

DR. ANJUM (Gold Medalist)

Lecturer, Department of Agronomy, University of Agriculture, Peshawar, Pakistan

Personal Information

Date of Birth: 17/04/1990, **Domicile:** Bajaur Agency,

Contacts

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AREA OF SPECIALTY

Soil–plant–microbial interactions, nutrients cycling, climate-resilient agriculture

RESEARCH FOCUS/INTEREST

My research focuses on greenhouse gas (GHG) emissions from agricultural systems, soil–plant–microbial interactions, nitrogen cycling, and carbon and nitrogen management. I investigate the effects of tillage, residue management, fertilizer management, organic amendments, and cover crops on CO₂ and N₂O emissions, soil organic matter dynamics, and crop productivity. By integrating field experimentation, environmental monitoring, and mechanistic modeling, my research aims to develop climate-smart, net-zero agricultural solutions for diverse cropping systems.

EDUCATION

Ph D in Agronomy (2020) University of Agriculture, Peshawar, Pakistan CGPA: 3.83/4.00

Dissertation title: Improving wheat productivity through farmyard manure decomposition using organic and inorganic amendments

Supervisor: 1. Prof. Dr. Ahmad Khan, 2. Prof. Dr. Habib Akbar & 3. Prof. Dr. Dost Muhammad

M.Sc. (Hons) in Agronomy (2015) University of Agriculture, Peshawar, Pakistan CGPA: 3.77/4.00

Master thesis title: Effect of hydro-priming and foliar application of micronutrients on yield and yield components of barley.

Supervisors: 1. Prof. Dr. Bashir Ahmad, 2. Prof. Dr. Ahmad Khan & 3. Prof. Dr. Dost Muhammad

B.Sc. (Hons) in Agronomy (2012) with distinction (Gold Medal) University of Agriculture, Peshawar, Pakistan CGPA: 3.85/4.00

Bachelor report title: Combined effect of nitrogen and phosphorus on mungbean (*Vigna radiata* L.) yield components.

Supervisor: Dr. Muhammad Zahir Afridi

RESEARCH PUBLICATION & CITATION

- **Patent (filed):** Hydrochar preparation from canola residue through hydrothermal process and characterization for improving soil fertility and maize growth” under process from Karachi patent office Pakistan.
- **SCI publications:** 5 (Impact points =26.3)
- **Non-SCI Publications:** 11
- **Conference Attended:** 8

GRADUATE ADVISORY AS MAIN SUPERVISOR

- 5 M.Sc finished (2 ongoing)
- 15 B.Sc finished (3 ongoing)

TECHNICAL SKILLS

- Plant physiology research: controlled environment studies, greenhouse management, abiotic stress experiments, phenotyping, plant sampling
- Statistical analysis: R (PCA, RDA, mixed-effects, regression, multivariate), SPSS, Statistix, SigmaPlot
- Laboratory: soil and plant tissue analysis, microbial biomass C/N, elemental analysis, enzymatic assays
- Crop modeling: APSIM (plant physiology simulation and stress response modeling)
- Scientific writing: 16 SCI publications; research proposals; technical reports
- English: Fluent C1 (written and spoken)

HONORS & AWARDS

- **Gold Medalist** in B.Sc. (Hons), Session 2009-2012
- **Merit Scholarship** (FATA), 2009-2015
- **Scottish Scholarship** for Females, 2014-2015

WORK EXPERIENCE

1. Lecturer (March 2017 till date)

Department of Agronomy, The University of Agriculture, Peshawar, Pakistan

Key Responsibilities

- Delivering undergraduate and postgraduate lectures in Agronomy and related subjects.
- Developing course content and teaching materials in line with the department's academic goals.
- Supervising undergraduate and master's student research projects.
- Contributing to departmental seminars, workshops, and training programs.
- Participating in curriculum development and departmental meetings.
- Assisting and organizing field visits, practical demonstrations, and extension activities.

2. Visiting Lecturer, Bacha Khan University, Charsadda, Pakistan (Sep 2015-Feb 2017)

3. Visiting Lecturer, Hayat Abad Degree College, Peshawar (Sep 2014-Dec 2014)

WORKSHOPS & TRAININGS

- Participated in international conference on “Sustainable agriculture and food security”. 27th to 31st August 2023 at Baragali campus, University of Peshawar
- Participated in two days training on “Data analysis and reference citation in research using different software”, September 29-30, 2021 at AMK Campus Mardan, the University of Agriculture Peshawar
- Participated in international conference on “Strategies for ensuring food security in the changing climate” on 23- 24th October, 2019 jointly organized by FAO and the University of Agriculture, Peshawar

