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RESEARCH INTEREST

- Adaptation of fodder and forage crops to abiotic stresses especially drought and nutrient stress, and improvement in forage quality. In addition, cultivation of cereal good quality fodder for livestock in arid and semi-arid regions.

EDUCATION

Alma Mater Studiorum-University of Bologna, Italy	Postdoc	Agronomy	2022
PMAS-Arid Agriculture University, Rawalpindi	PhD	Agronomy	2013
Thesis: Effect of Agronomic Practices on the Yield and Quality of rainfed Sorghum Forage			
University of Arid Agriculture, Rawalpindi	M.Sc. (Hons)	Agronomy	2006
University of Arid Agriculture, Rawalpindi	B.Sc. (Hons)	Agronomy	2004
Islamabad Board	HSSC	Pre-Medical	1999
Faisalabad Board	SSC	Science	1997

TEACHING EXPERIENCE

Associate Professor 2019- present

Assistant Professor 2013-2019

- College of Agriculture, Bahauddin Zakariya University, Bahadur Campus, Layyah, Pakistan.
- Seed Certification Officer 2007-2010
- Federal Seed Certification & Registration Department, Gilgit, Pakistan.

ACADEMICS & ADMINISTRATIVE EXPERIENCE

- Member of Departmental Technical Review Committee (DTRC) in Department of Agronomy, FAS&T, BZU, Multan
- Member of board of studies in Department of Agronomy, FAS&T, BZU, Multan
- Farm Manager, BZU, Bahadur Sub-Campus Layyah, Pakistan
- Warden, Ijaz Hall, BZU, Bahadur Sub-Campus Layyah, Pakistan
- Transport Incharge, BZU, Bahadur Sub-Campus Layyah, Pakistan
- Assistant Superintendent, Ijaz Hall, BZU, Bahadur Sub-Campus Layyah, Pakistan
- Member of Admission Committee, BZU, Bahadur Sub-Campus Layyah, Pakistan
- Member of Purchase Committee, BZU, Bahadur Sub-Campus Layyah, Pakistan

- Member of Cafeteria Committee, BZU, Bahadur Sub-Campus Layyah, Pakistan
- Member of Auction Committee, BZU, Bahadur Sub-Campus Layyah, Pakistan
- Secretary of Estate Management, BZU, Bahadur Sub-Campus Layyah, Pakistan

ACADEMIC DISTINCTION

- Vice Chancellor Talent Scholarship in M.Sc. (Hons) Agriculture
- International Research Training at Bologna University, Italy from HEC, Islamabad, Pakistan
- Indigenous 5000 PhD fellowship from HEC, Islamabad, Pakistan
- Postdoc Fellowship at University of Bologna, Italy from HEC, Islamabad, Pakistan

NATIONAL AWARD/UNIVERSITY AWARDS

- Appreciation Research Award/Certificate by ORIC, Bahauddin Zakariya University, Multan
- HEC approved PhD Supervisor
- Performance based increment for consecutive 7 years (2015-2022)
- Performance based honorarium for consecutive 6 years (2016-2022)

SUBJECT EXPERT SERVICES

- External examiner/Thesis evaluation of MSc (Hons)/MPhil at PMAS- Arid Agriculture University, Rawalpindi, Pakistan
- External examiner/Thesis evaluation of MSc (Hons)/MPhil at University Of Haripur, Haripur, Pakistan

RESEARCH INTERESTS

- Fodder and Forage Crops
- Forage Nutrition
- Drought/Salinity/Heat Stress
- Plant growth regulator especially melatonin
- General Agronomy
- Seed Production Technology

RESEARCH EXPERIENCE

A) Research Project:

Sr. No.	Research Project	Sponsoring Agency	PI/CO.PI
1	Agronomic and molecular characterization of shattering resistance in sesame (<i>Sesamum indicum</i> L.) and its management	HEC-NRPU	P.I.
2	Evaluating the potential of Aminolevulinic acid (ALA) in improving the salt tolerance in sunflower	BZU	P.I.
3	Evaluating the productivity and quality of white mustard by the foliar application of selenium under arid climate	BZU	P.I.

4	Improving the quality and yield performance of safflower by foliar application of thiourea	BZU	P.I.
5	Optimization of NPK level to improve the yield and oil content of sinapis alba	BZU	P.I.
6	Evaluating the potential of silver nano-particles on growth, physiology and forage yield of sorghum	BZU	P.I.
7	Evaluating the performance of sunflower hybrids under various methods and tillage systems in arid climate	BZU	P.I.
8	Response of zinc application on winter forage cereals	HEC	P.I.

B) Training: Nine months International Research Support Initiative Program (IRSIP), 2011 HEC, Pakistan. Department of Agricultural Sciences, University of Bologna, Italy (Research advisor: Dr. Lorenzo Barabnti).

INFORMATION TECHNOLOGY SKILLS

- Computer Skills (MS-word, Ms-Excel, PowerPoint, Corel draw, In-page etc.) 2002
- Statistical Packages (Mstat C, Statistix 8.1 and CoStat 6.3)
- Data analysis and interpretation

MEMBER OF SCIENTIFIC SOCIETIES

- Member of Agronomy Society of Pakistan.

