Y, **Ahmed Z.** 2021. First Report of *Alternaria alternata* Causing Fruit Rot on Fig (*Ficus carica*) in Pakistan. *Plant Disease Journal APS*. ISSN: 0191-2917
- Fu YB, **Ahmed Z.**, Yang H, Horbach C, Peterson GW. 2020. Patterns of mitochondrial DNA fragmentation in bread wheat (*Triticum aestivum* L.) seeds under ex-situ genebank storage and artificial aging. *Genetic Resources and Crop Evolution*, 67(8), 2023-2036.
- Hameed A, Atiq M, Rajput NA, Sahi ST, Alsamadany H, Lodhi AM, Sarfraz S, Liaqat N, Tahir FA, **Ahmed Z.**, 2020. Assessment of genetic potential of citrus germplasm against citrus canker caused by *Xanthomonas axonopodis* pv. *Citri*. *Fresenius Environmental Bulletin*

- Hameed A, Atiq M, Javed N, Ahmad A, **Ahmed Z**, 2020. Progressive alterations in mineral profiling of citrus infected with canker caused by *Xanthomonas axonopodis* pv. Citri (hasse). *Applied Ecology and Environmental Research*.
- Mushtaq R, Shahzad K, Shah ZH, Alsamadany H, Alzahrani H, Alzahrani Y, Mujtaba T, **Ahmed Z**, Mansoor S, Bashir A, 2019. Isolation of biotic stress resistance genes from cotton (*Gossypium arboreum*) and their analysis in model plant tobacco (*Nicotiana tabacum*) for resistance against cotton leaf curl disease complex. *Journal of Virological Methods*, 276.
- Khalil M, Akram Z, Rana M, Shah ZH, **Ahmed Z**, 2019. Molecular marker assisted selection of promising wheat genotypes for high grain protein content. *Advances in Plants & Agriculture Research*, 9(2): 348–353.
- Shahzad S, Khan MI, Alsamadany H, Al Zahrani Y, **Ahmed Z**, Shah ZH, 2019. Climate Change and Mitigation: Discussion of Climate-Smart Agronomical and Breeding Tools in view of the Global Food Security Dynamics. *Journal of Agronomy & Agricultural Science*, 2: 0010.
- Mushtaq R, Shahzad K, Shah ZH, Alsamadany H, Mujtaba T, Al-Zahrani Y, Alzahrani HAS, **Ahmed Z**, Mansoor S, Bashir A, 2019. Development of expressed sequenced tags (EST) to identify some pathogen resistance genes expressed in *Gossypium arboreum*, *Gene Reports*, 15.
- Hassan M, Akram Z, Nazir F, Fatima N, Zafar Y, **Ahmed Z**, Shah ZH, Shahzad K, Fatima M, Zaynab M, 2019. Direct Regeneration from Leaf Disc Explants of Peanut: Grafting Improves Survival Rate. *International Journal of Nanotechnology and Allied Sciences*, 3(1): IJNAS-2019-010.
- Fatima M, **Ahmed Z**, Aslam M, Zaynab M. 2018. Drought effect and tolerance potential of wheat: a mini-review. *International Journal of Nanotechnology and Allied Sciences*, 2(2), 16-21.
- Mushtaq R, Shahzad K, Mansoor S, Shah ZH, Alsamadany H, Mujtaba T, Al-Zahrani Y, Alzahrani HAS, **Ahmed Z**, Bashir A. 2018. Exploration of cotton leaf curl virus resistance genes and their screening in *Gossypium arboreum* by targeting resistance gene analogues, *AoB PLANTS*: 10
- Fatima M, Abbas S, **Ahmed Z**, Sharif Y, Umair M, Bahadar K, Zaynab M. 2018. Plants Defense System Resist against the Pathogen Attack: Transcription Factors in Focus. *International Journal of Nanotechnology and Allied Sciences*. 2(1).
- Fu YB, **Ahmed Z**, Yang H, Horbach C, Peterson GW. 2018. TUNEL assay and DAPI staining revealed little alternation of seed cell morphology in naturally and artificially aged seeds of cultivated flax. *MDPI Plants* 7(2), 34.
- **Ahmed Z**, Shah ZH, Rehman HM, Shahzad K, Daur I, Al-feel AA, Hassan MU, Elsafori AK, Yang SH, Chung G. 2017. Genomics: A hallmark to monitor molecular and biochemical processes leading toward a better perception of seed aging and ex-situ conservation. *Current Issues in Molecular Biology*, 22: 89-112.
- **Ahmed Z**, Yang H, Fu YB. 2016. The associative changes in scutellum nuclear content and morphology with viability loss of naturally aged and accelerated ageing wheat (*Triticum aestivum*) seeds. *Frontiers in Plant Science*.
- **Ahmed Z**, Tetlow IJ, Falk DE, Regina A, Morell MK, Liu Q, Emes MJ. 2016. Resistant starch content is related to granule size in barley. *Cereal Chemistry*. 93(6): 618-630.
- **Ahmed Z**, Fu YB. 2015. An improved method with a wider applicability to isolate plant mitochondria for mtDNA extraction. *Plant Methods* 11:56.
- **Ahmed Z**, Tetlow IJ, Ahmed R, Morell MK, Emes MJ. 2015. Protein–protein interactions among enzymes of starch biosynthesis in high-amylose barley genotypes reveal differential roles of heteromeric enzyme complexes in the synthesis of A and B granules. *Plant Science*, 233: 95-106.
- Liu F, Zhao Q, Mano N, **Ahmed Z**, Nitschke F, Cai Y, Chapman KD, Steup M, Tetlow IJ, Emes MJ. 2015. Modification of starch metabolism in transgenic *Arabidopsis thaliana* increases plant biomass and triples oilseed production. *Plant Biotechnology Journal*:
- Fu YB, **Ahmed Z**, Diederichsen A. 2015. Towards a better monitoring of seed ageing under *ex situ* seed conservation. *Conservation Physiology* 3:

- Shahzad K, Rauf M, Ahmed M, Malik ZA, Habib I, **Ahmed Z**, Mahmood K, Ali R, Masmoudi K, Lemtiri-Chlieh F, Gehring C, Berkowitz GA, Saeed NA. 2015. Functional characterisation of an intron retaining K⁺ transporter of barley reveals intron-mediated alternate splicing. *Plant Biology*, 17: 840-851.
 - Liu F, **Ahmed Z**, Lee EA, Donner E, Liu Q, Regina A, Morell MK, Emes MJ, Tetlow IJ. 2012. Allelic variants of the *amylose extender* mutation of maize demonstrate phenotypic variation in starch structure resulting from modified protein–protein interactions. *Journal of Experimental Botany*, 63 (3): 1167-1183.
 - Shah ZH, Munir M, Mujeeb-Kazi A, Mujtaba T, **Ahmed Z**. 2009. Molecular markers-based identification of diversity for drought tolerance in bread wheat varieties and synthetic hexaploids. *Current Issues in Molecular Biology*, 11: 101-110.
 - Mahmood-Ul-Hassan, **Ahmed Z**, Munir M, Malik SI, Shahzad K. 2009. Effect of sorbitol on callus induction and plant regeneration in wheat. *African Journal of Biotechnology*, 23(8): 6529-6535.
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Book Chapters:

- Ali, A., Siddique, A., Rehman, R., Khan, R. A. M., Khan, A. I., Khan, S. H. U., Alsamadany, H., & **Ahmed, Z.** (2025). *Integral Crop for Intensifying Cropping Systems*. In R. A. Rajendran, A. Ramlal, S. K. Lal, & C. Godfree (Eds.), *Soybean: History, Taxonomy, Genetics, Breeding, Diseases, and Biotechnology*. Academic Publishers.
 - Faizan A, Sarfraz S, Hameed A, **Ahmed Z**, Maqbool R. 2022. Big data revolution and machine learning to solve genetic mysteries in crop breeding. Springer Nature Book Title: Sustainable Agriculture in the Era of OMICs
 - Sohaib S, Ali F, Hameed A, Rehman A, **Ahmed Z**, Riaz K. 2022. Sustainable agriculture through technological innovations. Springer Nature Book Title: Sustainable Agriculture in the Era of OMICs
 - Ali A, **Ahmed Z**, Maqbool R, Shahzad K, Akhtar H, Awan FS, Khan AI, Shah ZH, Ali Z, Alsamadany H, Bilal M, .2021. Advances in molecular markers to develop soybean cultivars with increased protein and oil content, Springer book: 89087566_Wani_Soybean Improvement
 - Ali A, **Ahmed Z**, Maqbool R, Shahzad K, Shah ZH, Ali MZ, Alsamadany H, Bilal M. 2021. Nanobioremediation of insecticides and herbicides, Editor(s): Hafiz M.N. Iqbal, Muhammad Bilal, Tuan Anh Nguyen, Ghulam Yasin, In *Micro and Nano Technologies, Biodegradation and Biodeterioration at the Nanoscale*, Elsevier, Pp: 655-674, ISBN 9780128239704
 - Z. Ali., R. Maqbool, and **Z. Ahmed**. 2017. Methods of Breeding Crops. *In*: Khan A.S., Ali Z., Islam N. ed. *Plant Breeding*. (pp. 103-150). Faisalabad, Endowment Fund Secretariat, University of Agriculture Faisalabad, Pakistan
 - Z. Ali., R.M. Rana., M. N. Cheema., **Z. Ahmed.**, R. Maqbool., H. Ma and A. A. Khan (2017) *Genomics Based Plant Breeding*. *In*: Khan A.S., Ali Z., Islam N. ed. *Plant Breeding*. (pp. 209-224). Faisalabad, Endowment Fund Secretariat, University of Agriculture Faisalabad, Pakistan
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Abstracts Published in International Conferences:

- Mustafa S, Siddique S, **Ahmed Z**, Amam M. "Advancement in Crop Breeding Technologies: A Focus on Pakistan Emerging Trend." International Conference on Emerging Technologies for Crop Improvement in Pakistan, February 19-20, 2024.
- Hammad S, Waheed A, Rehman R, **Ahmed Z**. "A Multilocation Study to Unearth the Heat Resilient Genotypes for Enhancing the Soybean Adaptability in Pakistan." International Conference on Emerging Technologies for Crop Improvement in Pakistan, February 19-20, 2024.
- Waheed A, Moaz H, Latif M.M, Ali M, Atif M, Irfan U, Khan A.I, Rehman R, **Ahmed Z**. "Genetic Potential of Soybean (*Glycine max* L.) Cultivars for Use in Intercropping-Based Production Technology." International Conference on Emerging Technologies for Crop Improvement in Pakistan, February 19-20, 2024.
- Latif M.M, Afzal A, Ali F, Atif M, Irfan U, Waheed A, Ali M, Moaz H, Rehman R, **Ahmed Z**. "Development of Reproducible Genotype-Specific Plant Regeneration Method to Establish a Highly Efficient

Agrobacterium-Mediated Transformation System for CRISPR-Cas9 Mediated Genome Editing in Soybean (*Glycine max* L.)." International Conference on Emerging Technologies for Crop Improvement in Pakistan, February 19-20, 2024.

