

Curriculum vitae



Name: Dr. Rizwan Maqbool

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Teaching and Research

Sr. #	Date	Title	Institute
1	30-09-2008 to 07-01-2014	Research Assistant	Department of Environmental Sciences, NSAC/Faculty of Agriculture, Dalhousie University-CANADA
2	05-09-2009 to 04-04-2010	Teaching Assistant	Department of Biology, Dalhousie University-CANADA
3	June 2015 to Aug 2017	Assistant Professor (Precision Agriculture)	U.S Pakistan Center for Advanced Studies in Agriculture and Food Security, UAF
4	17-06-2014- 27.10.2021	Assistant Professor	Department of Agronomy, University of Agriculture, Faisalabad
5.	28.10.2022 to date	Associate Professor	Department of Agronomy, University of Agriculture, Faisalabad

Honors and Awards

First division throughout carrier

First position in school in Matriculation

2007: **Award of Scholarship amounting 6.0 million PKR (~ 100,000 CAD) for PhD studies**, under faculty development program of University of Agriculture, Faisalabad-Pakistan

Grants received during PhD

1. Soil and Plant Nitrogen Dynamics and Resulting Nutrient Assessment Technologies for Wild Blueberry Production. \$40,000, Technology Development 2000 (2010-2011).

Contributions to the training of Highly Qualified Personnel

Mr. Shoaib Rashid Saleem. Project area: Variable Rate Fertilization in Wild Blueberry Fields to Improve Crop Productivity and Reduce Environmental Impacts (Statistical Data Analysis-Repeated Measures).
2012

Mr. Jason Grant. Project area: Suitability of Canadian-bred and Native Plant Species for Extensive Green Roofs in Northern Nova Scotia (Remote Sensing Data Collection and Analysis). 2013

Competitive Research Grants

GRANTS AS PRINCIPAL INVESTIGATOR

1. Development of real-time weed detection system for spot application of herbicides in Maize

Name of Funding Agency:

USPCAS-AFS Amount: Rs. 2.952

Million

Duration: 36 months

Start Date: 30.01.2016

End Date: 30.01.2019

2. Weed Detection in Maize using Digital Cameras (Higher Education Commission Pakistan Start up grant)

Name of Funding Agency: Higher Education Commission (HEC),

Pakistan Amount: (Rs. 0.379 Million)

Start Date: 05.10.2015

End Date: 06.10.2016

3. Determination of Weed Crop Competition Time and Economic Threshold of Weeds in Major Crops" (Project No. PSF/NSLP/P-UAF(873)

Name of Funding Agency: Pakistan Science Foundation (PSF)-Rs. 1.3 Millioin

Start Date: July 2022

End Date: In Progress

STUDENT SUPERVISION

PHD STUDENT SUPERVISION

As Supervisor

Sr. No.	Name of Student	Registration No	Title	Year
1.	Muhammad Asaud Islam	2012-ag-3323	Interference and management studies of Wild Radish (<i>Raphanus raphanistrum</i> L.) in wheat	In progress
2.	Nazma Khan	2020-ag-1015	ECO-BIOLOGY OF <i>Echinochloa colona</i> AND ITS INTERFERENCE IN DRY DIRECT SEEDED RICE UNDER DIFFERENT MANAGEMENT REGIMES	In progress
3.	Humaira Anwar	2020-ag-951	Cadmium tolerance and accumulation in aerobic and anaerobic rice and their associated weeds	In progress

As Supervisory Committee-Synopsis defended (Second Member)

Sr. No.	Name of Student	Registration No	Title	Year
2.	Amina Iftikhar	2008-ag-1979	Study of ACCase Resistance Mechanisms in <i>Phalaris minor</i> Retz.	completed
3.	Hafiz Naveed Ramzan	2002-ag-1681	Exploring the Potential of Sorghum-sudangrass Hybrid as Forage and Silage	In progress

M.SC. STUDENT SUPERVISION

As Supervisor-completed

Sr. No.	Name of Student	Registration No	Title	Year
1.	Malik Muhammad Zulqurnain Haider	2013-ag-1262	Effect of harvesting time and seed rate on forage yield and quality of maize (<i>Zea mays</i> L.)	2015