- Participated in four days training course on “Income generation through kitchen gardening” in 2015 at PASTIC Peshawar
- Participated in Workshop on climate change and adaptation, 24th June, 2014, Climate Change Center, The University of Agriculture Peshawar
- Participated in training on Agriculture production system simulator (APSIM) modeling in 2016, Department of Agronomy, the University of Agriculture Faisalabad.
- Participated in a survey “Climate change scenario in district Swabi, Haripur, Attack and Chakwal” in 2014 conducted by IC and Climate change center, the University of Agriculture Peshawar Pakistan
- Participated in national Workshop on women entrepreneurship in 2012, Chamber of Commerce, Peshawar

SPECIFIC SKILLS

- **Quantitative and modeling expertise:** Advanced experience with statistical software (R, SPSS, Statistix, SigmaPlot) for data analysis and visualization, with expertise in multivariate analysis and interpretation of complex soil–plant–microbial datasets.
- **Field and laboratory research:** Strong experience in designing and managing field experiments on sustainable residue management, and soil fertility improvement for crop production. Skilled in soil physicochemical analysis, nutrient transformation processes, carbon–nitrogen cycling, organic amendment evaluation, and biomass-derived resource utilization.
- **Teaching and Supervision:** 11 years of teaching agronomy-related courses at undergraduate and MSc levels. Supervised over 7 Master’s and 18 B.Sc students, with focus on sustainable crop production, soil health, carbon sequestration, and climate-resilient agriculture.
- **Research leadership and Outreach:** Experience in collaborative research, scientific communication, workshops, conferences, and farmer-oriented activities promoting sustainable agricultural practices and climate resilience.
- **Microbial and biological approaches:** Experience in investigating soil microbial processes, plant–microbe interactions, beneficial microorganisms, and biological approaches for improving nutrient use efficiency and plant resilience.

LIST OF COURSES TAUGHT

S. No.	Course title	Level
1	Sustainable agriculture	M.Sc (Hons)
2	Crop management and problem soil	M.Sc (Hons)
3	Biological Crop Potential	M.Sc (Hons)
4	Plant growth and development	M.Sc (Hons)
5	Agro-ecology	B.Sc (Hons)
6	Environment and crop production	B.Sc (Hons)
7	Introduction to crop modeling	B.Sc (Hons)
8	Agro-technology of major crops	B.Sc (Hons)
9	Organic farming	B.Sc (Hons)
10	Seed production and technology	B.Sc (Hons)

11	Medicinal and special crops	B.Sc (Hons)
12	Water management in rainfed areas	B.Sc (Hons)
13	Principles of agronomy	B.Sc (Hons)
14	Arid and rainfed Agriculture	B.Sc (Hons)

LIST OF STUDENTS SUPERVISED

A. M.Sc (Hons) students as main supervisor

S. No.	Student name	Title	Status
1	Mahnoor Malik	Effect of nano urea and zinc oxide nano particles on growth and yield of wheat under drought stress	Completed Spring 2026
2	Hamza Mushtaq	Effect of farmyard manure and tillage on yield and yield components of maize	Completed Spring 2026
3	Shahsawar	Evaluating the impact of different nitrogen sources on yield and yield components of wheat varieties	Completed Spring 2026
4	Arbab Ibad	Growth and yield of mungbean in response to humic acid and farmyard manure levels	Completed Spring 2024
5	Mohammad Khalid	Maize hybrids growth and yield in response to nitrogen levels	Completed spring 2024

B. B.Sc (Hons) students as main supervisor

S. No.	Student name	Title	Status
1	M. Waqas	Effects of Different Concentrations of K ₂ O Nanoparticles on early growth traits of maize	Completed spring 2026
2	Taimoor Khan	Performance of foliar application of zinc and magnesium nanoparticles on growth and yield of beetroot	Completed spring 2026
3	Abbas Khan	Effect of nano-biochar and zinc oxide on growth performance and biomass production of mungbean	Completed spring 2026
4	Ijaz Ahmad	Differential response of mungbean genotypes to salt stress	Completed Spring 2024
5	Basharat Khan	Effect of farmyard manure, poultry manure and humic acid on yield and yield components of maize	Completed spring 2023
6	Salman Khan	Effect of Farmyard manure and humic acid on the yield and yield components of canola	Completed Spring 2023
7	Sarmad Iqbal	Improving Maize productivity through farmyard manure decomposition using organic and inorganic amendments	Completed Fall 2017