PUBLICATIONS

A) Book Chapters

1. **A. Sher**, A. Sattar, S.Ul-Allah, M. Ijaz, B. Sarwar, R. Calone and L. Barbanti. 2023. Melatonin-Induced Plant Tolerance to Heavy Metal Stress. *Advancement of melatonin research in plants: multi-faceted role in regulating development and stress protection (In Press)*. CRC press (Taylor and Francis group).
2. Ali, K., H.M. Mubasher, U. Rasheed, A. Hussain, **A. Sher**, and A. Qayyum. 2023. Biochar for Plant Stress Tolerance. In: Hasanuzzaman, M. (eds) *Climate Resilient Agriculture*, Vol 2 (pp. 245-258). Springer, Cham. https://doi.org/10.1007/978-3-031-37428-9_11.
3. Sarwar, B., **A. Sher**, M. Ijaz, M. Irfan and S.Ul-Allah. 2023. Exogenous Application of Biostimulants and Commercial Utilization. In: Hasanuzzaman, M. (eds) *Climate Resilient Agriculture*, Vol 2 (pp. 281-291). Springer, Cham. https://doi.org/10.1007/978-3-031-37428-9_13
4. Ali, K., H.M. Mubasher, **A. Sher**, A. Sattar and A. Manaf. 2023. Seed Priming for Abiotic Stress Tolerance. In: Hasanuzzaman, M. (eds) *Climate Resilient Agriculture*, Vol 2 (pp. 641-665). Springer, Cham. https://doi.org/10.1007/978-3-031-37428-9_27.
5. Iqbal, Z., A. Azeem, S. Ul-Allah, **A. Sher**, M.Q. Ahmad, B. Haider and M. Asghar. 2023. Advances in Biotechnological Tools and their Impact on Global Climate Change and Food Security. In: Hasanuzzaman, M. (eds) *Climate-Resilient Agriculture*, Vol 2 (pp. 667-676). Springer, Cham. https://doi.org/10.1007/978-3-031-37428-9_28.
6. Rasheed, U., A. Sattar, **A. Sher**, M. Ijaz, S. Ul-Allah, J. Ashraf, A.N. Shah and M. Nawaz. 2023. Selenium Biofortification in Agronomic Crops. In: Hasanuzzaman, M., Tahir, M.S., Tanveer, M., Shah, A.N. (eds) *Mineral Biofortification in Crop Plants for Ensuring Food Security* (pp. 139-157). Springer, Singapore. https://doi.org/10.1007/978-981-99-4090-5_6.

7. Ul-Allah, S., A. Azeem, **A. Sher**, M. Ijaz, A. Sattar, M. Naeem, and I. Ullah. 2023. Plant Breeding Approaches in Developing Stress Tolerance. In *Biology and Biotechnology of Environmental Stress Tolerance in Plants* (pp. 167-186). Apple Academic Press.
8. Zia, M.A.B., S. Ul-Allah, **A. Sher**, M. Ijaz, A. Sattar, M.F. Yousaf, U.K. Chaudhry, and A. Qayyum. 2023. Genomics for Abiotic Stress Resistance in Legumes. In *Sustainable Agriculture in the Era of the OMICs Revolution* (pp. 327-342). Cham: Springer International Publishing.
9. Azeem, A., S. Ul-Allah, **A. Sher**, M. Ijaz, A. Sattar, W. Ahmad, and A. Qayyum. 2023. Biosafety and Biosecurity in Genetically Modified Crops. In *Sustainable Agriculture in the Era of the OMICs Revolution* (pp. 501-510). Cham: Springer International Publishing.
10. Arfat, M.Y., **A. Sher**, S. Ul-Allah, A. Sattar M. Ijaz, A. Manaf, B. Sarwar, and M. Muncer-ul-Husnain. 2022. Organic Manure for Promoting Sustainable Agriculture. *Biostimulants for Crop Production and Sustainable Agriculture*, p.110.
11. Ijaz, M., H. Muhammad, **A. Sher**, A. Sattar, M.Z. Saleem, and M. Asif. 2022. Effect of Plant Extracts on Improvement of Crop Yield. *Biostimulants for Crop Production and Sustainable Agriculture*, p.205.
12. Qayyum, A., F. Nadeem, Y. Bibi, R. Ullah, H. Raza, H.J. Bajwa, and **A. Sher**. 2022. Role of Nanoparticles in Improving Stress Tolerance in Crop Plants. *Biostimulants for Crop Production and Sustainable Agriculture*, p.386.
13. Ateeq, M., **A. Sher**, S. Ul-Allah, A. Sattar M. Ijaz, B. Sarwar, and A. Qayyum. 2022. Role of Organic Amendments. *Biostimulants for Crop Production and Sustainable Agriculture*, p.395.
14. Ijaz, M., S. Ul-Allah, **A. Sher**, A. Sattar, W. Ahmad, A. Rehim, and B. Honermeier. 2022. Effects of triazoles, strobilurins, and trinexapac ethyl on growth and development of crop plants under stress conditions. In *Emerging Plant Growth Regulators in Agriculture* (pp. 423-428). Academic Press.
15. Rafiq, F., M. Ijaz, A. Sattar, M. Shahid, **A. Sher**, S. Ul-Allah, and A.U. Rehman, 2022. Long-term challenges, the characteristics and behavior of various hazardous material and trace elements in soil. In *Hazardous and Trace Materials in Soil and Plants* (pp. 15-32). Academic Press.
16. Rehim, A., M.A., Bashir, S. Ul-Allah, M. Ijaz, **A. Sher**, A.A. Khan, H.M.A. Raza, and M. Hussain. 2022. Soil-plant interactions for agricultural sustainability under challenging climate change. In *Plant perspectives to global climate changes* (pp. 123-134). Academic Press.
17. Hassan, A., M. Ijaz, A. Sattar, **A. Sher**, I. Rasheed, M.Z. Saleem, and I. Hussain. 2020. Abiotic stress tolerance in cotton. *Advances in cotton research*.
18. **Sher, A.**, A. Nawaz, M. Sarfraz, M. Ijaz, S. Ul-Allah, A. Sattar, S. Hussain, and S. Ahmad. 2019. Advanced production technologies of millets. *Agronomic Crops: Volume 1: Production Technologies*, pp.273-296.
19. Ijaz, M., A. Nawaz, S. Ul-Allah, M.S. Rizwan, A. Ullah, M. Hussain, **A. Sher**, and S. Ahmad. 2019. Crop diversification and food security. *Agronomic Crops: Volume 1: Production Technologies*, pp.607-621.
20. **Sher, A.**, T. Sarwar, A. Nawaz, M. Ijaz, A. Sattar, and S. Ahmad, 2019. Methods of seed priming. *Priming and Pretreatment of Seeds and Seedlings: Implication in Plant Stress Tolerance and Enhancing Productivity in Crop Plants*, pp.1-10.
21. Sarfraz, M., S. Hussain, M. Ijaz, A. Nawaz, T.A. Yasir, **A. Sher**, A. Wasaya, and S. Ahmad. 2019. Abiotic stress tolerance in plants by priming and pretreatments with

