Curriculum vitae



Dr Shahid Hussain
Associate Professor (Tenured)
Department of Soil Science
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1. EMPLOYMENT HISTORY/PROFESSIONAL EXPERIENCE

- Associate Professor (Tenured/Permanent) of Soil Science (16 January 2021 to date) at Bahauddin Zakariya University, Multan
  [Main duties are teaching, research and research supervision]
- Assistant Professor (TTS/Permanent) of Soil Science (2 July 2015 to 15 January 2021) at Bahauddin Zakariya University, Multan
  [Main duties were teaching, research and research supervision]
- Part-time University Teacher (Contract) (7 May 2014 to 1 July 2015) at Department of Soil Science, Bahauddin Zakariya University, Multan
  [Main duty was teaching]
- Assistant Professor (IPFP/One-year Contract) of Soil Science (7 May 2013 to 6 May 2014) at Bahauddin Zakariya University, Multan
  [Main duties were teaching and research]

2. EDUCATION

- Ph.D. Soil Science in 2013 from University of Agriculture, Faisalabad (Pakistan) with 6-month research training at University of Western Australia (Australia)
  Hussain, S. 2013. Bioavailable grain zinc in wheat varieties of Pakistan and strategies for biofortification. Ph.D. thesis. University of Agriculture, Faisalabad (Pakistan) [Available online at: www.prr.hec.gov.pk/Thesis/1744S.pdf]
- M.Sc. (Hons.) Soil Science in 2009 from University of Agriculture, Faisalabad (Pakistan) by scoring a CGPA of 3.75 out of 4.00.
  Hussain, S. 2009. Root-zone Temperature influences zinc requirement of maize. M.Sc. (Hons.) thesis. University of Agriculture, Faisalabad (Pakistan)
- B.Sc. (Hons.) Agriculture (Major: Soil Science) in 2007 from University of Agriculture, Faisalabad (Pakistan) by scoring a CGPA of 3.71 out of 4.00. [Research Internship at Soil and Water Testing Laboratory for Research, Ayub Agricultural Research Institute, Faisalabad.]

3. FELLOWSHIPS, TRAININGS AND AWARDS

1. Level 1 Training Program. May 5 to 8, 2025. Bahauddin Zakariya University, Multan.
2. Training in Research Capacity Building jointly organized by HEC and British Council. May 16-20, 2022. Ramada Hotel, Multan (Pakistan).

3. Australian Award to complete online short course (on Data Analysis with R for Agricultural and Environmental Science) from The University of Western Australia, Perth (Australia) – from 26/07/2021 to 09/12/2021.
4. HEC Travel Grant to attend ARC Conference 2018 at Korea University, Seoul, Republic of Korea.
5. Research Fellowship at University of Western Australia under International Research Support Initiative Programme of Higher Education Commission (Pakistan) – from 10/10/2011 to 02/04/2012
6. Scholar Award 2011 - International Plant Nutrition Institute (USA)
7. Indigenous Ph.D. Fellowship - Higher Education Commission (Pakistan) – from 01/09/2007 to 14/03/2013 (Fellowship for M.Sc. (Hons.) and PhD studies)

4. ADDITIONAL ASSIGNMENTS AT UNIVERSITY

1. Member Board of Faculty at Faculty of Agricultural Sciences and Technology, Bahauddin Zakariya University, Multan.
2. Member Examination Committee for Faculty of Agricultural Sciences and Technology, Bahauddin Zakariya University, Multan.
3. Member Admission Committee for Faculty of Agricultural Sciences and Technology, Bahauddin Zakariya University, Multan.
4. Departmental In-charge of Examinations, Department of Soil Science, Bahauddin Zakariya University, Multan.
5. Departmental Focal Personal in Strategic Planning Committee, Bahauddin Zakariya University, Multan.
6. Member Board of Studies in Soil Science, Bahauddin Zakariya University, Multan.
7. Member Synopsis Evaluation Committee of Department of Soil Science
8. Member Admission Committee of Department of Soil Science
9. Member Purchase Committee of Department of Soil Science
10. Member Examination Committee of Department of Soil Science
11. Chairman Purchase Committee in HEC-NRPU Project (PI Self)
12. Member Technical Committee in HEC-NRPU Project (PI Self)
13. Served as Member Timetable Committee of Department of Soil Science (2019-20), Member Disciplinary Committee of Department of Soil Science (2017-19), Deputy Director of Student Affairs of Faculty of Agricultural Sciences and Technology (2015-17), Coordinator M.Sc. (Hons.) Soil Science Program (2015-16), Assistant Superintendent Qasim Hall (2014-15) Building In-charge of Department of Soil Science (2018-22)

5. MEMBERSHIPS

1. Soil Science Society of Pakistan, Pakistan
2. Pakistan Botanical Society, Pakistan
3. The Pakistan Society of Food Scientists and Technologists, Pakistan
4. Society of Chemical Industry, UK
5. Agriculture, Nutrition & Health Academy, UK
6. American Society for Microbiology, USA

6. EDITING, REVIEWING, EVALUATION AND MENTORING

1. Associate Editor in Plant Abiotic Stress, Frontiers of Plant Science [ISSN 1664-462X], Frontiers (9/24 to date)

8. Associate Editor in Soils and Human Health, Frontiers of Soil Science [ISSN 2673-8619], Frontiers (2/21 to date). Outstanding Associate Editor of 2022.
2. Associate Editor in Soil Science, Open Agriculture [2391-9531], De Gruyter (4/20 to date)
3. Editorial Board Member, Journal of Integrative Agriculture [ISSN 2095-3119] (6/22 to date)
4. Guest Associate Editor (of a special issue on Mineral Biofortification and Heavy Metal/Metalloid Accumulation in Food Crops), Crop and Pasture Science [ISSN 1836-0947], CSIRO Publishing, Australia (11/20 to 07/22)
5. As per Web of Science record, available at https://www.webofscience.com/wos/author/record/H-9028-2012, I performed a total of 419 peer reviews. I am also certified graduate and mentor at Web of Science Academy.
6. Co-edited E-Book of Abstracts of the International Conference on Sustainable Food Systems in a Changing Climate. October 13–15, 2026. Bahauddin Zakariya University, Multan, Pakistan and Pakistan Agricultural Scientists Forum, Islamabad, Pakistan. [URL: https://pasforum.org/pdf/PAS%20BZU%202026%20E-Book%20of%20Abstracts.pdf]
7. Served as Mentor of 5 Mentees (2026) in HEC NAHE Mentoring Program for Universities at Bahauddin Zakariya University, Multan, Pakistan.
8. Served (2025) as Member of Departmental Tenure Review Committee (for progress evaluation of faculty members on TTS) of The University of Agriculture, Dera Ismail Khan, Dera Ismail Khan
9. HEC Reviewer of Competitive Research Grants. Reviewed another research proposal for the Endowment Fund of University of Agriculture, Faisalabad (Pakistan)
10. Served as referee of M.Sc. (Hons.) theses of students from Gomal University, D. I. Khan (4 theses to-date) and MNS-University of Agriculture, Multan (2 thesis to-date)
11. Served (2022) as Member of Departmental Tenure Review Committee (for progress evaluation of faculty members on TTS) of Cholistan Institute of Desert Studies, Islamia University, Bahawalpur
12. Served (2023) as External Expert for the Demonstration/Presentation for the Post of Lecturer (PBS-18) Soil Science for Faculty of Agriculture, Gomal University, D.I. Khan

