

Dr. Muhammad Umer Chattha

Associate Professor, Department of Agronomy,
Sugarcane Agronomist/Specialist, University of Agriculture, Faisalabad, Pakistan

Name:	Dr. Muhammad Umer Chattha
Father Name	Dr. Arshad Ali Chattha (Ex-Director) Sugarcane Research Institute, Faisalabad.
Postal Address	Associate Professor, BPS-20, Department of Agronomy, University of Agriculture, Faisalabad. 38040. (Pakistan)
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EDUCATIONAL QUALIFICATIONS:

Ph.D. (Agronomy).2008. Sugarcane

Thesis title: Studies on growth, yield and quality of **sugarcane (*Saccharum officinarum* L.)** under different planting techniques, irrigation methods, water levels and mulch types. Department of Agronomy, University of Agriculture, Faisalabad, Pakistan.

M.Sc. (Hons.)Agronomy. 2002. Sugarcane

Thesistitle: Agro-quantitative and qualitative performance of different cultivars and strains of **sugarcane (*Saccharum officinarum* L.)**.Department of Agronomy, University of Agriculture, Faisalabad, Pakistan.

B.Sc. (Hons.) Agri. (Agronomy). 2000.

Faculty of Agriculture, University of Agriculture, Faisalabad, Pakistan.

M.B.A. (Marketing). 2002.

Preston Institute of Management Sciences & Technology (Faisalabad Campus)

International Course. 2004. Sugarcane

Sugarcane Planting Techniques, People's Republic of China. Guangzhou Sugarcane Research Institute, Guangzhou held by Jinan University Guangzhou in collaboration with China Light Industrial Corporation for Foreign, Technical and Economic Cooperation.

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INTERNATIONAL COLLABORATION:

- 1) DR. JIANG YONG, Sugarcane Specialist, **Guangzhou Sugarcane Research Institute, Guangzhou, P. R. China**

PROFESSIONAL ACTIVITIES:

- (a) Teaching and Sugarcane research experience:**

- 1. Teaching:** 15 years (2009- To date).
- 2. Research Experience on Sugarcane:** 24 years (2000-Todate).

- (b) Membership of professional societies:**

- a. Pakistan Society of Agronomy
- b. Soil Science Society of Pakistan
- c. **Pakistan Society of Sugarcane Technologists**
- d. **International Society of Sugarcane Technologists**
- e. **Number of Research Dissertations Guidance Done As Major Supervisor And Member Supervisory**
- f. Supervisor: Ph. D.: 2 (Produced) M.Sc.(Hons.): 30 (Produced)
 2 (In-Progress) 10 (In-Progress)
- g. Co-Supervisor: Ph.D.:9 (In-Progress) M.Sc. (Hons.): 35 (Produced)
 2 (Produced) 10 (In-progress)

Research Projects Completed/In Progress

Sr#	Research project	Funding agency	Funding (M. Rs.)	Position in the project
1	Establishment of crop, seed and weed museum	EFS (UAF)	1.438 Completed	Co-P.I.
2	Seed invigoration of quinoa by employing seed priming strategies	HEC	0.5 Completed	Co-P.I.

SALIENT ACHIEVEMENTS:

- (a) Introduced deep trench planting method of sugarcane to save water and increase cane yield**
- (b) Introduced alternate skip irrigation method to save water without compromising yield**
- (c) Development of sugarcane ridger for deep trench planting (Assisted with fertilizer box and without fertilizer box)**

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(d) Development of sugarcane inter-row cultivator for inter-culture**(Assisted with fertilizer box and without fertilizer box)****(e) Development of advanced sugarcane production technology****RESEARCH INTERESTS:**

1. **Agronomy of sugar crops**
2. Climate Smart crops: Quinoa and Amaranth
3. Seed Technology