RESEARCH PUBLICATIONS

A. SCI Publications

1. Khan. H., A. Khan, S. Khan, **Anjum**, H. Akbar, D. Muhammad. 2024. Maize productivity and nutrient status in response to crop residue mineralization with beneficial microbes under various tillage practices. *Soil and Tillage Research*.239. 106057, [doi: 10.1016/j.still.2024.106057](https://doi.org/10.1016/j.still.2024.106057) (Impact factor 8.4)
2. Khan. H., A. Khan, S. Khan, **Anjum**, H. Akbar, D. Muhammad. 2023. Quantifying maize phenology using beneficial microorganisms and residue management under deep tillage system. *Zemdirbyste-Agriculture*.110 (4). 301–310, [doi: 10.13080/z-a.2023.110.034](https://doi.org/10.13080/z-a.2023.110.034); (Impact factor 0.8)
Anjum and Ahmad Khan. 2021. Decomposition of soil organic matter is modulated by soil amendments. *Carbon Management*. 12(1):37-50, DOI: <https://doi.org/10.1080/17583004.2020.1865038> (Impact factor 3.5)
3. Guo, Y., **Anjum**, A. Khan, A. Naeem, K.H. Muheling. 2021. Comparative effectiveness of biogas residue acidification and nitrification inhibitor in mitigating co2 and N2O emission from biogas residue amendment soil. *Water Air and Soil Pollution*. 232 (9): <https://doi.org/10.1007/s11270-021-05282-1> (Impact factor 3.5)
4. Khan, A., A. Fazal, **Anjum**, S. Khan, Khan. A. Ali, H. Akbar. 2021. Wheat production and partial nitrogen budget in response to herbicide and nitrogen application. *Journal of Plant Nutrition*.45(8) 1253-1263. <https://doi.org/10.1080/01904167.2021.2003391> (Impact factor 1.7)
5. Muhamamd Ibrahim, Ahmad Khan, **Anjum**, Waqar Ali, Habib Akbar. 2020. Mulching techniques: An approach for offsetting soil moisture deficit and enhancing manure mineralization during maize cultivation. *Soil and Tillage Research*. 200; 104631, [doi: 10.1016/j.still.2020.104631](https://doi.org/10.1016/j.still.2020.104631) (Impact factor 8.4)

B. Non-SCI Publications

6. Khan. M.N., Naila Gul, K. Aslam, M. Irshad, **Anjum**, S. Siddique, Dawood, Mehwish, S. Khan and Fazalullah.2025. Influence of pre harvest ethephon application on various physical, physiological and biochemical attributes of agricultural crops: A-review. *Pure and Applied Biology*. Vol. 14, Issue 2, pp710-723. <http://dx.doi.org/10.19045/bspab..140067>
7. **Anjum** and Ahmad Khan. 2020. Phenology, Crop Stand and Biomass of Wheat in Response to Farmyard Manure and Soil Amendments. *Sarhad J of Agriculture*. 36(3): 777-788
8. Khan A. A. Khan, D.F. Khan, S. Khan, S. Khan, **Anjum**, H. Akbar. A. Khan. 2021. Optimizing N sources and tillage for wheat crop stand and phenology. *Sarhad J. of Agric*. 37 (2): 340-347
9. Khan, B, M. Jawad, M. Ahmad, M. Islam, M. Yar, **Anjum**, M. Ilyas, H. A. Kakar, S. N. Khan, and S. Fahad. 2018. Effect of seed rates on yield and oil components of canola genotypes." *Pure and Applied Biology* 7(2): 500-505
10. **Anjum**, B. Ahmad, M. Islam, M. Ibrar, Z. Hussain, and W. A. Shah. 2017. Improving the production of barley genotypes by foliar application of micronutrients. *Pure and Applied Biology*. 6(1): 278-285
11. Jawad, M., M. Islam, B. Khan, **Anjum**, Z. Hussain, W. A. Shah, R. Amin, J. Ali, M. Ishaq, and A. Rehman. 2017. Growth and yield attributes of canola varieties under different seed rates. *Pure and Applied Biology* 6: 864-870
12. Islam, M., S. Anwar, **Anjum**, B. Khan, W.A. Shah, M. Ali, S. Uddin, N. Khan and N. Ali. 2016. Effect of nitrogen fertilization and decapitation stress on *Triticum aestivum* L. (wheat) productivity. *Pure and App. Bio*. 5(2): 317-325.
13. Shah, W.A., Z. Hayat, R. Amin, S. Anwar, M. Islam & **Anjum**. 2016. Yield and yield components of wheat as affected by different seed rates and nitrogen levels. *Pure & App. Bio*. 5(3): 547-553.
14. Shah, W.A., Z. Hayat, R. Amin, S. Anwar, M. Islam, **Anjum** & Ikramullah. 2016. Effect of irrigation levels and seed rates on wheat production. *Pure and Applied Biology*. 5(4): 895-905
15. **Anjum**., M. Afridi, K. akhtar and V.N. Ha. 2015. The influence of different combination of nitrogen and phosphorus on mungbean (*Vigna radiata* L.). *Pure & App. Bio*.4(4):605-610.

REFERENCES

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