phytohormones. *Priming and Pretreatment of Seeds and Seedlings: Implication in Plant Stress Tolerance and Enhancing Productivity in Crop Plants*, pp.447-457.

B) Research Papers

1. Mahmood, I., Shamsi, I.H., Asad, S.A. **A. Sher**, et al. 2025. Nano zinc-oxide coated urea supplemented with Zn solubilizing bacteria improve Zn bio-fortification and nitrogen use efficiency in wheat. *Plant Growth Regulation*. **105**, 2349–2368. <https://doi.org/10.1007/s10725-025-01366-8>.
2. Ul-Allah, S., F. Azeem, A. Madani, **A. Sher**, et al. 2025. Interactive effect of genotype and zinc sulphate improves productivity and grain biofortification of bread wheat in alkaline soils. *Journal of Soil Science and Plant Nutrition*, <https://doi.org/10.1007/s42729-025-02507-8>.
3. El-Beltagi, H.S., A. Sattar, **A. Sher**, et al. 2025. Exogenous application of silicon and brassinosteroids alleviate the adversities of drought stress on maize through up-regulation of photosynthetic efficiency, antioxidants defense system and osmotic adjustment. *Russian Journal of Plant Physiology*, 72, 84. <https://doi.org/10.1134/S102144372461022X>.
4. Muhammad, H., M. Ijaz, A. Sattar, S. Ul-Allah, **A. Sher**, et al. 2025. Synergistic effects of PGPRs and fertilizer amendments on improving the yield and productivity of Canola (*Brassica napus* L.). *BMC Plant Biology*, 25, 50. <https://doi.org/10.1186/s12870-025-06062-3>.
5. Rameen, S., Manaf, A., Bibi, Y.H.M. Jhazab, **A. Sher** et al. 2024. Foliar application of silver (Ag-NPs) and copper (Cu-NPs) nanoparticles enhances phenotypic traits and oil quality in *Brassica napus* L. *Scientific Report*, 14, 27618. <https://doi.org/10.1038/s41598-024-79269-3>.
6. El-Mogy, M.M., H.S. El-Beltagi, H.H. Almutairi, L.M.M. Hamed, A. Sattar, **A. Sher**, M. Ijaz and Q. Ali. 2024. Application of silicon with salicylic acid up-regulate physio-biochemical mechanisms of wheat in conferring tolerance to arsenic induced oxidative stress. *Silicon*. <https://doi.org/10.1007/s12633-024-03129-y>.
7. Ijaz, M., S. Khan, S.U. Allah, A. Sattar, **A. Sher**, et al. 2024. Integrated application of micronutrients improves productivity and seed quality of canola crop under conventional tillage system. *International Journal of Plant Production*, 18: 441–452. <https://doi.org/10.1007/s42106-024-00302-6>.
8. Mahmood, I., A. Sami, S.A. Asad, S.G. Abbas, R.R. Mehmood, R.N. Iqbal, **A. Sher**, et al. 2024. Zinc-oxide-nanoparticles in conjugation with Zn-solubilizing bacteria improve Zn biofortification and nitrogen use efficiency in wheat. *Journal of Soil Science and Plant Nutrition*. <https://doi.org/10.1007/s42729-024-01926-3>.
9. Ali, N., A. Qayyum, **A. Sher**, et al. Analyzing phenotypic diversity in Brassica rapa genotypes based on morpho-physiological characteristics using multivariate analyses. *Genetic Resource Crop Evolution*, 71: 2053–2064 (2024). <https://doi.org/10.1007/s10722-023-01757-8>.
10. Saboon, A. Iqbal, Y. Bibi, T. Afzal, **A. Sher**, et al. 2024. GC–MS based antioxidants characterization in Saussurea heteromalla (D. Don) Hand-Mazz by inhibition of nitric oxide generation in macrophages. *Scientific Report*, 14: 10145. <https://doi.org/10.1038/s41598-024-60577-7>.
11. **Sher, A.**, A. Nawaz, S.Ul. Allah, A. Sattar, M. Ijaz, A. Qayyum and A. Manaf. 2024. Foliar application of 5-aminolevulinic acid improves the salt tolerance in sunflower (*Helianthus annuus* L.) by enhancing the morphological attributes and antioxidant defense mechanism. *Acta Physiologiae Plantarum*, 46: 24.