PUBLICATIONS (Research papers):**2025**

1. Muhammad Inzamam ul Haq, **Muhammad Umer Chattha**, Imran Khan, Muhammad Bilal Chattha, WANG Lihong, Badr Alharthi, Rizwan Ali. 2025. IMPROVING PHYSIOLOGY, GROWTH, PRODUCTIVITY, AND GRAIN BIO-FORTIFICATION OF WHEAT WITH SOIL AND FOLIAR APPLIED MICRONUTRIENTS. Applied Ecology and Environmental Research 23(1), 1543-59. **(Impact Factor 0.7)**.
2. Ayesha Mustafa, Imran Khan, **Muhammad Umer Chattha**, Hafiz Abdul Wahab, Faisal Nadeem, Rikza Awan, Uthman Balgith Algotpishi, Mohamed Hashem, and Muhammad Umair Hassan 2025. Mitigating the Greenhouse Gases Intensity and Improving Fine Rice Productivity with Coated Urea Fertilizers in Semi-Arid Conditions. Journal of Soil Science and Plant Nutrition 1-17. **(Impact Factor 3.4)**.

2024

3. **Muhammad Umer Chattha**, Fiza Fatima, Imran Khan, Li Daji, Muhammad Bilal Chattha, Adnan Rasheed, Rehab O. Elnour, Tahani A.Y. Asseri, Mohamed Hashem, Haifa A.S. Alhaithloul, Muhammad Umair Hassan and Sameer H. Qari. 2024. Nutrient-coated urea mitigates deleterious impacts of salinity and supports wheat performance by enhancing antioxidant activities, photosynthetic performance and nitrogen use efficiency. Italian Journal of Agronomy, 19, 100003. **(Impact Factor 2.60)**.
4. **Muhammad Umer Chattha**, Laraib Iqbal, Imran Khan, Wang Lihong, Muhammad Nawaz, Basharat Ali, Shu Fang, Muhammad Inzamam ul Haq, Muhammad Umair Hassan, Adnan Rasheed, Numan Ali Butter, Abeer Hashem, Elsayed Fathi Abdullah. 2024. Regulating effects of exogenous salicylic acid application on wheat

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- growth under saline and heat stress conditions. *Applied Ecology and Environmental Research* 22(2):1315-1337. **(Impact Factor 0.7)**
5. Muhammad Umair Hassan, **Muhammad Umer Chattha**, Imran Khan, Tahir Abbas Khan, Mohsin Nawaz, Haiying Tang, Mehmood Ali Noor, Tahani AY Asseri, Mohamed Hashem, and Huang Guoqin. 2024. Zinc Seed Priming Alleviates Salinity Stress and Enhances Sorghum Growth by Regulating Antioxidant Activities, Nutrient Homeostasis, and Osmolyte Synthesis. *Agronomy* 14(8), 1815. **(Impact Factor 3.7)**
 6. Muhammad Umer Chattha, Fiza Fatima, Imran Khan, Li Daji, Muhammad Bilal Chattha, Adnan Rasheed, Rehab O. Elnour, Tahani A.Y. Asseri, Mohamed Hashem, Haifa A.S. Alhaithloul, Muhammad Umair Hassan, Sameer H. Qari. 2024. Nutrient-coated urea mitigates deleterious impacts of salinity and supports wheat performance by enhancing antioxidant activities, photosynthetic performance and nitrogen use efficiency. *Italian Journal of Agronomy*. **(Impact Factor 2.6)**
 7. Muhammad Talha Aslam, Rizwan Maqbool, Imran Khan, **Muhammad Umer Chattha**, Muhammad Nawaz, Adnan Noor Shah, Muhammad Zia Ul Haq, Muhammad Nauman Gulzar, Fatmah M. Alqahtani, Mohamed Hashem, Muhammad Umair Hassan, Sezai Ercisli. 2024. Efficacy of Different Pre and Post Emergence Herbicide Application on Late Sown Maize Crop Under Variable Planting Density. *International Journal of Plant Production* 18(2), 229-238. **(Impact Factor 2.5)**
 8. Rida Hayat, Imran Khan, **Muhammad Umer Chattha**, Muhammad Umair Hassan, Wei Jian, Jameel Mohammed Al-Khayri, Mohammed Ibrahim Aldaej, Muhammad Naeem Sattar, Adel Abdel-Sabour Rezk, Mustafa Ibrahim Almaghasla 2024. Growth, Physiological and Biochemical Responses of Mung Bean (*Vigna radiata* L.) to Cadmium Polluted Soil. *Journal of Ecological Engineering* 25(3). **(Impact Factor 2.74)**
 9. Abdul Khaliq, Faran Muhammad, Muhammad Dilawaz Khan, Sulaiman Ali Alharbi, Mohammad Javed Ansari, **Muhammad Umer**, Muhammad Talha Aslam, and Haroon Shahzad. 2024. Mitigating the Toxic Effects of Salinity in Wheat through Exogenous Application of Moringa Leaf Extract. *Journal of Ecological Engineering* 25(5). **(Impact Factor 3.9)**