7. PUBLICATIONS

*7.1. Articles in refereed journals [*corresponding author]*

1. Umar, A. M. Nadeem and **S. Hussain***. 2025. Cadmium and zinc inflows through wastewater irrigation govern soil metal balances in wheat-sorghum cropping system. Environmental Monitoring and Assessment, 197:988. doi. 10.1007/s10661-025-14419-2.
2. Basit, A. and **S. Hussain***. 2024. Arsenic and zinc concentrations in wheat grains under soil zinc application and arsenic-contaminated irrigation. Clean – Soil, Air, Water, 52: 2300106. doi. 10.1002/clen.202300106.
3. Basit, A. and **S. Hussain*.** 2024. Arsenic and zinc accumulation in zinc-biofortified wheat under arsenic-contaminated irrigation and varied zinc application methods. Journal of Soil Science and Plant Nutrition, 24: 5586–5601. doi: 10.1007/s42729-024-01927-2.
4. Adeel, M.A., **S. Hussain***, A. Basit, M.B. Hussain and M. Aon. 2024. Biofortification of wheat in salt-affected soil through seed priming and soil application of zinc. Journal of Trace Elements and Minerals, 8: 100159. doi. 10.1016/j.jtemin.2024.100159.
5. Basit, A. and **S. Hussain*.** 2024. Soil zinc application decreases arsenic and increases zinc accumulation in grains of zinc-biofortified wheat cultivars. Crop & Pasture Science 75, CP23275. doi: 10.1071/CP23275.
6. Umar, A. and **S. Hussain***. 2023. Seed priming and soil application of zinc decrease grain cadmium accumulation in standard and zinc-biofortified wheat cultivars. Crop & Pasture Science, 74(4): 284–293. doi: 10.1071/CP22255.

7. Aon, M., Z. Aslam, **S. Hussain**, M.A. Bashir, M. Shaaban, S. Masood, S. Iqbal, M. Khalid, A. Rehim, W.F.A. Mosa, L. Sas-Paszt, S.A. Marey and A.A. Hatamleh. 2023. Wheat straw biochar produced at a low temperature enhanced maize growth and yield by influencing soil properties of *Typic calciargid*. Sustainability, 15: 9488. doi: 10.3390/su15129488.
8. Aon, M., **S. Hussain**, M.A. Bashir, M. Abbas, S. Masood and Q. Ali. 2023. Mineral nitrogen dynamics over time influenced by peanut-waste biochar application in alkaline soil. Pakistan Journal of Biotechnology, 20(02): 330–338. doi. 10.34016/pjbt.2023.20.02.853.
9. **Hussain, S*.** 2022. Heavy Metal/Metalloid Indexing and Balances in Agricultural Soils: Methodological Approach for Research. Phyton-International Journal of Experimental Botany, 91(12) 2687–2697. doi: 10.32604/phyton.2022.021158.
10. Mehboob, N., T.A. Yasir, S. Hussain, S. Farooq, M. Naveed, and M. Hussain. 2022. Osmopriming combined with boron-tolerant bacteria (*Bacillus* sp. MN54) improved the productivity of *desi* chickpea under rainfed and irrigated conditions. Agriculture, 12: 1269. doi: 10.3390/agriculture12081269.
11. **Hussain, S*.** 2022. Mineral biofortification and metal/metalloid accumulation in food crops: recent research and trends (Part III). Crop & Pasture Science, 73 (7–8): 733–735. doi: doi:10.1071/CP22223_FO.
12. **Hussain, S*.** 2022. Mineral biofortification and metal/metalloid accumulation in food crops: recent research and trends (Part II). Crop & Pasture Science, 73 (5): 425–426. doi: doi:10.1071/CP21123_FO.
13. Naeem, M., W.A. Minhas, **S. Hussain,** S. Ul-Allah, M. Farooq, S. Farooq and M. Hussain. 2022. Barley-Based cropping systems and weed control strategies influence weed infestation, soil properties and barley productivity. Agriculture, 12:487. doi: 10.3390/agriculture12040487.
14. **Hussain, S*.** 2022. Mineral biofortification and metal/metalloid accumulation in food crops: recent research and trends (Part I). Crop & Pasture Science, 73 (1–2): 1–2. doi: 10.1071/CPv73n2_FO.
15. Amir, M., S. Asghar, M. Ahsin, **S. Hussain*,** A. Ismail, M. Riaz and S. Naz, 2021. Arsenic exposure through drinking groundwater and consuming wastewater-irrigated vegetables in Multan, Pakistan. Environmental Geochemistry and Health, 43: 5025–5035. doi: 10.1007/s10653-021-00940-z.
16. Aurangzeib, M., S. Hussain, A. Rehim, M. A. Bashir and H. M. A. Raza. 2021. Extraction methods and adsorption kinetics of potassium in calcareous soils of Multan. Pakistan Journal of Agriculture, Agricultural Engineering and Veterinary Sciences, 37 (2): 87–96. doi: 10.47432/2021.37.2.3.
17. Nisa, Z.U., N.U.A. Saifullah, M.I. Ullah, Z.U. Zia, B. Ali, Z. Hussain, **S. Hussain,** and A. Husain. 2021. Comparison of different potassium application methods for maize (Zea mays L.) growth under salt-affected soils. Journal of Pure and Applied Agriculture, 6(1): 44–53.
18. Yaseen, M.K. and **S. Hussain*.** 2021. Zinc-biofortified wheat required only a medium rate of soil zinc application to attain the targets of zinc biofortification. Archives of Agronomy and Soil Science. 67(4): 551–562. doi: 10.1080/03650340.2020.1739659.
19. Basit, A., **S. Hussain***, M. Abid, M. Zafar-ul-Hye and N. Ahmed. 2021. Zinc and potassium priming of maize (*Zea mays* L.) seeds for salt-affected soils. Journal of Plant Nutrition. 44(1): 130–141. doi: 10.1080/01904167.2020.1799005.
20. Naeem, M., N. Mehboob, M. Farooq, S. Farooq, **S. Hussain**, H. M. Ali and M. Hussain. 2021. Impact of Different Barley-based Cropping Systems on Soil Physicochemical Properties and Barley Growth under Conventional and Conservation Tillage Systems. Agronomy 11: 8. doi: 10.3390/agronomy11010008.
21. Zafar-Ul-Hye, M., U. Farooq, S. Danish, **S. Hussain**, M. Shaaban, M.F. Qayyum and A. Rehim. 2020. *Bacillus amyloliquefaciens* and *Alcaligenes faecalis* with biogas slurry improved

