

RAHEELA REHMAN (Ph.D.)

Assistant Professor

Department of Plant Breeding and Genetics/ Center for Advanced Studies in Agriculture and Food Security (CAS-AFS)

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Current Employment

Feb 22-Date Assistant Professor in Wheat Research Groups at Department of Plant Breeding and Genetics, University of Agriculture Faisalabad

Co-Chair (Food Processing) Pak-Korea Nutrition Center (PKNC), University of Agriculture Faisalabad

Qualification:

2020 PhD Molecular Biology, Genetics and Bioengineering (CGPA: 3.62/4.00) Sabanci University Istanbul, Turkey

2011 M.Sc. (Hons.) Plant Breeding and Genetics (CGPA: 4.00/4.00 **Gold Medal**), PMAS-Arid Agricultural University, Rawalpindi, Pakistan

2009 B.Sc. (Hons.) Agriculture, Plant Breeding and Genetics (CGPA: 3.93/4.00), PMAS-Arid Agricultural University, Rawalpindi, Pakistan

Research Experience

2021- Feb 22 IPFP-Fellow (Interim Placement of Fresh PhDs) for development of Biofortified Wheat at National Institute for Biotechnology and Genetics Engineering (NIBGE), Faisalabad Pakistan

2021 Research Associate -Collaborator in Wheat Biofortification Project at International Maize and wheat improvement center (CIMMYT) Country office Islamabad, Pakistan

2015 to 2019 Doctorate fellow on “Zinc (Zn), Iron (Fe) and Iodine (I) Biofortification of cereal crops” at Sabanci University, Istanbul Turkey

2012-2015 Scientific Officer in the project titled “Indigenization of Hybrid Seed Production Technology in Pakistan”, NARC, Islamabad.

2011-2012 Research Associate in Mushroom Project at Crop Disease Resistant (CDRP), National Agriculture Research Center (NARC), Islamabad.

2010-2011 Graduate Research Assistant (full time Masters research) in the project. titled “DNA Fingerprinting of elite Wheat genotypes through RAPD analysis” in Germplasm Evaluation Lab of IABGR, NARC, Islamabad

2009-2010 Internee at On-farm Water Management Department, Rawalpindi under National Internship Program (NIP).

Teaching Experience

Jan 2020- Jan 2021	Visiting Assistant Professor in Department of Plant Breeding and Genetics, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi Pakistan
2015-2019	Teaching Assistant (TA) for various courses in the Faculty of Engineering and Natural Sciences, Sabanci University Istanbul, Turkey.

Awards and Distinctions

2024	Wheat Initiative Early Career Travel Award to present paper in International Wheat Conference (IWC-2024) September 22-26, 2024, in Perth, Australia
2024	Early Career Travel Award to present paper in “World Biodiversity Forum, 16-21 June 2024” Davos, Switzerland, sponsored by Future Earth
2018	Jeanie Borlaug Laube Women in Triticum (WIT) Early Career Award sponsored by Cornell University New York.
2018	The Brian Chambers International Award for Early Career Researchers in Crop Nutrition sponsored by the University of Cambridge, UK.
2017	International Plant Nutrition Scholar award-2017 sponsored by International Plant Nutrition Institute (IPNI)
2019	Early Career Travel Award to present paper in International Wheat Conference (IWC-2019) Saskatoon, Saskatchewan, Canada (July 21st -26th, 2019)
2018	Travel grant provided by International HarvestPlus Project to present paper in Agronomic Conference (December 6-7 Robinson College, University of Cambridge, United Kingdom)
2017	Travel grant fund offered by FENS (Faculty of Engineering and Natural Sciences) Sabanci University Istanbul, Turkey
2015	Graduate student scholarship for PhD offered by Sabanci University, Istanbul. Turkey
2015	Fully funded Ph.D. scholarship “TUBITAK-BİDEB-2215” offered by the Scientific and Technological Research Council of Turkey (TÜBİTAK), Govt of Turkey.
2012	Received a Gold Medal in MSc (Hons) Plant Breeding and Genetics in 13 th Convocation of Arid Agriculture University, Rawalpindi, Pakistan
2012	Received a sponsored Gold Medal in MSc (Hons) Plant Breeding and Genetics in 13 th Convocation of Arid Agriculture University, Rawalpindi, Pakistan
2005-2011	Vice Chancellor Talent scholarship during B.Sc. Hons. And M.Sc (Hons) at Arid Agriculture University, Rawalpindi, Pakistan
2005-2011	Fully funded Master Scholarship (US-AID merit-based scholarship) offered by United States Agency for International Development (USAID) Pakistan during B.Sc. Hons. And M.Sc (Hons) at Arid Agriculture University, Rawalpindi, Pakistan

Research Projects (On-going)