2023

10. Ansa Aouz, Imran Khan, Muhammad Bilal Chattha, Shahbaz Ahmad, Muqarrab Ali, Iftikhar Ali, Abid Ali, Fatmah M. Alqahtani, Mohamed Hashem, Tasahil S. Albishi, Sameer H. Qari, **Muhammad Umer Chattha** and Muhammad Umair Hassan. 2023.

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Silicon induces heat and salinity tolerance in wheat by increasing antioxidant activities, photosynthetic activity, nutrient homeostasis, and osmo-protectant synthesis. *Plants*. 14: 2606. **(Impact Factor 4.658)**

11. Muhammad Talha Aslam, Imran Khan, **Muhammad Umer Chattha**, Rizwan Maqbool, Muhammad ZiaulHaq, Wang Lihong, Sajid Usman, Adnan Rasheed, Muhammad Umair Hassan, Mohamed Hashem, Rehab O. Elnour, Muhammad M. Iqbal and Muhammad Arshad. 2023 The critical role of nitrogen in plants facing the salinity stress: Review and future prospective. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*. 51(3), 13347. **(Impact Factor 1.80)**
12. Imran Khan, Sikandar Mahmood, **Muhammad Umer Chattha**, Muhammad Bilal Chattha, Shahbaz Ahmad, Masood Iqbal Awan, Fatmah M. Alqahtani, Mohamed Hashem, Haifa Abdulaziz Sakit Alhaithloul, Sameer H. Qari, Faisal Mahmood and Muhammad Umair Hassan. 2023. Organic Amendments Improved the Productivity and Bio-Fortification of Fine Rice by Improving Physiological Responses and Nutrient Homeostasis under Salinity Stress. *Plants*, 12:1644. **(Impact Factor 4.50)**
13. **Muhammad Umer Chattha**, Muhammad Ahmad Khan, Imran Khan, Athar Mahmood, Muhammad Bilal Chattha, Muhammad Umair Hassan, Walid Soufan, Mohammad Okla, Arpna Kumari, Disna Ratnasekera, Basharat Ali, Mostafa Shehata and Ayman Elsabagh. 2023. Comparison of physio-biochemical and antioxidant enzymes in maize during early growth stage in response to salt stress. *Pakistan Journal of Botany*. 55:1991-1997.
14. Imran Khan, Sadia Muhammad Ali, **Muhammad Umer Chattha**, Lorenzo Barbanti, Roberta Calone, Athar Mahmood, Tasahil S. Albishi, Muhammad Umair Hassan and Sameer H. Qari. 2023. Neem and castor oil-coated urea mitigates salinity effects in wheat by improving physiological responses and plant homeostasis. *Journal of Soil Science and Plant Nutrition*. 23:3915-3931. **(Impact Factor 3.90)**
15. Imran Khan, Sajid Hussan, **Muhammad Umer Chattha**, Rizwan Maqbool, Athar Mahmood, Muqarrab Ali, Maha Aljabri, Mohamed Hashem, Sally Negm, Mahmoud Moustafa Muhammad Umair Hassan and Sameer H. Qari. 2023. Acetic acid mitigates salinity-induced toxic effects in wheat by maintaining photosynthetic efficiency, antioxidant activities, ionic homeostasis and synthesis of stress-protection hormones and osmolytes. *Gesunde Pflanzen* 75:979-992. **(Impact Factor 3.10)**