maize growth and yield in saline-sodic field. Pakistan Journal of Botany 52(5): 1839–1847. doi: http://dx.doi.org/10.30848/PJB2020-5(20).
22. Ahsin, M., **S. Hussain*,** Z. Rengel, and M. Amir. 2020. Zinc status and its requirement by rural adults consuming wheat from control or zinc-treated fields. Environmental Geochemistry and Health 42(7): 1877–1892. doi: 10.1007/s10653-019-00463-8.
23. Zafar-ul-hye, M., F. Mahmood, S. Danish, **S. Hussain,** M. Gul, R. Yaseen and M. Shaaban. 2020. Evaluating efficacy of plant growth promoting rhizobacteria and potassium fertilizer on spinach growth under salt stress. Pakistan Journal of Botany 52(4): 1441–1447. doi: 10.30848/PJB2020-4(7).
24. **Hussain, S.*,** M.A.A. Shah, A.M. Khan, F. Ahmad and M. Hussain. 2020. Potassium enhanced grain zinc accumulation in wheat grown on a calcareous saline-sodic soil. Pakistan Journal of Botany 52(1): 69–74. doi: 10.30848/PJB2020-1(40).
25. Danish, S., M. Zafar-Ul-Hye, **S. Hussain**, M. Riaz and M.F. Qayyum. 2020. Mitigation of drought stress in maize through inoculation with drought tolerant ACC deaminase containing PGPR under axenic conditions. Pakistan Journal of Botany 52(1): 49–60. doi: 10.30848/PJB2020-1(7).
26. **Hussain, S.*,** A.M. Khan and Z. Rengel. 2019. Zinc-biofortified wheat accumulates more cadmium in grains than standard wheat when grown on cadmium-contaminated soil regardless of soil and foliar zinc application. Science of the Total Environment 654: 402–408. doi: 10.1016/j.scitotenv.2018.11.097.
27. Shazad, K., M. Abid, H. Sintim, **S. Hussain,** and W. Nasim. 2019. Tillage and biochar effects on wheat productivity under arid conditions. Crop Science 59: 1–9. doi: 10.2135/cropsci2018.08.0485.
28. Danish, S., M. Zafar-ul-Hye, M. Hussain, M. Shaaban, A. Núñez-Delgado, **S. Hussain** and M.F. Qayyum, 2019. Rhizobacteria with ACC-deaminase activity improve nutrient uptake, chlorophyll contents and early seedling growth of wheat under PEG-induced drought stress. International Journal of Agriculture and Biology. 21: 1212–1220. doi: 10.17957/IJAB/15.1013.
29. Jahanzab, A. and **S. Hussain.** 2019. Zinc fractions in differently-textured soils of southern Punjab, Pakistan and status of zinc in flag leaves of wheat. Journal of Global Innovations in Agricultural and Social Sciences 7(2): 59–64.
30. Ahmed, N., M. Abid, M.A. Ali, S. Masood, A. Rashid, S. Noreen and **S. Hussain.** 2019. Zinc application enhances biological yield and alters nutrient uptake by cotton (*Gossypium hirsutum* L.). Communications in Soil Science and Plant Analysis, 50(3): 265–274. doi: 10.1080/00103624.2018.1559330.
31. Zafar-ul-Hye, M., T.S. Bhutta, M. Shaaban, **S. Hussain,** M.F. Qayyum, U. Aslam and Z.A. Zahir. 2019. Influence of plant growth promoting rhizobacterial inoculation on wheat productivity under soil salinity stress. Phyton-International Journal of Experimental Botany 88(2): 119–129. doi: 10.32604/phyton.2019.06570.
32. **Hussain, S*.,** K. Sahar, A. Naeem, M. Zafar-ul-Hye and M. Aon. 2018. Combined zinc and nitrogen applications at panicle initiation for zinc biofortification in rice. Periodicum Biologorum 120 (2–3): 105–110. doi: 10.18054/pb.v120i2-3.6866.
33. Aon, M., M. Khalid, M.A. Naeem, M. Zafar-ul-Hye, **S. Hussain,** M. Hussain and Z. Aslam, 2018. Peanut-waste biochar and buffalo manure decreased nitrogen and phosphorus requirement of maize grown in an alkaline calcareous soil. International Journal of Agriculture and Biology 20: 2661–2668. doi: 10.17957/IJAB/15.0807.
34. Khan, A.M., **S. Hussain***, Z. Rengel and M.A.A. Shah. 2018. Zinc bioavailability and nitrogen concentration in grains of wheat crop sprayed with zinc sulfate, ammonium sulfate, ammonium chloride, and urea. Journal of Plant Nutrition 41(15): 1926–1936. doi: 10.1080/01904167.2018.1484472.

35. Zafar-ul-Hye, M., A. Nasir, M. Aon, **S. Hussain**, M. Ahmad and I. Naz. 2018. Seed inoculation with *Pseudomonas uorescens* and *Pseudomonas syringae* enhanced maize growth in a compacted saline-sodic soil. Phyton-International Journal of Experimental Botany 87: 25–31.
36. **Hussain, S.*,** M. Qaswar and F. Ahmad. 2018. Zinc application enhances grain zinc density in genetically-zinc-biofortified wheat grown on a low-zinc calcareous soil. Journal of Scientific Agriculture 2:107–110. doi: 10.25081/jsa.2018.v2.20181512.
37. **Hussain, S**., M.B. Hussain*, A. Gulzar, M. Zafar-ul-Hye, M. Aon, M. Qaswar and R. Yaseen. 2017. Right time of phosphorus and zinc application to maize depends on nutrient-nutrient and nutrient-inoculum interactions. Soil Science and Plant Nutrition. 63 (4): 351–356. doi: full/10.1080/00380768.2017.1361784.
38. Qaswar, M., **S. Hussain*** and Z. Rengel. 2017. Zinc fertilisation increases grain zinc and reduces grain lead and cadmium concentrations more in zinc-biofortified than standard wheat cultivar. Science of the Total Environment 605–606: 454–460. doi: 10.1016/j.scitotenv.2017.06.242.
39. Ahmed, N. M. Abid, M.F. Qayyum, M.A. Ali, **S. Hussain** and S. Noreen. 2016. Nutrient dynamics in cotton leaf tissues as affected by zinc fertilization and ontogeny. Proceedings of the Pakistan Academy of Sciences: B. Life and Environmental Sciences 53 (4): 283–292.
40. Imran, M., A. Rehim, **S. Hussain**, M. Zafar ul Hye and H.U. Rehman, 2016. Efficiency of zinc and phosphorus applied to open-pollinated and hybrid cultivars of maize. International Journal of Agriculture and Biology 18(6): 1249–1255.
41. **Hussain, S.**, Z. Rengel, S.A. Mohammadi, A. Ebadi-Sagharloo and M.A. Maqsood. 2016. Mapping QTL associated with remobilization of zinc from vegetative tissues into grains of barley (*Hordeum vulgare*). Plant and Soil 399(1): 193–208. DOI: 0.1007/s11104-015-2684-1.
42. Maqsood, M.A., **S. Hussain**, M.A. Naeem, M. Ahmad, T. Aziz, H.A. Raza, S. Kanwal and M. Hussain. 2015. Zinc indexing in wheat grains and associated soils of Southern Punjab. Pakistan Journal of Agricultural Sciences 52(2): 431–438.
43. Imran, M., S. Kanwal, **S. Hussain***, T. Aziz and M.A. Maqsood. 2015. Efficacy of zinc application methods for concentration and estimated bioavailability of zinc in grains of rice grown on a calcareous soil. Pakistan Journal of Agricultural Sciences 52(1): 169–175.
44. Khan, W., F. Shakoor, M.Y. Khan, **S. Hussain**, M.A. Maqsood and T. Aziz. 2015. Zinc requirement for optimum grain yield and zinc biofortification depends on phosphorus application to wheat cultivars. Romanian Agricultural Research, 32: 155–163.
45. Aon, M., M. Khalid, **S. Hussain**, M. Naveed and M.J. Akhtar. 2015. Diazotrophic inoculation supplemented nitrogen demand of flooded rice under field conditions. Pakistan Journal of Agricultural Sciences 52(1): 145–150.
46. Maqsood, M.A., M.K. Khan, M.A. Naeem, **S. Hussain**, T. Aziz and J. Schoenau. 2015. High sodium in irrigation water caused B toxicity at low soil solution and shoot B concentration in maize (*Zea mays* L.). Journal of Plant Nutrition 38 (5): 728–741.
47. Abid, M., Saif-ur-Rehman and **S. Hussain**. 2014. Tillage practices and nitrogen application influenced soil physical properties and wheat production. Pakistan Journal of Agriculture, Agricultural Engineering and Veterinary Sciences 30 (1): 75–84.
48. Iqbal, J., S. Kanwal, **S. Hussain***, T. Aziz and M.A. Maqsood. 2014. Zinc application improves maize performance through ionic homeostasis and ameliorating devastating effects of brackish water. International Journal of Agriculture and Biology 16 (2): 383–388.
49. **Hussain, S.***, M.A. Maqsood, Z. Rengel, T. Aziz and M. Abid. 2013. Estimated zinc bioavailability in milling fractions of biofortified wheat grains and in flours of different extraction rates. International Journal of Agriculture and Biology 15 (5): 921–926.