2.	Muhammad Zeeshan Goraya	2009-ag-2443	Evaluation of different adjuvants to enhance the efficacy of atrazine + S-metolachlor herbicide at reduced rate against weeds in maize (<i>Zea mays</i> L.)	2016
3.	Muhammad Usman Asghar	2014-ag-1657	Effect of soil applied zinc and boron on yield and quality of sunflower hybrid, Hysun 33	2016
4.	Muhammad Imran Hameed	2011-ag-3503	Simultaneous optimization of NPK rates and plant-to-plant distance for sunflower hybrid Hysun- 33	2017
5.	Muhammad Mursaleen	2015-ag-48	Determination of critical period for weed control in fennel (<i>Foeniculum vulgare</i> Mill.)	2018
6.	Hafeez Ullah	2011-ag-2651	Chemical weed control in wheat (<i>Triticum aestivum</i> L.) sown as relay crop in cotton	2018
7.	Zeeshan Latif	2012-ag-3066	Comparative efficacy of different herbicides for weed management in mungbean (<i>Vigna radiata</i> L.)	2018
8.	Samara	2016-ag-833	Allelopathic effect of <i>Foeniculum vulgare</i> (Fennel) and <i>Linum usitatissimum</i> (linseed) on summer weeds and winter crops	2018
9.	Khurram Shahzad	2016-ag-1941	Allelopathic potential of Milk thistle (<i>Silybum marianum</i> L.) and wild radish (<i>Raphanus raphanistrum</i>) on weeds and crops	2018
10.	Malik Mehboob Ahmad	2017-ag-5487	Comparative efficacy of different non-chemical weed management strategies in wheat	2019
11.	M. Asad Naeem Siddiqui	2012-ag-2923	Optimization of dose of Puma Super (Fenoxaprop) against the <i>Phalaris minor</i> planting on agar by Resistance in Season Quick Method	2019
12.	Muhammad Abu Baker	2013-ag-3459	Determining critical weed crop competition period in Ajwain (<i>Trachyspermum ammi</i> L.)	2019
13.	Sumbal Parvez	2017-ag-2746	Allelopathic effect of <i>Cinnamomum verum</i> (Dalchini) and <i>Althaea officinalis</i> (Khatami) on <i>Raphanus sativus</i> (Radish) and on weed (Wild pea)	2019
14.	Alvina Amjad	2017-ag-2727	Allelopathic effects of Amaltas (<i>Cassia fistula</i>) and Paneer (<i>Withania coagulans</i>) on weed and vegetable	2019

15.	Iqra Anwar	2017-ag-2869	Phytotoxic effects of Garden cress (<i>Lepidium sativum</i>) and Malathi (<i>Glycyrrhiza glabra</i>) on <i>Phalaris minor</i> and <i>Pisum sativum</i>	2019
16.	Rabia Azam	2017-ag-2893	Phytotoxic effects of Harer (<i>Terminalia chebula</i>) and Anjbar (<i>Polygonum bistorta</i>) on <i>Medicago polymorpha</i> and <i>Daucus carota</i>	2019
17.	Shoaib Rehman	2018-ag-2	Determination of critical period of weed control (CPWC) in mungbean (<i>Vigna radiata</i> L.) under different row spacing	2020
18.	Nauman Haider Zia	2014-ag-4942	The critical period for weed control (CPWC) in sesame (<i>Sesamum indicum</i> L.)	2020
19.	Shahneela Bashir	2018-ag-3522	The critical period of weed control in grain maize variety Malka-2016	2020
20.	Sumra Aslam	2018-ag-3519	The critical period of weed control in mashbean (<i>Vigna mungo</i>)	2020
21.	Umair	2014-ag-5284	Determining critical weed competition period under different nutrition levels in mungbean (<i>Vigna radiata</i> L.)	2020
22.	Muhammad Shoaib	2014-ag-4954	Evaluation of resistance level in <i>Phalaris minor</i> RETZ to Pinoxaden and Sulfosulfuron herbicides in wheat by RISQ test and classical method	2020
23.	Jaam Rehmatullah	2019-ag-29	Effect of herbicides and planting geometry on weeds, growth and yield of wheat	2021
24.	Muhammad Talha Aslam	2015-ag-3368	Efficacy of different pre and post emergence herbicides and variable planting geometry on late sown maize (<i>Zea mays</i> L.)	2021
25.	Midhat Tahira	2019-ag-2	Effect of Micro and Macronutrients on yield and quality of different varieties of Alfalfa (<i>Medicago sativa</i> L.)	2021
26.	Muhammad Ahmed	2020-ag-6	The critical period for weed control (CPWC) in wheat (<i>Triticum aestivum</i> L.)	2022
27.	Rafia Khalid	2017-ag-570	Weed management in water channels with chitosan-based nano-particles of herbicides	2022
28.	Hafiza Zara Saeed	2020-ag-1687	Nano-particles of herbicides for weed management in non cultivated area by novel approach	2022