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16. Qari, Sameer H., Muhammad Umair Hassan, **Muhammad Umer Chattha**, Athar Mahmood, Maria Naqve, Muhammad Nawaz, Lorenzo Barbanti, Maryam A. Alahdal, and Maha Aljabri. 2022. Melatonin induced cold tolerance in plants: physiological and molecular responses. *Frontiers in Plant Science*. 13: 843071. **(Impact Factor 5.6)**
17. Muhammad Nawaz, Muhammad Umair Hassan, **Muhammad Umer Chattha**, Athar Mahmood, Adnan Noor Shah, Mohamed Hashem, Saad Alamri, Maria Batool, Adnan Rasheed, Maryam A. Thabit, Haifa A. S. Alhaithloul and Sameer H. Qari. Trehalose: a promising osmo-protectant against salinity stress-physiological and molecular mechanisms and future prospective. *Molecular Biology Reports*. 49:11255–11271 **(Impact Factor 2.8)**
18. Imran Khan, Hina Zafar, **Muhammad Umer Chattha**, Athar Mahmood, Rizwan Maqbool, Fareeha Athar, Maryam A. Alahdal, Farhana Bibi, Faisal Mahmood, Muhammad Umair Hassan and Sameer H. Qari. 2022. Seed priming with different agents mitigate alkalinity induced oxidative damage and improves maize growth. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*. 50:12615. **(Impact Factor 1.80)**
19. Sadia Rehman, **Muhammad Umer Chattha**, Imran Khan, Athar Mahmood, Muhammad Umair Hassan, Asma A. Al-Huqail, Mohamed Z. M. Salem, Hayssam M. Ali, Christophe Hano and Mohammed A. El-Esawi. 2022. Exogenously applied trehalose augments cadmium stress tolerance and yield of mung bean (*Vigna radiata* L.) grown in soil and hydroponic systems through reducing cd uptake and enhancing photosynthetic efficiency and antioxidant defense systems. *Plants*. 11:822. **(Impact Factor 4.50)**
20. Imran Khan, Awon Muhammad, **Muhammad Umer Chattha**, Milan Skalicky, Muhammad Bilal Chattha, Muhammad Ahsin Ayub, Muhammad Rizwan Anwar, Walid Soufan, Muhammad Umair Hassan, Md. Atikur Rahman and Marian Brestic, Marek Zivcak and Ayman El Sabagh. 2022. Mitigation of salinity-induced oxidative damage, growth, and yield reduction in fine rice by sugarcane press mud application. *Frontiers in Plant Science*. 13:840900. **(Impact Factor 5.600)**
21. Muhammad Mahmood Iqbal, Imran Khan, **Muhammad Umer Chattha**, Muhammad Umair Hassan, Muhammad Iqbal and Muhammad Farooq. 2022. Performance of Wheat Cultivars Under Different Tillage and Crop Establishment Methods. *International Journal of Plant Production*. 16:287-297. **(Impact Factor 2.50)**