12. **Sher, A.,** L. Barbanti, S.-Ul-Allah, A. Sattar and M. Ijaz. 2023. Characterizing sorghum genotypes for forage yield, hydrocyanic acid and sugar contents under arid climate conditions. *Plant Genetic Resources: Characterization and utilization*. 21(4): 377-388.
13. **Sher, A.,** Z.A. Akbar, A. Sattar, S. Ul-Allah, M. Ijaz, R. Calone and L. Barbanti. 2023. Balanced NPK nutrition improves forage productivity and quality of pearl millet grown in semi-arid regions of Pakistan. *Journal of Soil Science and Plant Nutrition*. <https://doi.org/10.1007/s42729-023-01509-8>.
14. Qayyum, A., N. Ali, **A. Sher,** F. Nadeem, S. Fiaz, S. Kumar, I.M. Moussa, H.O. El-Ansary. 2023. Phenotypic diversity in brassica genotypes based on morpho-physiological characteristics using multivariate analyses. *Genetic Resources and Crop Evolution*. <https://doi.org/10.1007/s10722-023-01757-8>.
15. Azeem, A., S. Ul-Allah, F. Azeem, M. Naeem, A. Sattar, M. Ijaz, and **A. Sher.** 2023. Effect of foliar applied zinc sulphate on phenotypic variability, association and heritability of yield and zinc biofortification related traits of wheat genotypes. *Heliyon* 9, e19643
16. Sattar, A., **A. Sher,** M. Ijaz, S. Ul-Allah, T. Abbas, S. Hussain, J. Hussain, H.B. Khalil, B.M. Alharbi, A.A. El-Yazied, et al. 2023. Silicon and strigolactone application alleviates the adversities of cadmium toxicity in maize by modulating morpho-physiological and antioxidants defense mechanisms. *Agronomy*, 13, 2352. <https://doi.org/10.3390/>.
17. Nisar, M., M. Aqeel, A. Sattar, **A. Sher,** M. Ijaz, S. Ul-Allah, U. Rasheed, S.M. Al-Qahtani, N.A. Al Harbi, F.M. Alzuaibr, and M.F. Ibrahim. 2023. Exogenous application of silicon and sulfate improved drought tolerance in sunflowers through modulation of morpho-physiological and antioxidant defense mechanisms. *Journal of Soil Science and Plant Nutrition*, pp.1-10.
18. Abbas, A., A. Sattar, S. Ul-Allah, **A. Sher,** M. Ijaz, T. Abbas, M. Irfan, S. Ullah, M. Butt, M.M. Javaid, and Y. Kim. 2023. Foliar application of silicon and boron improves boll retention, lint yield and fiber quality traits of transgenic cotton. *Journal of King Saud University-Science*, 35(8), p.102858.
19. Sattar, A., **A. Sher,** M. Ijaz, S. Ul-Allah, S. Hussain, U. Rasheed, J. Hussain, S.M. Al-Qahtani, N.A. Al-Harbi, S.F. Mahmoud, and M.F. Ibrahim. 2023. Modulation of antioxidant defense mechanisms and morpho-physiological attributes of wheat through exogenous application of silicon and melatonin under water deficit conditions. *Sustainability*, 15(9): 7426.
20. Azeem, K., Inamullah, F. Naz , F. Nadeem , H.M. Jhanzab , **A. Sher,** Y. Bibi, A. Syed , A.H. Bahkali, A.M. Elgorban, M. Hussain, A. Qayyum. 2023. Deciphering of microbes $\times$ nitrogen source fertilizers interaction for improving nitrogen use efficiency in spring maize. *Journal of King Saud University –Science* 35(4): 102633.
21. **Sher, A.,** M.U. Hassan, A. Sattar, S.U. Allah, M. Ijaz , Z. Hayat, Y. Bibi, M. Hussain and A. Qayyum. 2023. Exogenous application of melatonin alleviates the drought stress by regulating the antioxidant systems and sugar contents in sorghum seedlings. *Biochemical Systematics and Ecology* 107: 104620.
22. **Sher, A.,** S.U. Allah, A. Sattar, M. Ijaz, A. Qayyum, A. Manaf, and B. Sarwar. 2023. Agronomic seed production and oil quality evaluation of various rapeseed genotypes grown under semi-arid climatic condition *Turkish Journal of Field Crops*, 28(1): 57-63 DOI: 10.17557/tjfc.1093305.
23. Ijaz, M.; S.U. Allah, **A. Sher,** A. Sattar, K. Mahmood, S. Alamri, Y. Ali, F. Rafiq, S.M. Shaharyar, and B. Ijaz, et al. 2023. Boron fertilization alleviates the adverse effects of late