29	Rizwan Shafique	2020-ag-23	The critical period for weed control (CPWC) in linseed (<i>Linum usitatissimum</i> L.)	2022
30	Muhammad Faisal	2016-ag-6988	Evaluation of different weed control methods in sugarcane	2022
31	Burhan Khalid	2016-ag-6450	Comparative evaluation of different weed control methods in cotton (<i>Gossypium hirsutum</i> L.)	2022
32	Akfa	2021-ag-1293	TO CHECK THE EFFICACY OF DIFFERENT PRE-EMERGENCE HERBICIDES IN COTTON (<i>Gossypium hirsutum</i> L.)	2023
33	Muhammad Abdullah	2017-ag-9334	THE ESTIMATION OF CRITICAL PERIOD FOR WEED CONTROL IN COTTON (<i>Gossypium hirsutum</i> L.)	2023
34	Aqib Javaid	2017-ag-9838	DETERMINING THE CRITICAL PERIOD FOR WEED CONTROL IN MAIZE (<i>Zea mays</i> L.)	2023
35	Shaheer Abbas	2021-ag-10	THE CRITICAL PERIOD FOR WEED CONTROL IN RATOON SUGARCANE (<i>Saccharum officinarum</i>)	2023
36	Muhammad Yasir	2017-ag-10009	DETERMINING THE CRITICAL PERIOD FOR WEED CONTROL IN RICE	2023
37	Muhammad Zeshan	2018-ag-6610	DETERMINING THE ECONOMIC THRESHOLD LEVEL (ETL) OF <i>Trianthema portulacastrum</i> IN MAIZE	
38	Muhammad Zain Shahzad	2018-ag-8707)	GROWTH AND YIELD RESPONSE OF SAFFLOWER TO FOLIAR APPLIED ZINC OXIDE UNDER VARYING IRRIGATION REGIMES	2024
39	Maham Nasir	2022-ag-1329	ALLOPATHIC EFFECT OF LEAF EXTRACT OF <i>Moringa oleifera</i> AND <i>Azadirachta indica</i> ON THE GERMINATION AND GROWTH OF INDIAN MUSTARD (<i>Brassica juncea</i>) AND WILD OAT (<i>Avena fatua</i>)	2024
40	Tahreem Hanif	2022-ag-1330	TITLE: ALLELOPATHIC EFFECT OF NEEM (<i>Azadirachta indica</i>) AND EUCALYPTUS (<i>Eucalyptus camaldulensis</i>) ON THE GERMINATION AND GROWTH OF WHEAT (<i>Triticum aestivum</i>) AND WILD OAT (<i>Avena fatua</i>)	2024