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22. Muhammad Shahid Ibni Zamir, Muhammad Kamran Khan, **Muhammad Umer Chattha**, Muhammad Bilal Chattha, Imran Khan, Muhammad Umair Hassan and Mina Kharal. 2022. Effect of tillage practices and intercropping ratios on quantity and quality of cereals-sesbania forage. Pakistan Journal of Agricultural Sciences. 59:426-434. **(Impact Factor 0.856)**
23. Ubaid Afzal, Imran Khan, **Muhammad Umer Chattha**, Rizwan Maqbool, Muhammad Bilal Chattha, Ambreen Naz, Mohamed Hashem, Saad Alamri, Haifa A.S. Alhaithloul, Sabry Hassan, Muhammad A. Bhatti, Muhammad Umair Hassan and Sameer H. Qari. 2022. Organic amendments mitigate salinity induced toxic effects in maize by modulating antioxidant defense system, photosynthetic pigments and ionic homeostasis. Notulae Botanicae Horti Agrobotanici Cluj-Napoca. 50:12735. **(Impact Factor 1.80)**
24. Imran Khan, Momina Iqbal, Athar Mahmood, Rizwan Maqbool, Muqarrab Ali, Muhammad T. Aslam, Muhammad S. Hanif, Shoaib A. Kohli, Sally Negm, Mahmoud Moustafa, **Muhammad Umer Chattha** and Muhammad Umair Hassan. 2022. Foliar applied proline and acetic acid improves growth and yield of wheat under salinity stress by improving photosynthetic pigments, physiological traits, antioxidant activities and nutrient uptake. Notulae Botanicae Horti Agrobotanici Cluj-Napoca. 50:12820-12820. **(Impact Factor 1.80)**
25. **Muhammad Umer Chattha**, Tahira Amjad, Imran Khan, Muhammad Nawaz, Muqarrab Ali, Muhammad Bilal Chattha, Hayssam M. Ali, Rehab Y. Ghareeb, Nader R. Abdelsalam, Saira Azmat, Lorenzo Barbanti and Muhammad Umair Hassan. 2022. Mulberry based zinc nano-particles mitigate salinity induced toxic effects and improve the grain yield and zinc bio-fortification of wheat by improving antioxidant activities, photosynthetic performance, and accumulation of osmolytes and hormones. Frontiers in Plant Science. 13:920570. **(Impact Factor 5.60)**
26. Ayesha Mustafa, Fareeha Athar, Imran Khan, **Muhammad Umer Chattha**, Muhammad Nawaz, Adnan Noor Shah, Athar Mahmood, Maria Batool, Muhammad Talha Aslam, Mariusz Jaremko, Nader R. Abdelsalam, Rehab Y. Ghareeb and Muhammad Umair Hassan. 2022. Improving crop productivity and nitrogen use efficiency using sulfur and zinc-coated urea: A review. Frontiers in Plant Science. 13:942384. **(Impact Factor 5.60)**

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27. **Muhammad Umer Chattha**, Muhammad Uzair Ul Hassan, Imran Khan, Muhammad Nawaz, Adnan Noor Shah, Abdul Sattar, Mohamed Hashem, Saad Alamri, Muhammad Talha Aslam, Haifa A. S. Alhaithloul, Muhammad Umair Hassan and Sameer H. Qari. 2022. Hydrogen peroxide priming alleviates salinity induced toxic effect in maize by improving antioxidant defense system, ionic homeostasis, photosynthetic efficiency and hormonal crosstalk. *Molecular Biology Reports*. 49:5611-5624. **(Impact Factor 2.80)**
28. Muhammad Shoaib, Muhammad Nawaz, Muhammad Ilyas, Muhammad Shafique, Imran Khan, Muhammad Talha Aslam, Muhammad Sultan Ali Bazmi, Muhammad Arshad, Ghulam Ahmad, Muhammad Irfan, **Muhammad Umer Chattha** and Muhammad Umair Hassan. 2022. Effect of different seed sizes and seed rates on the growth and productivity of wheat grown under semi-arid conditions. *Pakistan Journal of Agricultural Research*. 35:122-130.
29. **Muhammad Umer Chattha**, Muhammad Ilyas, Imran Khan, Athar Mahmood, Muhammad Bilal Chattha, Ambreen Fatima, Muhammad Iqbal, Muhammad Tahir Akbar, Muhammad Mehmood Iqbal, Faran Muhammad, Muhammad Talha Aslam and Muhammad Umair Hassan. 2022. Growth, physiological and biochemical response of chickpea cultivars to different levels of salinity stress. *Pakistan Journal of Agricultural Research*. 35:359-365.
30. Junaid Ali, Muhammad Nawaz, Muhammad Ilyas, **Muhammad Umer Chattha**, Imran Khan, Muhammad Bilal Chattha, Muhammad Arshad, Muhammad Akram, Mina Kharal, Ehsan Ullah, Muhammad Talha Aslam, Fareeha Athar, Ayesha Mustafa and Muhammad Umair Hassan. 2022. Effect of different irrigation intervals and sowing methods on growth and productivity of lentil crop grown in semi-arid conditions. *Journal of Innovative Sciences*. 8:20-28.