- Fatima I, Azam U, Khan M.A, **Ahmed Z**, Rehman R, Iftikhar S, Afridi R, Khan M.A. "Identification of VRN Alleles for Early Flowers Induction in Spring Wheat with High Yield." International Conference on Emerging Technologies for Crop Improvement in Pakistan, February 19-20, 2024.
- Moaz H, Ali M, Latif M.M, Ali F, Atif M, Irfan U, Waheed A, Afzal Z, Rehman R, **Ahmed Z**. "Establishing the Genotype-Specific Tissue Culture Protocol for CRISPR-Cas9 Mediated Genome Editing in Potato (*Solanum tuberosum*)." International Conference on Emerging Technologies for Crop Improvement in Pakistan, February 19-20, 2024.
- Hamid F, Aleem M, **Ahmed Z**, Rehman R, Maqbool R, Rana U.S, Jamshed J, Shakeel A. "Genome-Wide Identification and In-Silico Expression Analysis of NIN Gene Family Confer Its Role in Soybean Nodulation." International Conference on Emerging Technologies for Crop Improvement in Pakistan, February 19-20, 2024.
- Muneebullah, Aleem M, **Ahmed Z**, Khan A.I, Rehman R, Iftikhar S, Afridi R, Kashif M. "Genomic Insight into the VDAC Gene Family Reveal Its Role in Salt Stress in Soybean." International Conference on Emerging Technologies for Crop Improvement in Pakistan, February 19-20, 2024.
- Irfan U, Ali M, Atif M, Latif M.M, Moaz H, Waheed A, **Ahmed Z**, Rehman R, Maqbool R. "Genetic Analysis of Wheat F2 Population for Yield-Contributing Traits." International Conference on Emerging Technologies for Crop Improvement in Pakistan, February 19-20, 2024.
- **Ahmed Z**, Rehman R, Tiwari TP, Bentley A, Govindan V. "Multi-Environment Testing of Biofortified Wheat Nurseries Across Pakistan Identifies Superior High-Yielding Zn Enriched Genotypes Suitable for Local Cultivation." Canadian Journal of Plant Science (CJPS).
- Rehman R, Ozturk L, **Ahmed Z**, Cakmak I. "Synergism Between Genetic and Agronomic Biofortification to Increase Zn/Fe Concentration in Wheat." Canadian Journal of Plant Science (CJPS).
- Ayesha, Rehman R, **Ahmed Z**. "Effect of Soil and Post-Flowering Foliar Zn Application on Growth, Physiology, Yield, and Grain Zn Content in Bread Wheat." Canadian Journal of Plant Science (CJPS).
- Ghuman HF, **Ahmed Z**, Sadia B, Rehman R, Awan FS. "Genetic Dissection of Advanced Soybean (*Glycine max* L.) Germplasm for Spring Season Cultivation in Pakistan." (Poster Presentation).
- Rehman R, Ozturk L, **Ahmed Z**, Cakmak I. "Effect of Nitrogen Supply on Zinc Uptake and Translocation in Maize and Wheat Under Soil and Foliar Zinc Applications."
- Ayesha, Rehman R, **Ahmed Z**. "Effect of Soil and Post-Flowering Foliar Zn Application on Growth, Physiology, Yield, and Grain Zn Content in Bread Wheat." AGROSYM 2023, Jahorina Mountain, Bosnia and Herzegovina, October 5-8, 2023.
- Rehman R, Ozturk L, **Ahmed Z**, Cakmak I. "Effect of Nitrogen Supply on Zinc Uptake and Translocation in Maize and Wheat Under Soil and Foliar Zinc Applications." AGROSYM 2023, Jahorina Mountain, Bosnia and Herzegovina, October 5-8, 2023.
- Ghuman HF, **Ahmed Z**, Sadia B, Rehman R, Awan FS. "Genetic Dissection of Advanced Soybean (*Glycine max* L.) Germplasm for Spring Season Cultivation in Pakistan." AGROSYM 2023, Jahorina Mountain, Bosnia and Herzegovina, October 5-8, 2023.
- **Ahmed Z**, Rehman R. "CRISPR/Cas9 Mediated Soybean Genome Editing to Induce Mosaic Virus Resistance." AGROSYM 2023, Jahorina Mountain, Bosnia and Herzegovina, October 5-8, 2023. (Oral Presentation).
- Siddique S, **Ahmed Z**. "Quantitative and Qualitative Analysis of USDA Soybean (*Glycine max*. L) Germplasm in the International Plant Nutrition Colloquium, Iguassu Falls, State of Paraná, Brazil, August 22-27, 2022."
- Raheel M, **Ahmed Z**. "Development of Successful Somatic Embryogenesis in a Wide Range of Soybean (*Glycine max*)." International Conference on Plant Cell and Tissue Culture In Vitro, July 4-5, 2022.

- **Ahmed Z**, Maqbool R. "SNPs-Based Genetic Diversity Analysis of CIMMYT-Originated Wheat Germplasm to Identify High Resistant Starch Genotypes for Type-2 Diabetic Patients." Plant & Animal Genomes (PAG) XXVIII Conference, San Diego, CA, USA, January 11-15, 2020.
- **Ahmed Z**, Maqbool R. "Mitochondrial Genome Plays a Key Role in Determining Wheat Seed Viability Loss Under Long-Term Storage." TROPAG International Tropical Agriculture Conference, Brisbane, Spain, November 11-13, 2019.
- **Ahmed Z**, Maqbool R, Saddique S. "Evaluation of USDA Soybean Germplasm Adaptability Under Pakistani Conditions for Sustainable Agriculture." 7th Global Summit on Plant Science, Madrid, Spain, October 7-8, 2019.
- Shahzad K, Rauf M, **Ahmed Z**. "Heterologous Expression of a Barley Homologue Na⁺/K⁺ Transporter from *Leptochloa fusca* Showed Ion Permeability and Salt Tolerance." 5th Edition of International Conference on Plant Genomics, Berlin, Germany, June 13-14, 2019.
- **Ahmed Z**, Maqbool R. "New Prospects of Developing Climate-Resilient Heat-Tolerant Wheat." 1st International Conference on Agricultural and Biological Sciences, University of Haripur, Pakistan, March 27-30, 2019.

(More publications available upon request.)