50. **Hussain, S.***, M.A. Maqsood, T. Aziz and S.M.A. Basra. 2013. Zinc bioavailability response curvature in wheat grains under incremental zinc applications. Archives of Agronomy and Soil Science 59 (7): 1001–1016. doi: 10.1080/03650340.2012.701732.
51. Naeem, M.A., M.A. Maqsood, **S. Hussain**, M.K. Khan and S. Kanwal. 2013. Irrigation with brackish water modifies boron requirement of mungbean (*Vigna radiata* L.) on Typic Calciargid. Archives of Agronomy and Soil Science 59 (1): 133–145.
52. **Hussain, S.***, M.A. Maqsood, Z. Rengel and T. Aziz. 2012. Biofortification and estimated human bioavailability of zinc in wheat grains as influenced by methods of zinc application. Plant and Soil 361 (1–2): 279–290. doi: 10.1007/s11104-012-1217-4.
53. **Hussain, S.***, M.A. Maqsood, Z. Rengel and M.K. Khan. 2012. Mineral bioavailability in grains of Pakistani bread wheat declines from old to current cultivars. Euphytica 186 (1): 153–163. DOI: 10.1007/s10681-011-0511-1.
54. **Hussain, S.***, M.A. Maqsood and L.V. Miller. 2012. Bioavailable Zinc in Grains of Bread Wheat Varieties of Pakistan. Cereal Research Communications 40 (1): 62–73.
55. Ahmad, H.R., T. Aziz, **S. Hussain**, M. Akraam, M. Sabir, S.U.R. Khashif and M.M. Hanafi. 2012. Zinc-enriched farm yard manure improves grain yield and grain zinc concentration in rice grown on a saline-sodic soil. International Journal of Agriculture and Biology 14(5): 787–792.
56. Sattar, S., M.A. Maqsood, **S. Hussain**, and Rahmatullah. 2011. Internal and external phosphorus requirements of maize (*Zea mays* L.) genotypes on Typic calciargid. Communications in Soil Science and Plant Analysis 42 (2): 184–193.
57. Maqsood M.A., **S. Hussain**, T. Aziz and M. Ashraf. 2011. Wheat-exuded organic acids influence zinc release from calcareous soils. Pedosphere 21(5): 657–665. doi: 10.1016/S1002-0160(11)60168-9.
58. **Hussain, S.***, M.A. Maqsood and Rahmatullah. 2011. Zinc release characteristics from calcareous soils using diethylenetriaminepentaacetic acid and other organic acids. Communications in Soil Science and Plant Analysis 42 (15): 1870–1881.
59. **Hussain, S.*** and M.A. Maqsood. 2011. Root zone temperature influences nutrient accumulation and use in maize. Pakistan Journal of Botany 43 (3): 1551–1556.
60. **Hussain, S.***, M.A. Maqsood, Rahmatullah and S. Kanwal. 2010. Root-zone temperature influences zinc requirement of maize cultivars on a calcareous soil. Journal of Plant Nutrition 33 (13): 1960−1969.
61. **Hussain, S.***, M.A. Maqsood, M. Farhan-ul-Haque and S. Yousaf. 2010. Growth and phosphorus nutrition of rice exposed to sodic solutions at different calcium to magnesium ratios. Soil and Environment 29 (2): 206−212.
62. **Hussain, S.***, M.A. Maqsood and Rahmatullah. 2010. Increasing grain zinc and yield of wheat for the developing world: A Review. Emirates Journal of Food and Agriculture 22 (5): 326−339.

*7.2. Book chapters [*corresponding author]*

1. Umar, A. and **S. Hussain*.** 2020. The role of zinc in grain cadmium accumulation in cereals. pp. 455–470. In: K.R. Hakeem and T. Aftab (eds.), Plant Micronutrients: Deficiency and Toxicity Management. Springer, Cham, Switzerland. DOI: 10.1007/978-3-030-49856-6_20.
2. **Hussain, S.*,** A. Umar, M. Amir and M. Aon. 2020. Biofortification of cereals through foliar application of minerals. pp. 191–221. In: N. Benkeblia (ed.), Vitamins and Minerals Biofortification of Edible Plants. John Wiley & Sons Ltd, Hoboken, United States. DOI: 10.1002/9781119511144.ch9.
3. **Hussain, S.*,** Z. Rengel, M. Qaswar, M. Amir and M. Zafar-ul-Hye. 2019. Arsenic and heavy metal (cadmium, lead, mercury and nickel) contamination in plant-based foods. pp. 447–490. In: M. Ozturk and K.R. Hakeem (eds.), Plant and Human Health, Volume 2:

Phytochemistry and Molecular Aspects. Springer, Cham, Switzerland. DOI: 10.1007/978-3-030-03344-6_20.

4. Aziz, T., M.A. Maqsood, S. Kanwal, **S. Hussain**, H.R. Ahmad and M. Sabir. 2015. Fertilizer and environment: Issues and challenges. pp. 575–598. In: K.R. Hakeem (ed.), Crop Production and Global Environmental Issues. Springer, Cham, Switzerland. DOI: 10.1007/978-3-319-23162-4_21.
5. Maqsood M.A., **S. Hussain**, T. Aziz and M. Ashraf. 2013. Sustainable agriculture through integrated soil fertility management on degraded lands. pp. 759–768 In: S.A. Shahid, M.A. Abdelfattah, and F.K. Taha (eds.), Developments in Soil Salinity Assessment and Reclamation: Innovative Thinking and Use of Marginal Soil and Water Resources in Irrigated Agriculture. Springer, Dordrecht, The Netherlands. DOI: 10.1007/978-94-007-5684-7_50.