2021

31. Muhammad Umair Hassan, Muhammad Aamer, **Muhammad Umer Chattha**, Tang Haiying, Imran Khan, Mahmoud F. Seleiman, Adnan Rasheed, Muhammad Nawaz, Abdul Rehman, Muhammad Talha Aslam, Muhammad Aniq Afzal and Guoqin Huang. 2021. Sugarcane distillery spent wash (dsw) as a bio-nutrient supplement: a win-win option for sustainable crop production. *Agronomy*. 11:183. **(Impact Factor 3.70)**

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32. Zain Dustgeer, Mahmoud F. Seleiman, Imran Khan, **Muhammad Umer Chattha**, Esmat F. Ali, Bushra A. Alhammad, Rewaa S. Jalal, Yehya Refay and Muhammad Umair Hassan. 2021. Glycine-betaine induced salinity tolerance in maize by regulating the physiological attributes, antioxidant defense system and ionic homeostasis. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*. 49:12248-12248. **(Impact Factor 1.80)**
33. Muhammad Umair Hassan, **Muhammad Umer Chattha**, Imran Khan, Muhammad Bilal Chattha, Lorenzo Barbanti, Muhammad Aamer, Muhammad Mehmood Iqbal, Muhammad Nawaz, Athar Mahmood, Abid Ali and Muhammad Talha Aslam. 2021. Heat stress in cultivated plants: Nature, impact, mechanisms, and mitigation strategies- A review. *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology*. 155:211-234. **(Impact Factor 2.00)**
34. Imran Khan, Mahmoud F. Seleiman, **Muhammad Umer Chattha**, Rewaa S. Jalal, Faisal Mahmood, Fahmy A. S. Hassan, Warda Izzet, Bushra A. Alhammad, Esmat F. Ali, Rana Roy, Omer S. Uslu and Muhammad Umair Hassan. 2021. Enhancing antioxidant defense system of mung bean with a salicylic acid exogenous application to mitigate cadmium toxicity. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*. 49:12303-12303. **(Impact Factor 1.80)**
35. Iqra Sultan, Imran Khan, **Muhammad Umer Chattha**, Muhammad Umair Hassan, Lorenzo Barbanti, Roberta Calone, Muqarrab Ali, Shahid Majeed, Muhammad Awais Ghani, Maria Batool, Warda Izzat and Sajid Usman. 2021. Improved salinity tolerance in early growth stage of maize through salicylic acid foliar application. *Italian Journal of Agronomy*. 16:1-11. **(Impact Factor 2.20)**
36. Abdul Rehman, Muhammad Nawaz, **Muhammad Umer Chattha**, Imran Khan, Muhammad Bilal Chattha, Fiaz Hussain, Muhammad Ahsin Ayub, Muhammad Mahmood Iqbal, Faryal Ahmed, Muhammad Talha Aslam, Faizan Ali Khan, Mina Kharal and Muhammad Umair Hassan. 2021. Neem coated urea improves the productivity, nitrogen use efficiency and economic return of wheat crop. *International Journal of Agricultural and Biology*. 26:450-460. **(Impact Factor 0.73)**
37. **Muhammad Umer Chattha**, Warda Arif, Imran Khan, Walid Soufan, Muhammad Bilal Chattha, Muhammad Umair Hassan, Najeeb Ullah, Ayman Al Sabagh and Sameer H. Qari. 2021. Mitigation of cadmium induced oxidative stress by using organic amendments to improve the growth and yield of mash beans [*Vigna mungo* (L.)]. *Agronomy*. 11:2152. **(Impact Factor 3.70)**