2024-2026	“Enhancing Zinc and Iron Bioavailability in Wheat for Improved Public Health and Nutritional Security in Pakistan” (PI) funded by. Pak-Korea Nutrition Center (PKNC) KOICA and UAF, worth 5.99 million PKR
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Research Project (Completed)

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| 2023-2024 | “Linking UoM and UAF wheat researchers to improve global health” funded by Crawford Training Funds-Australia (PI from Pakistani side) funded by the Government of Australia, worth 19004 USD (5.71 million PKR) |
| 2023-2024 | “100-acres Soybean Demonstration Trials in Pakistan” (Co-PI) funded by Endowment Funds Secretariat (EFS), worth 1.0 million PKR |

Organization of Workshops / Trainings / Conferences

- Member of organizing team for the Awareness campaign on “Food Loss and Waste” at rural area of Chiniot Punjab
- Member of organizing team for one day Food Product Development competition entitled Reimagine, recreate, Relish: The ultimate Waste to Taste Product Innovation Challenge” on 6th June 2024 at University of Agriculture Faisalabad, Pakistan
- Member of organizing team for a training workshop on “Agri-Data and Smart Stats Bootcamp for the Faculty” on November 25-26 at University of Agriculture Faisalabad, Pakistan
- Member of organizing team for International Conference on Emerging Technologies for Crop Improvement in Pakistan conducted on 19-20 Feb 2024 at University of Agriculture Faisalabad, Pakistan
- Member of organizing team for “International Hands-on Training Workshop on Hybrid Wheat Breeding” at CAS-AFS, University of Agriculture Faisalabad
- Member of organizing team “stakeholder meeting for Soybean cultivation in Pakistan” conducted on February 15, 2024 at CAS-AFS, University of Agriculture Faisalabad
- Member of organizing team for Workshop on “Scientific Writing” 16-17, December 2022 held at CAS auditorium University of Agriculture Faisalabad
- Member of organizing team for “International conference on Food Security Challenges and Opportunities in D-8 countries conducted on 7th March, 2023 at Center for Advanced studies in Agricultural Food security (CAS-AFS), University of Agriculture Faisalabad
- Member of organizing team for one week “International Hands-on-training on CRISPR/Cas-mediated genome editing” conducted on May 6th – 11th, 2024, at CAS-AFS, University of Agriculture Faisalabad, Pakistan
- Member of organizing team for “International Wheat Conference 2022” held on October 19-20, 2022, at University of Agriculture Faisalabad, Pakistan.
- Member of organizing team for “From Fields to Figures: Plant Breeding analytics with R studio” conducted on **19-20 December 2023** at CAS-AFS University of Agriculture Faisalabad
- Member of organizing team for one week “hands-on-training on CRISPR/Cas-mediated genome editing” conducted on May 23rd – 27th, 2022, at CAS-AFS, University of Agriculture Faisalabad, Pakistan.

Poster Presentations

- Plant and Animal Genome Conference, San Diego (USA) 2025
- International Wheat Conference (IWC-2024) September 22-26, 2024, in Perth, Australia

- 5th Canadian Wheat Symposium (CWS) held on 13-16 November 2023 organized by The University of British Columbia (UBC) in Vancouver
- 4th BRI Sino Pak Agriculture Forum: Sustainable Agriculture for Economic Prosperity & Food Security held on 9-10 November 2023 organized by Institute of Horticultural sciences and Huazhong Agricultural University, China
- Agronomic Conference organized by International Fertilizer Society 6-7 December 2018, Robinson College, University of Cambridge, United Kingdom
- Differences in absorption and distribution of foliarly-applied zinc in maize and wheat by using stable isotope of ⁷⁰Zn and Zn-responsive fluorescent dye Zinpyr , Borlaug Global Rust Initiative Technical workshop, 14-17 April 2018, Marrakech, Morocco
- Genetic divergence among Pakistani bread wheat varieties and advanced lines for randomly amplified polymorphic DNA (RAPD) markers (poster presentation) in 12th National and 3rd International Conference of Botany (1st – 3rd September 2012) organized by Pakistan Botanical Society and Quaid-i-Azam University, Islamabad, Pakistan
- SAARC regional conference on new frontiers in agricultural genomics and Advanced biotechnology (5-7 June 2012) organized by National Institute for Genomics and Biotechnology (NIGAB) (poster presentation) Pakistan Agricultural Research Council (PARC), Islamabad, Pakistan