Activities as the organizer of conferences, workshops, seminars, and other scientific events:

- Member, Organizing Committee – Agri-Data and Smart Stats Bootcamp for Faculty, University of Agriculture, Faisalabad (November 25-26, 2024).
- Member, Organizing Committee – International Hands-on Training on CRISPR/Cas-Mediated Genome Editing, CAS-AFS/NCGE, University of Agriculture, Faisalabad (May 6-10, 2024).
- Member, Organizing Committee – International Conference on Emerging Technologies for Crop Improvement in Pakistan, University of Agriculture, Faisalabad (February 19-20, 2024).
- Member, Organizing Committee – International Hands-on Training Workshop on Hybrid Wheat Breeding, University of Agriculture, Faisalabad (February 19-20, 2024).
- Organizer – Stakeholder Conference on Soybean, University of Agriculture, Faisalabad (January 25, 2024).
- Member, Organizing Committee – Hands-on Training Workshop: From Field to Figures – Plant Breeding Analytics with R Studio, University of Agriculture, Faisalabad (December 19-20, 2023).
- Member, Organizing Committee – Hands-on Training on Biosafety, Bio-risk Management, and Responsible Science, CAS-AFS, UAF, Faisalabad (October 9, 2023).
- Organizer – Farmer Day, Okara, Sahiwal, and Nankana Sahib (September 24-25, 2023).
- Organizer – Farmer Day, Swat and Mansehra (August 23-24, 2023).
- Member, Organizing Committee – 4th International Colloquium on Maize, CAS-AFS, UAF, Faisalabad (May 8-10, 2023).
- Member, Organizing Committee – International Conference on Food Security Challenges and Opportunities in D-8 Countries, CAS-AFS, UAF, Faisalabad (March 6-7, 2023).
- Member, Organizing Committee – International Hybrid Wheat Conference, University of Agriculture, Faisalabad (February 23-24, 2023).
- Organizer – One-Day National Dialogue on Soybean Policy, CAS-AFS, UAF, Faisalabad (February 2, 2023).
- Member, Organizing Committee – International Wheat Conference, Department of Plant Breeding and Genetics, University of Agriculture, Faisalabad (October 19-20, 2022).
- Organizer – International Webinar on Sustainable Soybean Production and Challenges (September 2, 2022).
- Secretary, Organizing Team – International Wheat Webinar on Biofortification: A Way Forward to Reduce Malnutrition (August 19, 2022).
- Organizer – Four-Day Training Workshop on Scientific Writing and Publishing, New Senate Hall, UAF (June 29 – July 2, 2022).

- Convener – International Symposium on Agriculture Network Analysis, CAS-UAF Faisalabad (June 13-28, 2022).
- Member, Organizing Committee – 2nd National Hands-on Training on CRISPR/Cas-Mediated Genome Editing, CAS-AFS, University of Agriculture, Faisalabad (May 23-27, 2021).
- Convener – Students Interactive Session on Emerging Order from Chaos – Alternative Splicing in Plants, CAS-UAF Faisalabad (May 17, 2022).
- Member, Organizing Committee – 1st National Hands-on Training on CRISPR/Cas-Mediated Genome Editing, CAS-AFS, University of Agriculture, Faisalabad (February 21-25, 2022).
- Member, Research Team – Establishment of the National Center for Genome Editing, CAS-UAF Faisalabad (August 10, 2021).
- Focal Person – Hands-on Training of Agriculture Scientists of the Government of Sindh, ORIC, University of Agriculture, Faisalabad (June 21-30, 2021).
- Organizer – One-Day International Hands-on Training Workshop on FT-NIR, jointly organized by the Department of Plant Breeding and Genetics and Ray Branket, University of Agriculture, Faisalabad (April 1, 2019).
- Organizer, Focal Person – International Seminar on Wheat Breeding and Genomics, CAS-AFS, University of Agriculture, Faisalabad (March 29, 2019).
- Chair, Session on Plant Breeding and Genetics – 1st International Conference on Agricultural and Biological Sciences Focusing on Food Security and Climate Change, University of Haripur, Haripur-Pakistan (March 27-30, 2019).
- Focal Person – Seminar/Workshop of Dr. Beant Singh Ahluwalia, Ex-Staff Member of the International Atomic Energy Commission (March 22-25, 2019).
- Member, Organizing Committee – 6th Lyallpur Art and Literature Festival, University of Agriculture, Faisalabad (April 1-6, 2018).
- Organizer – Training Workshop on CRISPR/Cas-Based Genome Editing, University of Agriculture, Faisalabad, and Farmers' Association (July 19-20, 2017).
- Member, Organizing Committee – International Seminar on CRISPR/Cas-Based Genome Editing, University of Agriculture, Faisalabad, and Farmers' Association (September 19, 2017).
- Organizer – Academic and Research Collaboration Seminars Series Between the University of Prince Edward Island (UPEI) and University of Agriculture, Faisalabad (May 6, 2017).
- Organizer – Global Research Project Between the University of Prince Edward Island (UPEI) and University of Agriculture, Faisalabad (May 6, 2017).
- Member, Organizing Committee – One-Day International Hands-on Training on Basic Principles of Pesticide Risk Assessment for Pollinators, University of Agriculture, Faisalabad (December 9, 2016).
- Member, Organizing Committee – International Seminar on Innovative Approaches for the Control of Insect-Pest Infestation, University of Agriculture, Faisalabad (December 6, 2016).
- Member, Organizing Committee – Two-Day Congress on Second Pakistan Seed Congress, University of Agriculture, Faisalabad (November 21-22, 2016).
- Member, Organizing Committee – Biotechnology for Crop Improvement: GM Crops Production, Challenges, and Opportunities, USP-CAS, University of Agriculture, Faisalabad (September 5-7, 2016).

Participation in Scientific activity with Oral/ Poster presentation:

- **Ahmed Z**, Rehman R, Tiwari TP, Bentley A, Govindan V. "Multi-environment testing of biofortified wheat nurseries across Pakistan identifies superior high-yielding Zn-enriched genotypes suitable for local cultivation." *Canadian Journal of Plant Science (CJPS)*. (Oral/Poster Presentation Competition), 2024.
- Rehman R, Ozturk L, **Ahmed Z**, Cakmak I. "Synergism between genetic and agronomic biofortification to increase Zn/Fe concentration in wheat." *Canadian Journal of Plant Science (CJPS)*. (Oral/Poster Presentation Competition), 2024.