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38. Muhammad Umair Hassan, Muhammad Aamer, **Muhammad Umer Chattha**, Tang Haiying, Imran Khan, Mahmoud F. Seleiman, Adnan Rasheed, Muhammad Nawaz, Abdul Rehman, Muhammad Talha Aslam, Aniq Afzal and Guoqin Huang. 2021. Sugarcane distillery spent wash (DSW) as a bio-nutrient supplement: a win-win option for sustainable crop production. *Agronomy* 11:183. **(Impact Factor 3.41)**
39. Imran Khan, Mahmoud F. Seleiman, **Muhammad Umer Chattha**, Rewaa S. Jalal, Faisal Mahmood, Fahmy A.S. Hassan, Warda Izzet, Bushra A. Alhammad,. Esmat F. Ali, Rana Roy, Omer S. Uslu, Muhammad Umair Hassan. 2021. Enhancing antioxidant defense system of mung bean with a salicylic acid exogenous application to mitigate cadmium toxicity. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*. 49:12303. **(Impact Factor 1.44)**
40. Muhammad Muhsin, Muhammad Nawaz, Imran Khan, Muhammad Bilal Chattha, Sadia Khan, Muhammad Talha Aslam, Muhammad Mahmood Iqbal, Muhammad Zubair Amin, Muhammad Ahsin, Ayub, Usman Anwar, Muhammad Umair Hassan and **Muhammad Umer Chattha**. 2021. Efficacy of seed size to improve field performance of wheat under late sowing conditions. *Pakistan Journal of Agricultural Research*. 34:247-253.
41. Maqsood Ahmad, **Muhammad Umer Chattha**, Imran Khan, Muhammad Bilal Chattha, Faqir Hussain Anjum, Sadia Afzal, Muhammad Faran, Fiaz Hussain, Muhammad Talha Aslam, Abdul Jabbar, Muhammad Sultan Ali Bazmi, Mahnoor Mehmood and Muhammad Umair Hassan. 2021. Effect of different sowing dates and cultivars on growth and productivity of mung bean crop. *Journal of Innovative Sciences*. 7:190-198.
42. Muhammad Mehmood, Imran Khan, **Muhammad Umer Chattha**, Saddam Hussain, Naeem Ahmad, Muhammad Talha Aslam, Muhammad Bilal Hafeez, Mahmmod Ul Hassan, Muhammad Umair Hassan, Muhammad Nawaz, Muhammad Mahmood Iqbal, Fiaz Hussain. 2021. Thiourea application protects maize from drought stress by regulating growth and physiological traits. *Pakistan Journal of Science*. 73:355.
43. Muhammad Usman Aslam, **Muhammad Umer Chattha**, Imran Khan, Rizwan Maqbool, Muhammad Bilal Chattha, Fiaz Hussain, Muhammad Nawaz, Muhammad Shakeel Hanif, Muhammad Ahsin Ayub, Muhammad Talha Aslam, Mina Kharal and Muhammad Umair Hassan. 2021. Effect of different organic mulches and nitrogen

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sources on the productivity of wheat crop grown in semi-arid area. Pakistan Journal of Agricultural Research. 34:648-655.

44. Muhammad Dawood, Naeem Sarwar, **Muhammad Umer Chattha**, Imran Khan, Muhammad Bilal Chattha, Fiaz Hussain, Muhammad Mahmood Iqbal, Muhammad Akram, Hammad Husnain, Muhammad Shahid, Mussarrat Hussain and Muhammad Umair Hussain. 2021. Assessment for agronomic and grain qualitative attributes of wheat cultivars under agro-ecological conditions of Faisalabad. Journal of Innovative Sciences. 7:229-235.
45. Mubeen Zahra, Muhammad Nawaz, **Muhammad Umer Chattha**, Imran Khan, Muhammad Bilal Chattha, Muhammad Ashraf Bhatti, Abdul Rehman, Faryal Ahmed, Faran Muhammad, Mina Kharal and Muhammad Umair Hassan. 2021. Response of wheat genotypes having different stature to early period drought stress. Journal of Innovative Sciences. 7:296-303.