- sowing in wheat under different tillage systems. *Agriculture*, 13 (6), 1229. <https://doi.org/10.3390/agriculture13061229>.
24. Hussain, I., M. Ijaz, S.Ul-Allah, A. Sattar, **A. Sher**, A. Nawaz, A. Ghafar, M.H. Rahman, S. Ahmad, I. Rasheed, O. Nasif and M. J. Ansari. 2023. Optimum zinc fertilization and sowing date improved growth, yield components, and grain Zn contents of bread wheat under different tillage systems. *Journal of Soil Science and Plant Nutrition*. 1-10. <https://doi.org/10.1007/s42729-023-01185-8>
 25. Ijaz, M., S. Ul-Allah, A. Sattar, **A. Sher**, I. Hussain, and A. Nawaz. 2023. Evaluation of various organic amendment sources to improve the root yield and sugar contents of sugar beet genotypes (*Beta vulgaris* L.) under Arid Environments. *Sustainability*, 15(5), 3898. <https://doi.org/10.3390/su15053898>
 26. Ul-Allah, S., N. Shahzad, A. Khanum, M. Naeem, A. Azeem, **A. Sher**, M. Ijaz, A. Sattar, Z. Hassan, K. Ahmad, and A.U. Rehman. 2023. Phenotypic characterization of wheat germplasm for heritability and dissection of association among post anthesis traits under variable sowing dates. *Journal of King Saud University-Science*, 35(3): 102578.
 27. Muhammad, G., A. Manaf, F. Hassan, A. Khalid, **A. Sher**, C.J. Lovatt, A. Syed, A.H. Bahkali, A.M. Elgorban and A. Qayyum. 2023. Allometric dynamics of *Sinapis alba* under different ecological conditions. *Journal of King Saud University-Science*, 35(1): 102403.
 28. **Sher, A.**; M. Nawaz, Z. Hasnain, K. Mehmood, M.B. Chattha, M. Ijaz, A. Sattar, D. Ibrar, S. Bashir, M.M. Khan et al. 2022. Impact of press mud and animal manure in comparison with NPK on the growth and yield of triticale (*Triticosecale wittmack*) genotypes cultivated under various irrigation regimes. *Agronomy*, 12(12), 2944. <https://doi.org/10.3390/agronomy12122944>.
 29. Sadaf, H.M., Y. Bibi, S.A. Ayoubi, N. Safdar, **A. Sher**, D. Habib, S. Nisa, K. Malik, S. Kumar, and W. Ahmed et al. 2022. Extraction, separation and purification of bioactive anticancer components from *Peganum harmala* against six cancer cell lines using spectroscopic techniques. *Separations*, 9 (11): 355. <https://doi.org/10.3390/separations9110355>.
 30. **Sher, A.**, R. Calone, S. Allah, A. Sattar, M. Ijaz, B. Sarwar, A. Qayyum and L. Barbanti. 2022. Growth, yield and quality attributes of guar (*Cyamopsis tetragonoloba* L.) genotypes grown under different planting dates in a semi-arid region of Pakistan. *Pakistan Journal of Agricultural Sciences*.59:757-763.
 31. Sattar, A., **A. Sher**, M.A.S. Abourehab, M. Ijaz, M. Nawaz, S. Ul-Allah, T. Abbas, A.N. Shah, M.S. Imam, N.R. Abdelsalam, M.E. Hasan, A. Abbas and M.M. Javaid. 2022. Application of silicon and biochar alleviates the adversities of arsenic stress in maize by triggering the morphophysiological and antioxidant defense mechanisms. *Frontier in Environmental Science*. 10:979049. doi: 10.3389/fenvs.2022.979049.
 32. Ahmad, N., A. Javed, S. Gohar, J. Ahmed, **A. Sher**, M. Abdullah, S. Asghar, K. Javed, J. Iqbal, S. Kumar and A. Qayyum. 2022. "Estimation of drought effects on different bread wheat genotypes using morpho-physiological traits. *Biochemical Systematics and Ecology*, 104: p.104483.
 33. Rasheed, A., A. Mahmood, R. Maqbool, M. Albaqami, **A. Sher**, A. Sattar, G.B. Khosa, M. Nawaz, M.U. Hassan, R. Al-Yahyai, M. Aamer, H. Li, and Z. Wu, 2022. Key insights to develop drought-resilient soybean: A review. *Journal of King Saud University-Science*: 102089.