- Ayesha, Rehman R, **Ahmed Z**. "Effect of soil and post-flowering foliar Zn application on growth, physiology, yield, and grain Zn content in bread wheat." *Canadian Journal of Plant Science (CJPS)*. (Poster Presentation Competition), 2024.
- Ghuman HF, **Ahmed Z**, Sadia B, Rehman R, Awan FS. "Genetic Dissection of Advanced Soybean (*Glycine max* L.) Germplasm for Spring Season Cultivation in Pakistan." (Poster Presentation), 2024.
- Rehman R, Ozturk L, **Ahmed Z**, Cakmak I. "Effect of nitrogen supply on zinc uptake and translocation in maize and wheat under soil and foliar zinc applications." (Poster Presentation), 2024.
- Ayesha, Rehman R, **Ahmed Z**. "Effect of soil and post-flowering foliar Zn application on growth, physiology, yield, and grain Zn content in bread wheat." *AGROSYM 2023*, Jahorina Mountain, Bosnia and Herzegovina, October 5-8, 2023. (Oral Presentation).
- Rehman R, Ozturk L, **Ahmed Z**, Cakmak I. "Effect of nitrogen supply on zinc uptake and translocation in maize and wheat under soil and foliar zinc applications." *AGROSYM 2023*, Jahorina Mountain, Bosnia and Herzegovina, October 5-8, 2023. (Poster Presentation).
- Ghuman HF, **Ahmed Z**, Sadia B, Rehman R, Awan FS. "Genetic Dissection of Advanced Soybean (*Glycine max* L.) Germplasm for Spring Season Cultivation in Pakistan." *AGROSYM 2023*, Jahorina Mountain, Bosnia and Herzegovina, October 5-8, 2023. (Poster Presentation).
- **Ahmed Z**, Rehman R. "CRISPR/Cas9 mediated soybean genome editing to induce mosaic virus resistance." *AGROSYM 2023*, Jahorina Mountain, Bosnia and Herzegovina, October 5-8, 2023. (Oral Presentation).
- **Ahmed Z**. "Revival of soybean in Pakistan." *Deans Committee, UAF*, December 28, 2021. (Oral Presentation).
- **Ahmed Z**. "SNPs-based genetic diversity analysis of elite wheat germplasm to identify high resistant starch genotypes for Type-2 diabetic patients." *6th Edition of International Conference on Plant Genomics*, Frankfurt, Germany, June 8-9, 2020. (Poster Presentation).
- **Ahmed Z**. "SSR-based genetic diversity analysis of CIMMYT-originated wheat germplasm to develop rust-resistant lines through variety complementation approach." *Borlaug Global Rust Initiative, Technical Workshop*, Norwich, UK, June 1-4, 2020. (Poster Presentation).
- **Ahmed Z**. "SNPs-based genetic diversity analysis of CIMMYT-originated wheat germplasm to identify high resistant starch genotypes for Type-2 diabetic patients." *Plant & Animal Genomes (PAG) XXVIII Conference*, San Diego, CA, USA, January 11-15, 2020. (Poster Presentation).
- **Ahmed Z**. "Mitochondrial genome plays a key role in determining wheat seeds viability loss under long-term storage." *TROPAG International Tropical Agriculture Conference*, Brisbane, Spain, November 11-13, 2019. (Poster Presentation).
- **Ahmed Z**. "Genetic diversity analysis of elite Pakistani wheat germplasm to identify high resistant starch genotypes for Type-2 diabetic patients." *International Conference on Wheat Diversity & Human Health*, Istanbul, Turkey, October 22-24, 2019. (Oral Presentation).
- **Ahmed Z**, Saddique S. "Evaluation of USDA soybean germplasm adaptability under Pakistani conditions for sustainable agriculture." *7th Global Summit on Plant Science*, Madrid, Spain, October 7-8, 2019. (Oral Presentation).
- **Ahmed Z**. "Mitochondrial genome plays a key role in determining wheat seeds viability loss under long-term storage." *First International Wheat Congress*, Saskatoon, Canada, July 21-26, 2019. (Poster Presentation).
- **Ahmed Z**, Maqbool R. "New prospects of developing climate-resilient heat-tolerant wheat." *1st International Conference on Agricultural and Biological Sciences, Focusing Food Security and Climate Change*, The University of Haripur, Haripur, Pakistan, March 27-30, 2019. (Oral Presentation).
- **Ahmed Z**, Afzal I, Kamran M. "Smart techniques to maintain dryness during harvesting and post-harvesting operations for cotton cropping system." *Sustainable Smart Farming to Increase Farm Profitability and Mitigate Environmental Risks: The Need of the 21st Century*, Dalhousie Agricultural Campus, Truro, Nova Scotia, Canada, March 15-16, 2018. (Oral Presentation).

- **Ahmed Z**, Maqbool R. "Patterns of mitochondrial DNA alteration under ex-situ gene-bank storage and accelerated ageing in bread wheat (*Triticum aestivum* L.)." *World Congress on Plant Science and Genomics*, Barcelona, Spain, July 30-31, 2018. (Oral Presentation).
 - Afzal I, Zahid S, **Ahmed Z**. "Molecular and biochemical aspects of naturally aged wheat seeds under different storage conditions." *The Second Seed Longevity Workshop*, Fort Collins, Colorado, USA, July 30-August 1, 2018. (Oral Presentation).
 - **Ahmed Z**, Maqbool R. "Alterations in mitochondrial genes controlling oxidative phosphorylation are key determinants of natural and artificial seed ageing in wheat (*Triticum aestivum*)." *Plant and Animal Genome XXVII Conference*, San Diego, USA, January 12-16, 2019. (Poster Presentation).
 - Maqbool R, Kumar N, **Ahmed Z**, Kulvinder S. G. "Development of two-gene imidazoline resistant soft white spring germplasm 'GSSC-2' using marker-assisted background selection." *Agriculture and Climate Change Conference*, Sitges, Spain, March 26-28, 2016. (Poster Presentation).
 - **Ahmed Z**. "UAF: A leading academic and research university in Pakistan." *Dalhousie Agricultural Campus - Truro, Dalhousie University, Nova Scotia, Canada*, July 14, 2017. (Oral Presentation).
 - **Ahmed Z**. "Post-translational interactions among enzymes of starch biosynthesis - Effects on physical properties of starch." *Eastern Regional Meeting of Canadian Society of Plant Biologists*, University of Toronto, Canada, December 7, 2013. (Oral Presentation).
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Participation in international workshops, and training courses:

- International Biodiversity Course, June 15-21, 2024, Switzerland.
- International Training Workshop, October 7-21, 2023, Australia.
- Plant & Animal Genomes (PAG) XXVIII Workshops, January 11-15, 2020, USA.
- 1st International Wheat Congress, organized by the International Wheat Genome Consortium and CIMMYT, University of Saskatchewan, Saskatoon, Canada, July 21-25, 2019.
- Wheat Phenotyping Using UAVs Course, organized by the International Wheat Genome Consortium and CIMMYT, University of Saskatchewan, Saskatoon, Canada, July 19-20, 2019.
- Next Generation Wheat Breeders Workshop, organized by the International Wheat Genome Consortium and CIMMYT, University of Saskatchewan, Saskatoon, Canada, July 20-21, 2019.
- Precision Genomics and Soybean Mutant Finder Day Workshop, March 16-18, 2019.
- Farm Machinery Day, organized by Doug Bragg Enterprises Ltd, Canada, July 17, 2017.
- Farmer's Field Day, organized by the Wild Blueberry Growers' Organization, Nova Scotia, Canada, July 6, 2017.
- Academic and Research Collaboration Visit to Dalhousie University, University of Prince Edward Island, and University of Guelph, Canada, for faculty and student exchange programs and research collaborations, July 2-26, 2017.
- Grain Security for Officials from Developing Countries, long-distance training course sponsored by Henan University of Technology, China, March 6 - July 30, 2016.
- Genetic and Agronomic Biofortification of Cereal Crops with Zn, Fe, and Iodine, international training at Sabanci University, Turkey, December 19-25, 2016.
- Post-Translational Modification and Protein-Protein Interactions in Starch Biosynthesis (Oral Presentation), Eastern Regional Meeting of the Canadian Society of Plant Biologists, Wilfrid Laurier University, Waterloo, Canada, January 12, 2012.
- Biochemical Pathway of Resistant Starch Biosynthesis in Barley (Poster Presentation), Annual Meeting of the Canadian Society of Plant Biologists, University of Alberta, Edmonton, Canada, June 28, 2012.
- Biosynthesis of Resistant Starch in Barley (Oral Presentation), Graduate Symposium, University of Guelph, Guelph, Canada, April 30, 2012.
- Understanding Biosynthesis of Resistant Starch in Barley (Oral Presentation), Graduate Symposium, University of Guelph, Guelph, Canada, April 26, 2011.

- Regulation of Starch Biosynthesis in Barley (Poster Presentation), Joint Annual Meeting of the American Society of Plant Biologists and Canadian Society of Plant Physiologists, Montreal, Canada, August 2, 2010.
 - Protein Purification Workshop, GE Healthcare, Toronto, Canada, January 15, 2011.
 - Barley Day Field Workshop, Plant Agriculture, University of Guelph, Guelph, Canada, June 24, 2010.
 - Protein Purification Workshop, GE Healthcare, Toronto, Canada, January 25, 2011.
 - Eastern Regional Meeting & Plant Development Workshop, Canadian Society of Plant Physiologists, University of Guelph, Guelph, Canada, December 5, 2009.
 - Proteomics Workshop, GE Healthcare, Hamilton, Canada, January 18, 2009.
 - Eastern Regional Meeting & Plant Development Workshop, Canadian Society of Plant Physiologists, University of Toronto, Toronto, Canada, December 10, 2008.
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Participation in national workshops, and training courses:

- Attend training on Application of Artificial Intelligence in Agriculture at the University of Agriculture Faisalabad, HEC's Auditorium Islamabad. February 1, 2024.
- Attend the task force meeting on Prospects of Soybean cultivation in Pakistan, MNFS&R, Pak-Secretariat, Islamabad. July 05, 2023.
- Attend the Wheat Brainstorming Session on National wheat breeding strategy and line of action for indigenous wheat germplasm / pre-breeding materials development in country, May 9-10, 2023
- Attended the webinar "World Soil Day Celebrations" jointly organized by the Pakistan Academy of Sciences, the University of Agriculture Faisalabad, Fauji Fertilizer Company, Wageningen UR, Global Soil Partnership of the FAO, University of Cape Town, Muhammad Nawaz Sharif University of Agriculture Multan, and Center for Agriculture Strategy & Development at the University of Agriculture, Faisalabad. 5 December 2020.
- Attended the webinar "Potential of CRISPR/Cas Technology for Improving Agricultural Productivity" jointly organized by the Pakistan Academy of Sciences, the University of Agriculture Faisalabad, the Chinese Academy of Sciences, Karlsruhe Institute of Technology and Pennsylvania State University at University of Agriculture, Faisalabad. 27 November 2020
- Attended the webinar "Global Impact of GM Crops" jointly organized by the Pakistan Academy of Sciences, the University of Agriculture Faisalabad, Forman Christian College University, International Services for the Acquisition of Agri-Biotech Applications, CropLife Pakistan, and Pakistan Biotechnology Information Center at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 17 November 2020.
- Attended the webinar "Recarbonization of Global Soils: Pakistan's Perspective" jointly organized by the Pakistan Academy of Sciences, Food, and Agriculture Organization of the United Nations, Ohio State University, University of Aberdeen, University of Gottingen, Global Soil Laboratory Network, University of Agriculture Faisalabad, Pakistan Institute of Developmental Economics, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah the University of Arid Agriculture Rawalpindi. 10 November 2020.
- Attended the webinar "Oilseed Crop Production and Supply Chain" jointly organized by Pakistan Academy of Sciences, University of Agriculture Faisalabad, Embassy of the People's Republic of China in Islamabad, Chinese Academy of Agricultural Sciences, Chinese Academy of Tropical Agricultural Sciences, Pakistan Institute of Developmental Economics, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah the University of Arid Agriculture Rawalpindi. 6 November 2020.
- Attended the webinar "Vegetable Seed Production and Supply Chain" jointly organized by Pakistan Academy of Sciences, University of Agriculture Faisalabad, Embassy of the People's Republic of China in Islamabad, Chinese Academy of Agricultural Sciences, Chinese Academy of Tropical Agricultural Sciences, Pakistan Institute of Developmental Economics, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 3 November 2020.