7.3. Popular articles

1. Hussain, S. 2019. Zinc-coated urea fertilizer for curing human zinc deficiency in Pakistan. Technology Times, October 10, 2019. Available at <https://www.technologytimes.pk/zinc-coated-urea-fertilizer-for-curing-human-zinc-deficiency-in-pakistan/>
2. Hussain, S. and M. Amir. 2017. Zinc in soils and human health. The Business, December 6, 2017: 6.
3. Hussain, S. 2013. Strategy to increase bioavailable zinc in wheat grains for human consumption [translated from Urdu]. Zarai Digest, October, 2013: 55−56.
4. Hussain, S. and M.A. Maqsood. 2010. Biofortifying wheat grain with zinc – Agricultural approach. Farming Outlook 9 (3): 22−27.

7.4. Abstracts and proceedings

1. Akram, A., S. Hussain and M. Imran. 2026. Elemental Sulfur and Zinc Sulfate Influence Maize Growth and Nutrient Uptake in a Calcareous Soil. p. 58. In: Hussain et al. (eds.), International Conference on Sustainable Food Systems in a Changing Climate. October 13–15, 2026. Bahauddin Zakariya University, Multan, Pakistan and Pakistan Agricultural Scientists Forum, Islamabad, Pakistan.
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8. RESEARCH PROJECTS

8.1. Awarded

1. Higher Education Commission (Pakistan)- NRPU for Research Grant of PKRs. 4.409 million for the project entitled “Trace element balances of soils in wheat-maize rotation as influenced by irrigation water and green manuring” (awarded in 2021 / completed in 2026 / as PI).
2. Bahauddin Zakariya University, Multan funded Research Grant of PKRs. 0.2 million for the project entitles “Priming maize (*Zea mays* L.) seeds for saline and saline-sodic soils” (2019 / completed).
3. Bahauddin Zakariya University, Multan funded Research Grant of PKRs. 0.1479 million for the project entitles “Characterization of zinc-biofortified wheat (Zincol-2016) for accumulation of iron and manganese in grains under zinc application” (2017-18/ completed).
4. Bahauddin Zakariya University, Multan funded Research Grant of PKRs. 0.2 million for the project entitles “Biofortification of zinc and iron in wheat grain by foliar application of micronutrients at grain development stages of wheat grown in a saline sodic soil and supplied with potassium” (2016-17/ completed).
5. Bahauddin Zakariya University, Multan funded Research Grant of PKRs. 0.1489 million for the project entitles “Foliar application of zinc and nitrogenous fertilizers on wheat crop for improving grain quality” (2015-16/ completed).
6. Higher Education Commission (Pakistan) funded Research Grant of PKRs. 0.5 million for the project entitled “Enhancing human zinc bioavailability & protein concentration in wheat grains by nutrient management” (awarded in 2013).

8.2. Proposals submitted/not funded

1. Punjab Agricultural Research Board- Competitive Grant System of PKRS. 20 million for the project entitled “Development of a Sulfur-Enriched Zinc Fertilizer Technology for Enhanced Zinc Fertilizer Efficiency in Maize-Wheat Cropping System of Southern Punjab” (applied in 2026)
2. Pakistan Science Foundation- Industrial Solution Grants for Young Scientists of 3 million for the project entitled “Evaluating Zinc-Coated Urea for Enhancing Nutrient Use Efficiency and Heavy Metal Mitigation in Wheat” (applied in 2026)

3. Punjab Agricultural Research Board- Competitive Grant System of PKRS. 32 million for the project entitled “Deriving the Thresholds Levels of Arsenic, Cadmium, Chromium, and Lead in Irrigation Water for Wheat in Punjab” (applied in 2025 / Not-funded / as PI)
4. Higher Education Commission (Pakistan)- Collaborative Research Grant of PKRs. 38.18 million for the project entitled “Potential exploitation of carbon sequestration towards climate-smart soils” (applied in 2021 / Not-funded / as PI)
5. Higher Education Commission (Pakistan)- NRPU for Research Grant of PKRs. 10.56 million for the project entitled “Heavy metal(loid) indexing and balances of soils in semi-desert irrigated zone of Punjab, Pakistan” (applied in 2020 / Not-funded / as PI).
6. National Natural Science Foundation of China (NSFC) and Pakistan Science Foundation (PSF) / Research Grant of PKRs. 9.23 million for the project entitled “The mechanism and approaches to realize Zn and Fe biofortification of wheat on saline environment” (applied in 2018 / Not-funded / as PI)
7. National Natural Science Foundation of China (NSFC) and Pakistan Science Foundation (PSF) / Research Grant of PKRs. 5.24 million for the project entitled “Cadmium contamination in agricultural soils and its uptake by cereal genotypes differing in grain zinc density” (applied in 2018 / Not-funded / as PI)
8. Higher Education Commission (Pakistan)- NRPU for Research Grant of PKRs. 3.99 million for the project entitled “Fertilisation strategy for improving grain zinc density in wheat grown on salt-affected soils of Punjab” (applied in 2017 / Not-funded / as PI).
9. Higher Education Commission (Pakistan)- NRPU for Research Grant of PKRs. 8.09 million for the project entitled “Assessing the effect of ACC deaminase containing PGPR and biochar on wheat and maize cultivated in cadmium and lead contaminated soil” (applied in 2017 / Not-funded / as Co-PI).
10. Higher Education Commission (Pakistan)- NRPU for Research Grant of PKRs. 2.02 million for the project entitled “Assessment of dietary zinc ingestion in human populations of southern Punjab and potential of zinc biofortification of wheat in combating human zinc deficiency” (applied in 2017 / Not-funded / as Co-PI).
11. Punjab Higher Education Commission (Pakistan) for Research Grant of PKRs. 3.00 million for the project entitled “Training farmers to identify and correct zinc deficiency in maize crop at critical growth stages of crop” (applied in 2017 / Not-funded / as PI).
12. Pakistan Agricultural Research Council- Agricultural Linkages Programme (ALP) for Research Grant of PKRs. 4.00 million for the project entitled “Fertilization for zinc biofortification in grains of wheat grown on salt-affected calcareous soils of Punjab” (applied in 2016 / Not-funded / as PI).
13. Pakistan Agricultural Research Council- Agricultural Linkages Programme (ALP) for Research Grant of PKRs. 3.00 million for the project entitled “Assessment of dietary zinc ingestion in human populations of southern Punjab and role of zinc biofortified wheat flour in combating human zinc deficiency” (applied in 2016 / Not-funded / as Co-PI).
14. Higher Education Commission (Pakistan) for Research Grant of PKRs. 6.62 million for the project entitled “Indexing of micronutrients for management of mango orchards in the southern Punjab, Pakistan” (applied in 2016 / Not-funded / as Co-PI).
15. International Foundation for Science (Sweden) for Research Grant of US$ 0.012 million for the project entitled “Heavy metal accumulation behaviour of genetically biofortified wheat cultivar grown in normal and contaminated soils” (applied in 2015 / Not-funded, with acknowledgment of experienced scientist / as PI).
16. Higher Education Commission (Pakistan) for Research Grant of PKRs. 0.5 million for the project entitled “Zinc uptake and partitioning in shoots and grains of wheat grown in a calcareous soil and supplied with zinc at different growth stages” (applied in 2015 / Not-funded / as PI).