34. Sattar, A., S.U. Allah, M. Ijaz, **A. Sher**, M. Butt, T. Abbas, M. Irfan, T. Fatima, S. Alfarraj, S.A. Alharbi. 2022. Exogenous application of strigolactone alleviates drought stress in maize seedlings by regulating the physiological and antioxidants defense mechanisms. *Cereal Research Communications*, 50: 263-272.
35. Jannat, S., A.H. Shah, M.Ul. Hassan, **A. Sher**, S. Fiaz, B.H. Elesawy, K.A. Ismail, A.El Askary, A.F. Gharib, and A. Qayyum. 2022. Genetic diversity of common bean (*Phaseolus vulgaris* L.) ecotypes from Pakistan using simple sequence repeats. *Saudi Journal of Biological Sciences*, 29(6): 103300.
36. **Sher, A.**, M. Suleman, A. Sattar, A. Qayyum, M. Ijaz, S.Ul. Allah, R. Al-Yahyai, A. Al-Hashimi and M.S. Elshikh. 2022. Achene yield and oil quality of diverse sunflower (*Helianthus annuus* L.) hybrids are affected by different irrigation sources. *Journal of King Saud University-Science*, 34(4): 102016.
37. **Sher, A.**, M. Adnan, A. Sattar, S.Ul. Allah, M. Ijaz, M.U. Hassan, A. Manaf, A. Qayyum, B.H. Elesawy, K.A. Ismail, A.F. Gharib, and A.El. Askary. 2022. Combined application of organic and inorganic amendments improved yield and nutritional quality of forage sorghum. *Agronomy*, 12(4): 896. [https:// doi.org/10.3390/agronomy12040896](https://doi.org/10.3390/agronomy12040896).
38. **Sher, A.**, S.Ul-Allah, A. Sattar, M. Ijaz, W. Ahmad, Y. Bibi and A. Qayyum. 2022. The effect of selenium concentration on the quantitative and qualitative yield of four safflower (*Carthamus tintorius* L.) genotypes. *The Journal of Soil Science and Plant Nutrition*. <https://doi.org/10.1007/s42729-022-00834-8>.
39. Jhanzab, H.M., A. Qayyum, Y. Bibi, **A. Sher**, M.T. Hayat, J. Iqbal, M. Qamar, K.A. Ismail, A.F. Gharib, A.El. Askary, and B.H. Elesawy. 2022. Chemo-blended Ag & Fe nanoparticles effect on growth, physiochemical and yield traits of wheat (*Triticum aestivum*). *Agronomy*. 12(4): 757. <https://doi.org/10.3390/agronomy12040757>.
40. **Sher, A.**, B. Sarwar, A. Sattar, M. Ijaz, S.Ul-Allah, M.T. Hayat, A. Manaf, A. Qayyum, A. Zaheer , J. Iqbal, A.E. Askary, A.F. Gharib, K.A. Ismail, and B.H. Elesawy. 2022. Exogenous application of zinc sulphate at heading stage of wheat improves the yield and grain zinc biofortification. *Agronomy*, 12(3):734. <https://doi.org/10.3390/agronomy12030734>.
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JOURNAL REVIEWED

- *Agronomy-MDPI*
- *Frontiers in Plant Sciences*
- *Crop and Pasture Science*
- *International Journal of Agriculture and Biology*
- *Pakistan Journal of Botany*
- *Saudi Journal of Biological Sciences*
- *Journal of Horticulture and Plant Research*
- *Journal of Soil Science and Plant Nutrition*
- *Sustainability-MDPI*
- *Physiologia Plantarum*
- *Journal of Plant Nutrition*
- *Land Degradation & Development*
- *Life-MDPI*
- *Journal of King Saud University-Science*

NATIONAL/INTERNATIONAL/TRAINING/WORKSHOP

1. Participated in **Training Course “Small Scale Seed Enterprises”** from December 04, 2007, Organized by Federal Seed Certification & Registration Department, Islamabad, Pakistan.

2. Participated in **Training Course “Seed Registration & Certification”** from January 21-February 7, 2008, Organized by Federal Seed Certification & Registration Department, Islamabad, Pakistan.
3. Participated in **Training Course “Wheat Crop Inspection”** from June 15, 2009, Organized by Federal Seed Certification & Registration Department, Islamabad, Pakistan.
4. Participated in Bio-safety **National Workshop on “For Young Scientist”** from February 27, 2014, at Bahauddin Zakariya University Bahadur Sub Campus, Layyah, Pakistan.
5. Participated in **International Workshop on “Biofortification of staple food a solution to combat malnutrition”** from March 29-31, 2015, Organized by University of Nottingham, UK, at University of Agriculture, Faisalabad, Pakistan.
6. Participated in **13th National Training Course on “Modern Techniques in Biotechnology”** from April 20-24, 2015 at Nuclear Institute for Biotechnology & Genetic Engineering (NIBGE), Faisalabad, Pakistan.
7. Participated in **National Workshop on “Sustainable Production of Pulses: *situation analysis*”** from August 11, 2015, Organized by Pakistan Society of Agronomy, at Bahauddin Zakariya University Bahadur Sub Campus, Layyah, Pakistan.
8. Participated in **Mass Awareness on “Climate Change & Food Security Issues, Reason & Sustainable Solution”** from November 05, 2015, Organized by Doaba Foundation, at Bahauddin Zakariya University Bahadur Sub Campus, Layyah, Pakistan.
9. Participated in **14th National & 5th International Conference of Botany “Climate Change and Phytodiversity: Challenges and Opportunities”** in January 13-18, 2016, held at Department of Botany, University of Karachi, Pakistan.
10. Participated in **National Workshop on “Tunnel Farming & Scientific Writing”** from February 10, 2016, Organized by College of Agriculture, Bahauddin Zakariya University Bahadur Sub Campus, Layyah, Pakistan.
11. Participated in **6th National Training Course on “Modern Techniques in Research on Abiotic Stress Tolerance in Plants”** from March 14-18, 2016 at Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad, Pakistan.
12. Participated in **National Training Course on “Environmental Management System”** from April 13, 2016 at COMSAT Institute of Information Technology, Vehari, Pakistan.
13. Participated in **National Seminar on “Sustainable Agriculture in Arid Climate”** from May 12, 2016, Organized by College of Agriculture, Bahauddin Zakariya University Bahadur Sub Campus, Layyah, Pakistan.
14. Participated in **National Conference on “Weed Science, Vegetation Management in the Era of Climate Change for Sustainability”** in August 19-21, 2016, held at Shaheed Benazir Bhutto University Main Campus Sheringal, Pakistan.
15. Participated in **International Training Workshop on “Hybrid Foxtail Millet Technology for Developing Countries”** from August 28 to September 11, 2016 at Zhangjiakou Academy of Agricultural Sciences (ZAAS), China.