Oral Presentation

- Effect of nitrogen nutrition on uptake and translocation of Zn from soil and foliar Zn fertilizers by wheat and maize conditions, Borlaug Global Rust Initiative BGRI Technical workshop, 7-8 Oct 2020
- Studying differences in soil and foliar uptake and seed deposition of Zinc in HarvestPlus-biofortified wheat genotypes grown in greenhouse conditions International conference on wheat diversity and human health, 22-24 Oct 2019 held in Istanbul, Turkey
- Response of Biofortified HarvestPlus wheat genotypes to soil and foliar zinc applications (synergism between breeding and agronomy) 1st International Wheat Congress (IWC) 21-26 August 2019 held in Saskatoon, Canada
- Studying the differences in absorption and distribution of foliar-applied zinc in maize and wheat grown with low or adequate Zn supply, International Congress on Agriculture and Animal Sciences (ICAGAS) 7-9 November 2018, Alanya, Turkey
- Absorption and distribution of foliar-applied Zn (⁷⁰Zn) in maize and wheat grown with low or adequate Zn supply, XVIII-International Plant Nutrition Colloquium, 21-24 August 2017. Copenhagen, Denmark
- Assessment of genetic diversity of Pakistani hexaploid wheat (*Triticum aestivum* L.) based on high molecular weight glutenin subunits (HMW-GS), 16th International Congress of Soil Science- ICSS-2016 (March 15-17, 2016), organized by PMAS-Arid Agriculture University Rawalpindi and Soil Science Society Pakistan.
- Assessment of genetic diversity of Pakistani hexaploid wheat (*Triticum aestivum* L.) based on high molecular weight glutenin subunits (HMW-GS), “International Conference of Biochemistry, Biotechnology and Biomaterials. ICBBB-2016, Department of Biochemistry, University of Agriculture Faisalabad, Pakistan

Training and Workshops attended

21-22 Oct 2024	Two days regional workshop for identifying and strengthening partnership organized by CIMMYT Pakistan
05 March 2024	Training workshop on “Capacity Building of Scientists from Public and Private Sector to Strengthen Seed Production System of Biofortified Wheat” Organized by Wheat Research Institute, Ayub Agricultural Research Institute, Faisalabad
01-07 October, 2023	International Hands-on Training Workshop on “Development of Genetically Modified Wheat for improved Zn and Fe contents” organized by University of Melbourne Australia
17-18, July 2023	“Wheat Training on High-Throughput Phenotyping & Genotyping Tools to Accelerate Wheat breeding for Early Generation Wheat Scientists” organized by Ayub Agriculture Research Institute (AARI) Faisalabad
9-10, May 2023	WBBS (Wheat Breeders Brainstorming Session) on Development and Strengthening of indigenous Wheat germplasm system of the country organized by Pakistan Agricultural Research Council (PARC) Islamabad
26-27, January 2023	Next Generation Wheat Breeding Workshop organized by CIMMYT and PARC Pakistan at NARC Islamabad
4-7, July 2022	“Speed Breeding Training Workshop” organized by University of Queensland and NARC Islamabad.
17 June 2022	“R in Agriculture systems” by Dr. Karen Garrot at National Centre for Genome Editing (NCGE), University of Agriculture Faisalabad, Pakistan
15-16 June, 2022	“Wheat System Expert Knowledge Elicitation” (Resource person) at National Centre for Genome Editing (NCGE), University of Agriculture Faisalabad, Pakistan
23-27 May, 2022	“2 nd National hands-on training on CRISPR/Cas mediated Genome Editing (Resource person) at National Centre for Genome Editing (NCGE). University of Agriculture Faisalabad, Pakistan.
21-25 May 2021	1 st Hands on Training on CRISPR/ Cas mediated Genome Editing, National Centre for Genome Editing (NCGE). University of Agriculture Faisalabad, Pakistan.
19-20 August, 2019	Wheat Initiative Training course on “wheat phenotyping using UAVs” organized by Wheat Initiative Group, Berlin, held at University of Saskatchewan, Saskatoon, Canada
12-14 April, 2018	“Wheat Breeding Technology Workshop” held at Marrakech, Morocco organized by Borlaug Global Rust Initiative (BGRI) and University of Queensland Australia.
28-02-2018 To 1-04-2018	“Basic wheat improvement course” at International Maize and Wheat Improvement Center (CIMMYT) Mexico
26-08-2015 To 27-08-2015	“Scientific Writing Workshop” held at SSRI Bldg., NARC, organized by Agricultural Innovation Program (AIP) for Pakistan, CIMMYT
29-03-2015 To 31-03-2015	“International workshop on Biofortification of Staple Crops”, organized by Department of Agronomy, University of Agriculture Faisalabad, Pakistan
15-06-2015	Workshop on “Advances of Bioinformatics” held at Muhammad Ali Jinnah University Islamabad, Pakistan