17. Bill & Melinda Gates Foundation (USA) for Research Grant of US$ 0.094 million for the project entitled “Zinc biofortification of wheat grains and its bioavailability to wheat growers of Pakistan” (applied in 2014 / Not-funded / as PI).

9. RESEARCH SUPERVISION

9.1. PhD Soil Science

1. Dr. Ammara Basit (2024) Interactive effect and grain accumulation of arsenic and zinc in zinc-biofortified wheat
2. Dr. Ayta Umer (2023) Effect of zinc application on cadmium accumulation in standard and zinc-biofortified wheats

9.2. PhD Soil Science (co-supervision)

1. Ghulam Murtaza (conducting research, 2018-uam-241) PGPR Assisted Phytoremediation of Pb and Cd using Giant Miscanthus (Miscanthus × giganteus) under Wastewater Irrigated Soils

9.3. M.Sc. (Hons.) Soil Science

1. Aysha Akram (2026) Investigating the application of elemental sulfur and zinc sulfate to maize on nutrient uptake and soil properties
2. Raza Abbas (2024) Residual effects of zinc application and green manuring on wheat plants grown in cadmium-contaminated soil
3. Muhammad Intissam Rana (2023) Effect of green manuring and soil zinc application on zinc and cadmium accumulation in fodder maize
4. Muhammad Zahid (2022) Effect of phosphatic fertilizers on grain cadmium content in zinc-biofortified wheat
5. Shumaila Manzoor (2022) Cadmium and lead accumulation by zinc-biofortified wheat
6. Ali Sohail (2021) Effect of soil potassium application on mineral and phytate contents in wheat
7. Muhammad Ashir Adeel (2021) Effect of zinc supplementation through seed priming and soil application on wheat growth in a saline sodic soil
8. Muhammad Asif Ashraf (2019) Integrated use of sugarcane vinasse and chemical fertilizers for growth and yield of rice
9. Amara Basit (2019) Priming maize seeds with potassium and zinc for salinity and sodicity tolerance
10. Kashif Razzaq (2019) Effect of copper seed priming on salinity tolerance in maize
11. Faisal Hayat (2019) Cadmium and lead contamination of soils and maize plants by contaminated canal water
12. Razia Shabir (2018) Zinc status of upper and lower layers of soils and its relationship with leaf zinc concentration in wheat
13. Ahmad Jahanzaib (2018) Fractions of zinc in calcareous soils their relationship with leaf zinc concentration in wheat
14. Kiran Sahar (2017) Effect of urea and zinc sulfate applications on quality of rice grains
15. Muhammad Qaswar (2017) Zinc and cadmium accumulation in grains of wheat grown in heavy metal contaminated soils
16. Noor ul Ain Saifullah (2017) Comparison of potassium application methods for growth of maize in a salt-affected soil
17. Tahir Ahmed (2017) Effect of acidified biochars on phosphorus dynamics in a calcareous soil
18. Shanza Khan (2017) Effect of PGPR and phosphorus on maize crop grown in a saline soil
19. Riffat Rahim (2016) Influence of brackish water on extractability of phosphorus from a calcareous soil

20. Ali Muhammad Khan (2016) Foliar application of zinc and nitrogenous fertilizers on wheat crop for improving grain quality
21. Sajid Karim (2016) Effect of brackish water on adsorption and release characteristics of boron in a calcareous soil
22. Asim Gulzar (2016) Effects of rhizobacteria and time of fertilizer application on uptake of zinc and phosphorus by maize plants
23. Muhammad Adeel Aftab Shah (2016) Effects of zinc and iron sprays on grain quality of wheat grown under different potassium levels in a saline-sodic soil

9.4. M.Sc. (Hons.) Food Safety and Quality Management (co-supervision)

1. Muhammad Zubair (2023-bzfs-05/2025) Utilization of aloe vera gel as a bioactive ingredient in bubble
2. Dua Zahra (2019-ag-660/2025) Evaluation of the potential of selected indigenous medicinal plants as natural thickening agents in yoghurt production
3. Muhammad Adeel (2023-bzfs-14/2025) Effect of basil seed powder (*Ocimum basilicum*) physio-chemical, nutritional, sensory and shelf life attributes of plain cake
4. Usama Ajmal (20219-ag-90/2025) Banana peel powder enriched chocolate mousse; A study on shelf life and stability
5. Ali Asgher (2018-ag-85/2025) Utilization of sugarcane bagasse in the production of novel bakery products: Cookies
6. Irsa Zulfiqar (2019-ag-21/2025) Development of novel food product by utilization of pea peels
7. Danish Maqbool (2023-bzfs-11/2025) Evaluation the safety status of oil used for the frying of fish being sold in the market of Multan city of Pakistan

9.4. B.Sc. (Hons.) Agriculture (Major: Soil Science)

1. Internship/Research Project 2020 Rana Muhammad Azhar (Roll No. AG-B-16-52)
2. Internship/Research Project 2020 Naseeb Ullah (Roll No. AG-B-16-51)
3. Internship/Research Project 2019 Zohaib Shafi (Roll No. AG-B-15-64)
4. Internship/Research Project 2019 Shakir Hussain (Roll No. AG-EB-15-38)
5. Internship/Research Project 2018 Arbab Shehzadi (Roll No. 57-B)
6. Internship/Research Project 2018 Muhammad Ashir Adeel (Roll No. 35-EA)
7. Internship/Research Project 2018 Muhammad Shahbaz Ansar (Roll No. 42-EB)
8. Internship/Research Project 2017 Umama Habib (Roll No. 54-B)
9. Internship/Research Project 2017 Sidra Chaudhary (Roll No. 64-A)
10. Internship/Research Project 2017 Muhammad Tehzeeb ul Hassan (Roll No. 55-A)
11. Internship/Research Project 2017 Hafiz Muhammad Madni (Roll No. 12-B-E)
12. Internship/Research Project 2016 Wazda Maqsood
13. Internship/Research Project 2016 Tahira Shahjahan (2012-ag-54)
14. Internship/Research Project 2016 Sultan Mahmood Qureshi
15. Internship/Research Project 2016 Sadia Mehmood
16. Internship/Research Project 2015 Talat Maryam (2011-ag-4)
17. Internship/Research Project 2015 Sonia Siddique (Roll No. 15)
18. Internship/Research Project 2015 Samia Aziz Johar (Roll No. 43B)
19. Internship/Research Project 2015 Rubab Zahra (2001-ag-37)
20. Internship/Research Project 2015 Muhammad Asif (Roll No. 45-A)
21. Internship/Research Project 2015 Dur-e-Sameen (2011-ag-)
22. Internship/Research Project 2015 Ayzed Habib (Agr-6-E-2011)
23. Internship/Research Project 2014 Fouzia Sadiq (2010 -AG-168)
24. Internship/Research Project 2014 Asma Mumtaz (2010-ag-11)
25. Internship/Research Project 2014 Anam Irshad (2010-ag-195)