16. Participated in **International Training Workshop on “Hybrid Rice Technology for Developing Countries”** from September 06-26, 2016 at Hunan Rice Research Institute (HRRI), China.
17. Participated in **International Conference on “Significance of Potash Use in Pakistani Agriculture”** in October 4-5, 2016, held at Institute of Agricultural Sciences, University of the Punjab Lahore, Pakistan.
18. Participated in **National Training on “Mushroom Production Technology”** from February 16, 2017 at University of Haripur (UOH), Haripur, Pakistan.
19. Participated in **International Conference on “Safe Food for All & Food Expo”** in March 2-3, 2017, held at Institute of Food Science & Nutrition, Bahauddin Zakariya University Multan, Pakistan.
20. Participated in **National Seminar on “Wheat Production Challenges in Pakistan under Changing Climate”** in March 07, 2017, held at Department of Agronomy, Faculty of Agricultural Sciences & Technology, Bahauddin Zakariya University Multan, Pakistan.
21. Participated in **National Conference on “Challenges & Opportunities to Boost Agriculture in Changing Climate”** in March 29-30, 2017, held at College of Agriculture, BZU, Bahadur Sub-Campus Layyah, Pakistan.
22. Participated in **International Conference on “Climate Change and Biodiversity”** in May 2-4, 2017, held at Cholistan Institute of Desert Studies, Islamia University Bahawalpur, Pakistan.
23. Participated in **International Conference on “Healthy and Safe Food Production in Response to Climate Change and Globalization”** in June 13-17, 2017, held at Diversion 21 Hotel, Iloilo City, Philippines.
24. Participated in **VIII. International Agriculture Symposium “AGROSYM 2017”** in October 5-8, 2017, held at Jahorina Mountain, Bosnia and Herzegovina.
25. Participated in **III. International Plant Breeding Congress** in October 15-20, 2017, held at Acapulco Hotel, Kyrenia, Turkish Republic of Northern Cyprus.
26. Participated in **National Seminar on “Profitable Wheat Production in Arid Region”** in November 22, 2017, held at College of Agriculture, Bahauddin Zakariya University, Bahadur Sub Campus Layyah, Pakistan.
27. Participated in Seminar **“Weed Eradication”** in March 15, 2018, held at College of Agriculture, BZU, Bahadur Sub-Campus Layyah, Pakistan.
28. Participated in **7th International and 16th National Conference on “Plant Resources: Current Trends, Challenges and Solution”** in March 23-26, 2018, held at Department of Botany, Islamia College of Peshwar & Department of Botany, University of Peshwar.

29. Participated in **1st International and 2nd National Conference on “Challenges and Opportunities to boost Agriculture in Changing Climate”** in March 26-28, 2018, held at College of Agriculture, BZU, Bahadur Sub-Campus Layyah, Pakistan.
30. Participated in Training Workshop on **“Leadership Pursuit”** in April 10-11, 2018, held at College of Agriculture, BZU, Bahadur Sub-Campus Layyah, Pakistan.
31. Participated in National Symposium on **“Soil Plant Water Interaction for Orchards Management under Changing Climate and Agri-Tech Exhibition”** in May 09-11, 2018, held The University of Haripur, Haripur- Pakistan.
32. Participated in **“The 4th International Conference on Agricultural and Biological Sciences (ABS2018)”** in June 26-29, 2018, held at Hangzhou, Zhejiang China.
33. Participated in **“International Agricultural, Biological & Life Sciences Conference”** in September 2-6, 2018, held at Edirne, Turkey.
34. Participated in **International Conference on “Climate Smart Agriculture: the Way of Farming for 21st Century”** in October 8-9, 2018, held at MNS- University of Agriculture, Multan-Pakistan.
35. Participated in **International Conference on “Food-Agriculture Sciences and Technologies (IC-FAST) 2019”** in January 15-17, 2019, held at Institute of Agricultural Sciences PU & National Alliance for Safe Food, Lahore-Pakistan.
36. Participated in **International Conference on “Environmental Toxicology and Health”** in February 25-27, 2019, held at Department of Environmental Sciences, Comsats University Islamabad, Vehari Campus-Pakistan.
37. Participated in **1st International Conference on “Agricultural and Biological Sciences” Focusing Food Security and Climate Change** in March 27-30, 2019, held at The University of Haripur, Haripur- Pakistan.
38. Participated in **6th International Conference on “Sustainable Agricultural in Changing Climate: Strategies and Management”** in June 19-21, 2019, held at The University of Poonch, Rawalakot- Pakistan.
39. Participated in Training Workshop on **“Climate change impact assessment and adaptation strategies for wheat and groundnut production using decision support system”** in September 4-5, 2019, held at Department of Agronomy, PMAS-Arid Agriculture University Rawalpindi- Pakistan.
40. Participated in **International Conference on “Climate-Resilient Smart Soil Management” Focusing Food Security, Ecosystems & Environment”** in March 05-07, 2020, held at The University of Haripur, Haripur- Pakistan.