Publications

- Raza, M. A., Din, A. M. U., Shah, G. A., Zhiqi, W., Feng, L. Y., Gul, H., Yasin, H. S., Rahman, M. S., Juan, C., Liang, X., Rehman, R., Al Garawi, A. M., van der Werf, W., Qin, R., Xin, L., Khalid, M. H. B., & Zhongming, M. (2024). Legume choice and planting configuration influence intercrop nutrient and yield gains through complementarity and selection effects in legume-based wheat intercropping systems. *Agricultural Systems*, 220, 104081. Doi: <https://doi.org/10.1016/j.agsy.2024.104081>.
- Jin, F., Wang, Z., Zhang, H., Huang, S., Chen, M., Kwame, T.J., Yong, T., Wang, X., Yang, F., Liu, J., Yu, L., Pu, T., Fatima, A., Rahman, R., Yan, Y., Yang, W., Wu, Y. 2024. Quantification of spatial-temporal light interception of crops in different configurations of soybean-maize strip intercropping. *Front. Plant Sci.* 15:1376687. (IF 6.627, HEC W-category, eISSN: 1664-462X, <https://10.3389/fpls.2024.1376687>)
- Ali, A., Siddique, A., Rehman, R., Khan, R. A. M., Khan, A. I., Khan, S. H. U., Alsamadany, H., & Ahmed, Z. (2024). Integral Crop for Intensifying Cropping Systems. In *Soybean: Volume 1 History, Taxonomy, Genetics, Breeding, Diseases, and Biotechnology*. ISBN: 9781998511709 (Hardcover)
- Abbas, G., Sarwar, A., Rehman, R., Ahmed, Z., Altaf, J., Hussain, R., Jehangir, K., Aziz, S., Faisal, A., Fatima, A. (2024). Human Cancer Risk due to Heavy Metals in Soil and its Bioaccumulation in Earthworms in Punjab Pakistan. *Res. Sq.* (HEC Category-Y, eISSN: 2693-5015, doi: <https://10.21203/rs.3.rs-3748697/v1>)
- Nasar, J., Zhao, C. J., Khan, R., Gul, H., Gitari, H., Shao, Z., Abbas, G., Haider, I., Iqbal, Z., Ahmed, W., Rehman, R., Liang, Q. P., Zhou, X. B., & Yang, J. (2023). Maize-soybean intercropping at optimal N fertilization increases the N uptake, N yield and N use efficiency of maize crop by regulating the N assimilatory enzymes. *Frontiers in Plant Science*, 13, 1077948. doi: 10.3389/fpls.2022.1077948
- Rehman, R., Asif, M., Cakmak, I., Ozturk, L. (2021). Differences in uptake and translocation of foliar-applied Zn in maize and wheat. *Plant and Soil*. <https://doi.org/10.1007/s11104-021-04867-3>
- Mujtaba, M., Sharif, R., Ali, Q., Rehman, R., & Khawar, K. M. (2020). Biopolymers based nano fertilizer application in abiotic stress (drought and salinity) control. In M. Mujtaba, R. Sharif, Q. Ali, R. Rehman, & K. M. Khawar (Eds.), *Advances in Nano-Fertilizers and Nano-Pesticides in Agriculture* (pp. 1-20). Elsevier. Paperback ISBN: 9780128200926
- Asif, M., Zora, S., Ceylan, Y., Rehman, R., & Ozturk, L. (2020). Nitrogen supply in combination of nitrate and ammonium enhances harnessing of elevated atmospheric CO₂ through improved nitrogen and carbon metabolism in wheat (*Triticum aestivum*). *Crop and Pasture Science*, 71(2), 101-112.
- Asif, M., Tunc, C. E., Yazici, M. A., Tutus, Y., Rehman, R., Rehman, A., & Ozturk, L. (2019). Effect of predicted climate change on growth and yield performance of wheat under varied nitrogen and zinc supply. *Plant and Soil*, 434, 231-244. doi: 10.1007/s11104-018-3808-1
- Rehman, R., Shah, K. N., Masood, M. S., Arshad, M., & Ghafoor, A. (2013). Genetic divergence among Pakistani bread wheat varieties and advanced lines for randomly amplified polymorphic

DNA (RAPD) markers. Pakistan Journal of Botany, 45(SI), 327-332.

- Jalil, S., Hayat, A., Imran, M., Rehman, R., & Affan, M. (2013). Efficacy of direct application of rock phosphate alone and in combination with FYM and EM on growth, yield and nutrient uptake of Rice. European Academic Research, II(7).
- Rehman, R., Arshad, M., Khan, M. A., Mohmand, A. S., Shabbir, G., Shah, K. N. (2012). Using multivariate analysis for selecting desirable hybrids in sunflower (*Helianthus annus* L.). Pakistan Journal of Botany, 44(5), 1715-1720.
- Ashraf, A., Rauf, A., Abbas, M. F., & Rehman, R. (2012). Isolation and identification of *Verticillium dahliae* causes wilt on potato in Pakistan. Pakistan Journal of Phytopathology, 24(2), 112-116.

Referees

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<http://www.researcherid.com/rid/A-2257-2009>

<http://scholar.google.com/citations?user=di3TsM8AAAAJ&hl=en>

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