- Attended the webinar “Weeds Ecology and Management” jointly organized by the Pakistan Academy of Sciences, Pakistan Institute of Developmental Economics, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 24 October 2020.
- Attended the webinar “Citrus Genetics – Seed lessness and Greening Disease” jointly organized by the Pakistan Academy of Sciences, the University of California Riverside, Huazhong Agriculture University, Pakistan Institute of Developmental Economics, Muhammad Nawaz Sharif University of Agriculture Multan, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 17 October 2020.
- Attended the webinar “World Food Day–Grow, Nourish and Sustain Together” jointly organized by Pakistan Academy of Sciences, COMSTECH at OIC, The Ohio State University, National Institute for Agricultural Botany, and UPSIGN-UK. at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 16 October 2020.
- Attended the webinar “Pulses & Chickpeas – The Peoples protein in Pakistan” Pakistan Academy of Sciences, University of Western Australia, University of Queensland, Feed the Future Innovation Lab for Climate Resilient Chickpea at the University of California Davis, Australian Center for International Agricultural Research, Pakistan Institute of Developmental Economics, Muhammad Nawaz Sharif University of Agriculture Multan and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah the University of Arid Agriculture Rawalpindi. 10 October 2020.
- Attended the webinar “Saline Agriculture and Global Food Security” jointly organized by the Pakistan Academy of Sciences, COMSTECH at OIC, International Commission on Irrigation and Drainage, International Center for Biosaline Agriculture, National Agriculture Research Institute of The Gambia, Rothamsted Research, Virje Universiteit, Mohammad VI Polytechnic University, IAV Hassan II University, Lahore College for Woman University and UPSIGN-UK. 29 September 2020.
- Attended the webinar “Animal Nutrition and Fodder Science” jointly organized by the Pakistan Academy of Sciences, Pakistan Institute of Developmental Economics, Muhammad Nawaz Sharif University of Agriculture Multan, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 25 September 2020.
- Attended the webinar “Agricultural and Livestock Innovation System” jointly organized by the Pakistan Academy of Sciences, Pakistan Institute of Developmental Economics, Lasbela University of Agriculture, Water and Marine Sciences, the Muhammad Nawaz Sharif University of Agriculture Multan, Cholistan University of Veterinary and Animal Sciences and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 19 September 2020.
- Attended the webinar “Balanced Fertilizer Application in Wheat” jointly organized by the Pakistan Academy of Sciences, Pakistan Institute of Developmental Economics, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 12 September 2020.
- Attended the webinar “Valuing Zinc Nutrition for Better Crop Production and Human Health” jointly organized by Pakistan Academy of Sciences, Fauji Fertilizer Company, Government College University Lahore, the Muhammad Nawaz Sharif University of Agriculture Multan, Bahauddin Zakariya University Multan and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 5 September 2020.
- Attended the webinar “Wheat Seed Supply Chain Analysis” jointly organized by the Pakistan Academy of Sciences, Pakistan Institute of Developmental Economics, Muhammad Nawaz Sharif University of Agriculture Multan, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 31 August 2020
- Attended the webinar “A Review of Agriculture Policy in Pakistan” jointly organized by the Pakistan Academy of Sciences, Pakistan Institute of Developmental Economics, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 17 August 2020.
- Attended the webinar “Genetic Improvement of Dairy Cattle–American and Pakistani Experiences” jointly organized by the Pakistan Academy of Sciences, Pakistan Institute of Developmental Economics, Cholistan

University of Veterinary and Animal Sciences, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 8 August 2020.

- Attended the webinar “Precision Agriculture and Sustainable Solutions” jointly organized by the Pakistan Academy of Sciences, Pakistan Institute of Developmental Economics, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 30 July 2020
 - Attended the webinar “Prevailing Wheat Crisis and Future Pathways” jointly organized by the Pakistan Academy of Sciences, Pakistan Institute of Developmental Economics, and Center for Agriculture Strategy & Development at Pir Mehr Ali Shah University of Arid Agriculture Rawalpindi. 25 July 2020.
 - Attended one day workshop on Communicating Science to Society, organized by the Pakistan Scientific and Technological Information Center and Office of Research Innovation and Commercialization, UAF on 10 May 2018.
 - Attended one day workshop on “Breeders Training in the Context of Basmati Rice Value Chain” organized by PARB-UAF, in collaboration with Asian Development Bank on 31 August 2018.
 - Attended final workshop “Punjab Basmati Rice Value Chain in Pakistan” organized by PARB-UAF, in collaboration with Asian Development Bank on 10 December 2018.
 - Attended meetings with a delegation from Zhejiang University (ZJU) for research and academic cooperation between ZJU and UAF on 20 December 2018.
 - Attended a three-day international conference on “Tackling Climate Change through Plant Breeding” 13-15 November 2017, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, Pakistan.
Attended spot examination of Mung bean lines for varietal approval process at Arid Zone Research Institute (AZRI), Bhakkar and Piplan by nomination from the Chairman, Department of Plant Breeding and Genetics, UAF on August 01-02, 2017
 - Attended “Training Workshop on CRISPR/Cas-based Genome Editing” held on September 19-20, 2017 at the University of Agriculture, Faisalabad, and the farmer’s association.
 - Attended the “International Seminar on CRISPR/Cas-based Genome Editing” held on September 19, 2017, at the University of Agriculture, Faisalabad, and the farmer’s association.
 - Attended national conference on “Challenges and Opportunities to Boost Agriculture in Changing Climate” held on March 29 - 30 2017 at College of Agriculture, Bahauddin Zakariya University, Bahadur Sub-Campus Layyah.
 - Attended a one-day seminar “Internship and Career Development” held on March 28, 2017, at the Expo Center, University of Agriculture, Faisalabad, and the farmer’s association.
 - Attended “Stakeholders Session for Prioritization of Research Areas” University of Agriculture, Faisalabad March 04, 2017.
 - Attended a one-day seminar on Agriculture Policy “IP policy and legal framework for commercialization (Auction) of crop varieties/ hybrids developed by the public-sector institutes. Organized by the University of Agriculture Faisalabad, Pakistan on February 27, 2017.
 - Attended 1st stakeholders interactive one-day workshop “prospects of new crops in Pakistan” organized by the University of Agriculture Faisalabad, Pakistan (09-04-2016).
 - Attended workshop on “Biotechnology for crop improvement: GM crops production, challenges, and opportunities” organized by USP-CAS, University of Agriculture, Faisalabad (05-07 September 2016).
 - Attended seminar on “Dissemination of seed production technology of vegetable crops” organized by the Vegetable Seed Lab. Institute of Horticultural Sciences, University of Agriculture, Faisalabad (20-08-2016).
 - Attended a one-day training workshop “Dry chain technology for post-harvest losses of seeds and grains” organized by the University of Agriculture Faisalabad (23 November 2016).
 - Attended a one-day workshop on "Strategic use of Digital Technology in University Instruction" organized by the University of Agriculture Faisalabad (17 October 2016).
 - Attended the three-day “International Conference on Sustainable Agriculture in Pakistan” organized by the University of Agriculture Faisalabad (17-19 November 2016).
 - Attended “Second Pakistan seed congress”, University of Agriculture Faisalabad (21-22 November 2016)
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Community service (industrial linkages/ collaborations/ MoUs/ Consultancy services, anthropology:

- Industrial collaboration with poultry feed industry, fertilizer industry, solvent extraction industry, and farmer's associations.
 - MoU between UAF and University of Prince Edward Island (UPEI), Canada for student exchange and research collaboration.
 - Established first ever soybean gene bank at UAF.
 - Official partner with Soybean Innovation Lab (SIL), University of Illinois, USA
 - Soybean germplasm acquisition across the globe and establishment of the soybean breeding program.
 - Established collaboration between Abant Izzet Baysal University, Turkey, and the University of Agriculture, Faisalabad under the Melvana Exchange Program.
 - Established collaboration between Agriculture Agri-Food Canada, (AAFC) Canada and the University of Agriculture, Faisalabad for soybean research and development through Dr. Yong Bi-Fu, Research Scientist, AAFC, Canada
 - Established collaboration with the National Research Center of Intercropping, The Islamia University of Bahawalpur.
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Reviewer of Scientific Journals:

- The Plant Journal
 - Nature Scientific Reports
 - Frontier in Genetics
 - Journal of Applied Genetics
 - MDPI Sustainability
 - MDPI Foods
 - MDPI Agriculture
 - Theoretical and Applied Genetics
 - The Journal of Animal and Plant Sciences
 - Cereal Chemistry
 - Turkish Journal of Agriculture - Food Science and Technology
 - Journal of Applied Genetics
 - Chemosphere
 - International Journal of Agriculture and Biology
 - Crop Breeding and Applied Biotechnology
 - Journal of Soil Science and Plant Nutrition
 - Journal of Agricultural Biology and Science
 - Planta Daninha Journal
-

Evaluation of research work (external examiner):

- External examiner of viva examination of a Ph.D. thesis titled "Genetic evaluation of yield-related traits in wheat against heat tolerance". Department of Plant Breeding and Genetics, PMASAAU-Rawalpindi.
 - External examiner of viva examination of a Ph.D. thesis titled "Genetic analysis of contrasting wheat genotypes for growth parameters under rainfed conditions". Department of Plant Breeding and Genetics, PMASAAU-Rawalpindi.
 - External examiner of M. Phil thesis titled, Phenotypic and molecular characterization of leaf rust resistance in bread wheat genotypes.
 - External examiner of M. Phil thesis titled, Genetics mapping of physiological traits and grain weight in a panel of bread wheat (*Triticum aestivum* L.).
-

Participation in the Varietal Evaluation as Expert:

- Spot examination of new candidate olive line, Barani Agricultural Research Institute, Chakwal. November 05, 2021.
 - Spot examination of new candidate soybean line, National Agricultural Research Center, Islamabad. October 26, 2021.
 - Spot examination of new candidate pecanut line, Hill Fruit Research Station, Sunny Bank, Murree. October 25, 2021.
 - Spot examination of new candidate avocado and walnut lines, Hill Fruit Research Sub Station, Pine Street near Chharrapani, Post Office Tret, Murree. September 7, 2020.
 - Spot examination of new candidate groundnut line, Groundnut Research Station, Attock. September 25, 2019.
-

Convener/ Member/ Focal person of the committee for specified assignments including academic/ research/ administrative

- Tutor of tutorial group Sir Syed-IV
 - Focal person for 2+2 joint degree program between UAF and Dalhousie University, Canada
 - Member Board of Studies/ Course Coordinator, PBG, UAF
 - Focal Person for 1+3 Joint degree program between the University of Prince Edward Island (UPEI), Canada, and the University of Agriculture, Faisalabad, Pakistan
 - Vice President, Body Building, University of Agriculture, Faisalabad.
 - Member of HEC Need Based Scholarship Award Committee for Postgraduate and Undergraduate Degree programs for the session, 2017-2018 representing the Directorate of Student's Affairs, University of Agriculture, Faisalabad.
 - Member of Seminar Committee, Department of Plant Breeding and Genetics, University of Agriculture, Faisalabad.
 - Member of Punjab Educational Endowment Fund (PEEF) Scholarship Award Committee for Post Graduate Degree program for the session, 2018-2019 representing the Directorate of Student's Affairs, University of Agriculture, Faisalabad.
 - Member of Hajra Bibi Scholarship Award Committee for Postgraduate and undergraduate Degree programs for the session, 2018-2019 representing the Directorate of Student's Affairs, University of Agriculture, Faisalabad.
 - Member of CPEC Consortium of China-Pak Universities.
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"References available upon request."