10. CONFERENCES, SEMINARS AND WORKSHOPS

10.1. Organized / section chaired / co-chaired / invited speaker / Presented

1. International Conference on Sustainable Food Systems in a Changing Climate and Industrial Expo 2026. October 13−15, 2026. Organized at Bahauddin Zakariya University (Multan) in Collaboration with Pakistan Agricultural Scientists Forum (Islamabad). [organized, co-edited abstract book]
2. 21st Congress of Soil Science. May 5–7 2026, University of Poonch, Rawalakot, Azad Kashmir, Pakistan. [Member of Technical Committee]
3. One-day seminar on Metal(loid) Balances in Soils under the Wheat-Maize System held on February 18, 2025, at the Seminar Hall, Department of Soil Science, Faculty of Agricultural Sciences & Technology, Bahauddin Zakariya University, Multan, Pakistan. [organized/presented]
4. 20th International Congress of Soil Science on Soil Health: A Key to Food Security. February 20−22, 2024. Soil Science Society of Pakistan, Rawalpindi, Pakistan. [presented]
5. International Conference on Soil Pollution and Remediation. March 15−16, 2023. Forman Christians College (A Charted University), Lahore (Pakistan). [presented]
6. Seminar on Mango Nutrition: Issues and Solutions. July 4, 2023. Department of Soil Science, Faculty of Agricultural Sciences & Technology, Bahauddin Zakariya University, Multan, Pakistan. [organizer]
7. 19th International Congress of Soil Science on Soil Health and Sustainable Development Goals. March 09−11, 2022. Soil Science Society of Pakistan, Faisalabad, Pakistan. [presented]
8. National Conference on Soil Degradation: An Alarming Threat to Food Security and Environment. March 3−4, 2022. Department of Soil Science, Faculty of Agricultural Sciences & Technology, Bahauddin Zakariya University, Multan, Pakistan. [organizer/presented]
9. International Conference on Strategies for Ensuring Food Security in the Changing Climate. 23−24 October, 2019. Department of Agronomy, University of Agriculture, Peshawar (Pakistan). [invited speaker, presented “Zinc: A limiting nutrient for wheat production in Pakistan”]
10. International Seminar on Biochar Use in Changing Climate. 5 October 2018. Bahauddin Zakariya University, Multan, Pakistan. [organizer]
11. International Conference on Biofortification of Staple Food Crops. 24−26 September 2018. Department of Agronomy, University of Agriculture, Peshawar (Pakistan). [invited speaker, presented “Agronomic zinc biofortification of wheat in Pakistan: opportunities and challenges”]
12. Third International Conference on Safe Food for All. 2−3 March 2017. Institute of Food Science and Nutrition, Bahauddin Zakariya University, Multan, Pakistan. [co-chaired a session]
13. Awareness Seminar on Significance of Micronutrients in Crop Production. April 11, 2016. Bahauddin Zakariya University, Multan (Pakistan). [member organizing committee]
14. 18th International Congress of Soil Science on Soil: Wise Soil Management Ensures Better Environment and Livelihood. February 11−13, 2020. Soil Science Society of Pakistan, Tandojam, Sindh, Pakistan. [presented]
15. First International Conference on Agricultural and Biological Sciences. 27–30 March 2019. University of Haripur, Haripur, Pakistan. [presented]
16. ARC Conference 2018 on Resilience and New Leadership in the world. 26–28 November 2018. Korea University, Seoul (Republic of Korea). [presented]
17. International Workshop on Biofortification of Staple Crops: A Solution to Combat Malnutrition. March 29−31, 2015. University of Agriculture, Faisalabad (Pakistan). [presented]

10.2. Attended (with no additional role)

1. BZU Climate Summit 2025. April 15 and 16, 2025. Bahauddin Zakariya University, Multan.
2. Workshop on Train the Trainers on Postharvest Reduction Pathways in Mango and Tomato Value Chain in Pakistan. September 16 and 17, 2025. Grand Shalimar Hotel, Multan.
3. Webinar on Stakeholders Focus Group Discussion: Forecasting Urea Demand for the Next Two Decades. August 29, 2025. University of Agriculture, Faisalabad. [attended]
4. Webinar on Water and Food Security. October 29, 2024. VinFuture Foundation, Vietnam. [attended]
5. International Conference on Global Halal Food Industry: Insights from Pakistan. April 24–25, 2024. Bahauddin Zakariya University, Multan, Pakistan. [attended]
6. International Conference on Innovations in Food & Nutrition Security: Challenges and Opportunities. April 4, 2024. DOABA Foundation and BZU, Multan, Pakistan. [attended]
7. Webinar on Productive and Successful Communication with Journal Editors. November 30, 2023. LetPub Learning Nexus, United States. [attended]
8. Webinar on Statistics and Data Presentation. June 29, 2023. Research Square, United States. [attended]
9. Hands on Training on QGIS for Land and Water Resource Management. March 16, 2023. Department of Agricultural Engineering, Faculty of Agricultural Sciences and Technology, Bahauddin Zakariya University, Multan, Pakistan.
10. 32nd Conference of Pakistan Society of Food Scientist and Technologists on Food Crises in Pakistan: Opportunities and Solutions. March 8−9, 2023. Faculty of Food Science and Nutrition, Bahauddin Zakariya University, Multan, Pakistan.
11. 3-Days Training on Critical Thinking, Social Cohesion & Leadership. March 23-25, 2021. Bahauddin Zakariya University, Multan (Pakistan).
12. Building Sustainable Agri-Food Systems (Webinar). 12 May 2021. Society of Chemical Industry, UK.
13. Wastewater and Emerging Pollutants: Unfolding a Toxic Story (Webinar). 9 September 2021. UN Environmental Program
14. Sustainable Nitrogen Management for Ecosystem Restoration (Webinar). 4 June 2021. UN Environmental Program
15. Scientific Evaluation of Research for Scholarly Journals (Webinar). 21 April 2020. Emerald Publishing, Middle East.
16. International Conference on Smart Potassium Nutrition Management in Crops under Changing Climate. March 3, 2020. MNS University of Agriculture, Multan (Pakistan).
17. Webinar on Saline Agriculture: Solution to Global Food Security. COMSTECH, Islamabad.
18. Webinar on Improving Nutrition Security with Biofortified Crops: Lessons From COVID-19 on the Path to Scaling Up. September 29, 2020. Harvest Plus, Goleta, USA.
19. Webinar on Valuing Zinc Nutrition for Better Crop Production and Human Health. 5 September 2020. Pakistan Academy of Sciences, Islamabad.
20. Webinar on Scientific Evaluation of Research for Scholarly Journals. 21 April 2020. Emerald Publications, Middle East and Africa.
21. International Conference on Food and Nutritional Security in Changing Climate. 3–4 March 2019. Bahauddin Zakariya University, Multan (Pakistan).
22. International Conference on Biofortification of Staple Food Crops. 24−26 September 2018. Department of Agronomy, University of Agriculture, Peshawar (Pakistan).
23. Awareness Seminar of HEC on Technology Development Fund. May 15, 2018. Bahauddin Zakariya University, Multan, Pakistan.
24. One-day Workshop on Communicating Science to Society. April 30, 2018. Bahauddin Zakariya University, Multan, Pakistan.
25. Training Workshop on Success Mindset of Faculty. April 9, 2018. Bahauddin Zakariya University, Multan, Pakistan.