2020

46. Muhammad Umair Hassan, Muhammad Aamer, **Muhammad Umer Chattha**, Tang Haiying, Babar Shahzad, Lorenzo Barbanti, Muhammad Nawaz, Adnan Rasheed, Aniq Afzal, Ying Liu and Huang Guoqin. 2020. The critical role of zinc in plants facing the drought stress. Agriculture. 10:0396. (**Impact Factor 2.07**)
47. Muhammad Umair Hassan, **Muhammad Umer Chattha**, Lorenzo Barbanti, Athar Mahmood, Muhammad Bilal Chattha, Imran Khan, Saima Mirza, Saira Abdul Aziz, Muhammad Nawaz, Muhammad Aamer. 2020. Cultivar and seeding time role in sorghum to optimize biomass and methane yield under warm dry climate. Industrial Crops and Products. 145:111983. (**Impact Factor 4.191**)
48. Muhammad Umair Hassan, **Muhammad Umer Chattha**, Imran Khan, Muhammad Bilal Chattha, Lorenzo Barbanti, Muhammad Aamer, Muhammad Mehmood Iqbal, Athar Mahmood, Muhammad Nawaz, Abid Ali, and Muhammad Talha Aslam. 2019. Heat Stress in Crop Plants: Nature, Impact, Mechanisms and Mitigation Strategies - A Review. Plant Bio-systems 155:211-234. (**Impact Factor 1.52**)
49. Shahid Ibn Zamir, **Muhammad Umer Chattha**, Ihtsaim Ul Haq, Muhammad Umair Hassan, Imran Khan, Muhammad Bilal Chattha, Muhammad Naveed Saeed, Muhammad Mahmood Iqbal and Ahsin Ayub. 2020. Harvesting at milking stage along with urea and molasses addition improved the quality and fermentation characteristics

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of corn silage. International Journal of Agriculture and Biology. 23:253–258. (**Impact Factor 0.86**)

50. Saif Ali, **Muhammad Umer Chattha**, Muhammad Umair Hassan, Imran Khan, Muhammad Bilal Chattha, Babar Iqbal, Muzammal Rehman, Muhammad Nawaz and Muhammad Zubair Amin. 2020. Growth, biomass production, and yield potential of quinoa (*Chenopodium quinoa* Willd.) as affected by planting techniques under irrigated conditions. International Journal of Plant Production. 14:427-441. (**Impact Factor 0.96**)
51. Muhammad Ilyas, Imran Khan, **Muhammad Umer Chattha**, Muhammad Umair Hassan, Muhammad, Zain, Wajid Farhad, Sana Ullah, Ateeq Shah, Safeer Ahmed, Bismillah Khan and Muhammad Adeel. 2020. Evaluating the effect of zinc application methods on growth and yield of wheat cultivars. Journal of innovative Sciences. 6:150-156.

2019

52. **Muhammad Umer Chattha**, Muhammad Umair Hassan, Lorenzo Barbanti, Muhammad Bilal Chattha, Imran Khan, Muhammad Usman, Abid Ali and Muhammad Nawaz. 2019. Composted sugarcane by-product press mud supports the wheat growth and favors the soil properties. International Journal of Plant Production. 13:241-249. (**Impact factor 0.88**)
53. Muhammad Umair Hassan, **Muhammad Umer Chattha**, Lorenzo Barbanti, Muhammad Bilal Chattha, Athar Mahmood, Imran Khan and Muhammad Nawaz. 2019. Combined cultivar and harvest time to enhance the combined cultivar and harvest time to enhance biomass and methane yield. Industrial Crops and Products. 132:84–91. (Impact Factor 3.85)
54. Muhammad Umair Hassan, **Muhammad Umer Chattha**, Muhammad Bilal Chattha, Athar Mahmood and Shahbaz Talib Sahi. 2019. Chemical composition and methane yield of sorghum as influenced by planting methods and cultivars The Journal of Animal and Plant Sciences. 29:251-259. (**Impact Factor 0.41**)
55. Muhammad Umair Hassan, **Muhammad Umer Chattha**, Imran Khan, Muhammad Bilal Chattha, Muhammad Aamer, Muhammad Nawaz, Abid Ali, Muhammad Aman Ullah Khan and Tahir Abbas Khan. 2019. Nickel toxicity in plants: reasons, toxic effects, tolerance mechanisms, and remediation possibilities-a review. Environmental Sciences and Pollution Research. 26:12673–12688. (**Impact factor 2.80**)

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CURRICULAR AND ADMINISTRATIVE ACTIVITIES:

1. **Tutor/ Advisor**, 'Rashid Minhas III' undergraduate student tutorial group, Office of the Senior Tutor, University of Agriculture, Faisalabad.
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5. **Incharge, Agricultural Heritage Museum**, University of Agriculture, Faisalabad (2013-2014)
6. **Sugarcane Agronomist/Specialist**, at Post Graduate Agricultural Research Station (PARS), University of Agriculture, Faisalabad (2015-To date).