41. Participated in **International Workshop on “Use of GIS Techniques and Stable Isotopes for Sustainable Development in Agriculture and Environment”** in October 15-16, 2020, held at The University of Haripur, Haripur- Pakistan.
42. Participated in **International Training Workshop on “Hybrid Foxtail Millet Technology for Developing Countries”** from December 09-28, 2021 at Zhangjiakou Academy of Agricultural Sciences (ZAAS), China.
43. Participated in **Symposium on “Climate Change & Soil Dynamics”** in December 7, 2021, held at The University of Haripur, Haripur- Pakistan.
44. Participated in **Training Workshop on “Promoting Research Excellence in Academics across Pakistan”** from February 1-2, 2022 at Higher Education Commission Pakistan and Research Academy Elsevier.
45. Participated in **“3rd International Conference on Agriculture and Horticulture”** in April 04, 2022, held at Washington, USA.
46. Participated in **“IV. International Agricultural, Biological & Life Sciences Conference”** in August 29-31, 2022, held at Edirne, Turkey.
47. Participated in **“IV. Balkan Agricultural Congress”** in 31 August–2 September 2022, held at Edirne, Turkey.
48. Participated in **National Seminar on “Modern Seed Enhancement Technologies for Better Crop Performance”** in October 25, 2022, held at College of Agriculture, Bahauddin Zakariya University, Bahadur Sub Campus Layyah, Pakistan.
49. Participated in **“9th National Agri Tourism Conference”** in November 24, 2022, held at College of Agriculture, Bahauddin Zakariya University, Bahadur Sub Campus Layyah, Pakistan.
50. Participated in **International Training Workshop on “Integrated Desertification Control in the Context of Climate Change”** from May 03-22, 2023 at Gansu Desert Control Research Institute, China.
51. Participated in **International Training Workshop on “Hybrid Foxtail Millet Technology for Developing Countries”** from September 12-25, 2023 at Zhangjiakou Academy of Agricultural Sciences (ZAAS), China.
52. Participated in **International Training Workshop on “Kiwifruit Production Technology”** from November 27 to December 11, 2023 at Sichuan Provincial Academy of Natural Resources Sciences, China.

MS/MPhil Student Supervised

Sr. No	Name of Students	Thesis Title	Completed
1	Muhammad Suleman	Effect of various irrigation sources on yield and oil quality of divergent sunflower hybrids	2018

2	Anum Samreen Tahira	Evaluating the potential of foliage applied 5-amino levulinic acid in improving drought tolerance in sunflower	2018
3	Muhammad Yaseen	Effect of foliar application of micronutrients on productivity of sunflower hybrids	2018
4	Amir Raza	Exogenous application of selenium and silicon to improve the productivity of late sown wheat	2019
5	Azhar Hussain	Effect of tillage practices and row spacing on yield and quality of hybrid maize	2019
6	Ahmad Ali	Role of organic amendments in improving the fodder biomass of triticale	2019
7	Muhammad Nusrullah	Exogenous application of thiourea to improve the productivity of late sown wheat	2019
8	Muhammad Saleem	Genotypic response of forage sorghum to various salinity levels	2020
9.	Muhammad Adnan	Improving the growth and productivity of forage sorghum with various organic amendments	2020
10	Muhammad Ali Raza	Combine application of calcium and zinc to improve the fodder yield and quality of cluster bean	2021
11	Taskeen Sarwar	Effect of various tillage and cropping systems on weed dynamics and productivity of different summer crops	2021
12	Zahid Ali Akbar	Optimizing the NPK levels for forage millet under arid climate of Thal	2021
13	Muhammad Ammar Atta	Evaluating the performance of wheat varieties under heat stress conditions	2022
14	Bushra Sarwar	Co-application of zinc and silicon to mitigate the arsenic toxicity in wheat	2022
15	Kazim Ali	Improving the growth and fodder yield through cereals-legumes inter cropping	2022
16	Muhammad Asif khan	Effect of supplementary irrigation and phosphorus application on fodder productivity of oat	2022
17	Habib Ullah	Evaluating the role of polyamine to mitigate the drought stress in forage sorghum	2023
18	Muhammad Nissar	Effect of sulphur and boron on growth and productivity of wheat	2023
19	Muhammad Irfan	Exogenous application of zinc and potassium on the forage yield of maize	2023
20	Amjid Hussain	Application of Biostimulants to improve the productivity of Oat under drought	2024
21	Fabia Sultan	Effect of organic and inorganic fertilizers on the growth and yield of mung bean	2024
22	Shanza Arshad	Protective role of melatonin to improve the drought tolerance in maize	2024
23	Muhammad Shahzad Rao	Improving the fodder yield of barley through soil application of selenium and potassium	2024
24	Muhammad Sarwar Shah	Response of wheat genotype of pre-seed treatment under water deficit conditions	2024

References

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