26. 17th International Congress of Soil Science on Soil: Ultimate Solution to Food Security and Climate Change. March 13−15, 2018. Soil Science Society of Pakistan, Faisalabad, Pakistan.
27. International Conference on Plant Based Foods: Current Scenario and Future Prospectus. March 5−6, 2018. MNS-University of Agriculture, Multan, Pakistan.
28. International Seminar on Current Issues in Food Safety – The Way Forward. March 4, 2018. Bahauddin Zakariya University and MNS-University of Agriculture, Multan, Pakistan.
29. Awareness Seminar on Integrated Nutrient Management for Better Soil Health and Crop Production. February 7, 2018. Bahauddin Zakariya University, Multan, Pakistan.
30. International Conference on Applied Microbial Genomics in Public Health, Food Pharma and Agriculture. December 18-20, 2017. Pakistan Society of Microbiology and Bahauddin Zakariya University, Multan, Pakistan.
31. Awareness Seminar on EU Research and Innovation Program, Horizon 2020. August 24, 2017. Bahauddin Zakariya University, Multan (Pakistan).
32. One-day Seminar on Wheat Production Challenges in Pakistan under Changing Climate. March 7, 2017. Bahauddin Zakariya University, Multan (Pakistan).
33. Two-days Training Workshop on Understanding Endnote and Nvivo – Research Made Easy. May 10-12, 2017. Bahauddin Zakariya University, Multan (Pakistan).
34. One-Day Workshop on Tools and Methods in Research Writing. April 18, 2017. Bahauddin Zakariya University, Multan (Pakistan).
35. Third International Conference on Safe Food for All. 2−3 March 2017. Institute of Food Science and Nutrition, Bahauddin Zakariya University, Multan, Pakistan.
36. Workshop on Intellectual Property Rights and Patent Drafting. 11th May 2016. Bahauddin Zakariya University, Multan (Pakistan).
37. Workshop on The Art of Facilitation. 19th May 2016. Bahauddin Zakariya University, Multan (Pakistan).
38. Workshop on DISCovering Yourself in Others. 6th May 2016. Bahauddin Zakariya University, Multan (Pakistan).
39. International Conference on Malnutrition Kills; Can We See the Writing on the Wall?" April 7-8, 2016. Bahauddin Zakariya University Multan- Pakistan
40. 16th International Congress of Soil Science on Healthy Soil for Food Security. 15−17 March 2016. Soil Science Society of Pakistan, Rawalpindi, Pakistan.
41. International Conference on Malnutrition in South Asia: The Peril Persists. 23-24 February 2015. Bahauddin Zakariya University, Multan (Pakistan).
42. International Conference on Prospects & Challenges to Sustainable Agriculture. 14-16 July 2011. The University of Azad Jammu & Kashmir, Rawala Kot (Pakistan).
43. ASM Scientific Writing and Publication Workshop. October 2, 2012. Bahauddin Zakariya University, Multan (Pakistan).
44. 13th Congress of Soil Science on Efficient Resources Management for Sustainable Agriculture. 24−27 March 2010. Faisalabad Pakistan.
45. International Symposium on Modern Techniques in Agriculture to Ensure Food Security in Pakistan. 13−14 October 2009. University of Agriculture, Faisalabad (Pakistan).
46. International conference on sustainable food grain production, challenges and opportunities. 26−27 October 2009. University of Agriculture, Faisalabad (Pakistan).

11. ONLINE LEARNING

I completed/passed the following online courses:

1. Training in Research Ethics in the Digital/AI Age: What is Plagiarism? June 22, 2026. Center for Learning and Teaching (CLT), Forman Christian College University, Lahore.

2. Training in Data Visualization with R. June 2, 2026. Center for Learning and Teaching (CLT), Forman Christian College University, Lahore.
3. Data Foundations: Data, Data, Everywhere. Offered by Google. Completed on 31 Oct 2023 via https://www.coursera.org/.
4. An Introduction to Peer Review, Web of Science Academy. Completed on 7 May 2022 via https://clarivate.com/webofsciencegroup/solutions/web-of-science-academy/.
5. Two-day Workshop on Promoting Research Excellence in Academics across Pakistan. February 1-2, 2022. Higher Education Commission, Pakistan. [attended]
6. Good Citation Behaviour, Web of Science Academy. Completed on 4 May 2021 via https://clarivate.com/webofsciencegroup/solutions/web-of-science-academy/.
7. Financial Literacy Training Program. Offered by State Bank of Pakistan. Completed on 25 August 2020 via https://nflpy.knowledgeplatform.com/.
8. Scholarly Communication. Moscow Institute of Physics and Technology. Completed on 2 June 2020 via https://www.coursera.org/.
9. Online Community Leadership, Coursera Community Team. Completed on 30 May 2020 via https://www.coursera.org/.
10. Academic Literacy. Offered by Moscow Institute of Physics and Technology. Completed on 30 April 2020 via https://www.coursera.org/.
11. Practical Mentoring for Peer Review. Offered by Publons Academy. Completed on 25 February 2019 via https://publons.com/.
12. Noun Clauses and Conditionals. University Of California, Irvine. Completed on 27 September 2018 via https://www.coursera.org/.
13. Conjunctions, Connectives, and Adverb Clauses. University Of California, Irvine. Completed on 14 August 2018 via https://www.coursera.org/.
14. Verb Tenses and Passives. University Of California, Irvine. Completed on 2 July 2018 via https://www.coursera.org/.
15. Practical Peer Review. Offered by Publons Academy. Completed on 27 December 2017 via https://publons.com/.
16. Critical Thinking in Global Challenges. Offered by University of Edinburgh, Uk. Completed on 8 April 2013 via https://www.coursera.org/.

12. TEACHING EXPERIENCE AT UNIVERSITY LEVEL

At the university, the minimum teaching load for Associate Professors is 9 contact hours (8 to 10 teaching hours per week). Additional load, up to 9 contact hours, is also often assigned.

I teach courses on soil fertility and plant nutrition but have taught other soil science courses. Following is the list of courses that I have taught at university level.

12.1. PhD and M.Sc. (Hons.) Soil Science

SS-702: Soil Chemistry 3(2+1)
SS-703: Soil Fertility and Plant Nutrition 3(2+1)
SS-709: Soil-Plant Relationship 3(3+0)
SS-710: Advanced Soil Chemistry 3(3+0)

12.2. B.Sc. (Hons.) Agriculture

SES-304: Soil Fertility and Fertilizers 3(2+1)
SES-305: Analytical Techniques in Soil Science 3(1+4)
SES-403: Environmental Pollution and Management 3(3+0)

SES-404: Land Degradation and Management 3(3+0)
SES-405: Research Projects and Scientific Writing 3(2+1)
SES-407: Municipal Waste Management 3(3+0)
SES-408: Nutrition of Fruit Trees 2(2+0)
SES-504: Salt-Affected Soils 3(3+0)

13. HOBBY / VOLUNTEERING

Google Map Contributor (Local Guide Level 7)