41	Muhammad Awais Bashir	2015-ag-7028	MANAGING WILD RADISH (<i>Raphanus raphanistrum</i> L.) IN WHEAT BY SOWING GEOMETRIES	2024
42	Halima Shafique	2023-ag-967	EFFECT OF DIFFERENT RANGES OF TEMPERATURE ON THE GROWTH AND GERMINATION OF <i>ATRIPLEX</i> SPECIES	2025
43	Muhammad Mohsin Mumtaz	2019-ag-7467	DETERMINATION OF THE CRITICAL PERIOD FOR WEED CONTROL (CPWC) IN TWO GENOTYPES OF COTTON UNDER SEMI-ARID CONDITIONS	2025
44	Hammad Ahmad	Hammad Ahmad	DETERMINING THE ECONOMIC THRESHOLD LEVEL (ETL) OF <i>Cyperus rotundus</i> L. IN TRANSPLANTED RICE UNDER ANAEROBIC CONDITIONS.	2025
45	Hamna	2023-ag-913	ALLELOPATHIC EFFECT OF ROOT EXTRACT OF <i>WITHANIA SOMNIFERA</i> L. (ASHWAGANDHA) AND <i>GLYCYRRHIZA GLABRA</i> L. (MULETHI) ON <i>ZEAMAYS</i> L. (MAIZE) AND <i>VIGNA RADIATA</i> L. (MUNG BEAN).	2025
46	Rimsha	2023-ag-908	TITLE: EVALUATING ALLELOPATHIC POTENTIAL OF LEAF EXTRACT OF BANYAN (<i>Ficus benghalensis</i> L.) AND BERRI (<i>Ziziphus mauritiana</i> L.) ON THE GERMINATION AND GROWTH OF BATHU (<i>Chenopodium album</i> L.) AND WILD SPINACH (<i>Rumex dentatus</i> L.)	2025

MEMBER SUPERVISORY COMMITTEE

Sr. No.	Name of Student	Registration No	Title	Year
1.	Adeela Sadaf	2010-ag-2606	Effect of potassium on growth, yield and quality of mungbean under different irrigation regimes	2016
2.	Muhammad Abdul Kareem	2011-ag-3398	Determination of critical weed competition periods in chick pea (<i>Cicer arietinum</i> L.)	2017
3.	Aimon Iqbal	2015-ag-2166	Influence of different NPK levels on the productivity of autumn sunflower under varying weed-free periods	2017

4.	Sohaib Hassan	2011-ag-3639	Evaluation of Nutritional quality of some winter season broad and narrow leaved weeds	2017
5.	Muhammad Imran Asghar	2015-ag-1613	Performance evaluation of reverse osmosis plant for safe drinking water in Multan	2017
6.	Sumera Farooq	2015-ag-1650	Effect of sowing methods and harvesting intervals on forage yield and seed production of Rhodes Grass	2017
7.	Saima Anwar	2016-ag-227	Assessing allelopathic potential of <i>Sonchus oleraceus</i> (Milk thistle) and <i>Lathyrus aphaca</i> (Wild pea) on weeds of rice crop	2018
8.	Sadia Afzal	2016-ag-721	Phytotoxic effects of Safflower (<i>Carthamus tinctorius</i>) and Opium (<i>Papaver somniferum</i>) on summer weeds	2018
9.	Muhammad Tayyab Sattar	2010-ag-3733	Rhizoremediation of diesel-contaminated soil by mungbean in the presence of microbes and biochar	2018
10.	Muhammad Mashaallah Farhain	2010-ag-3821	Determining the critical weed competition period in <i>Plantago ovata</i> Forsk (Ispaghul)	2018
11.	Syed Muhammad Safi Raza Bukhari	2017-ag-192	Impact of different phosphorus sources and banana compost on phosphorous availability and growth of sunflower	2019
12.	Zeshan Arashad	2013-ag-2857	Synergistic effect of gibberellic acid and kinetin on maize (<i>Zea mays</i> L.) growth under saline conditions	2019
13.	Abrar ul Haq	2013-ag-2994	Allelopathic potential of Canola (<i>Brassica napus</i> L.) residues on emergence of cotton	2019
14.	Salman Wali	2017-ag-25	Impact of sowing dates on the growth and yield of four maize hybrids	2019
15.	Faisal Iqbal	2017-ag-2898	Agro-qualitative response of forage sorghum sown with blended seed of forage legumes under variable seed proportions	2019
16.	Muhammad Shoaib Asad	2013-ag-2923	Effect of seed rate on the productivity of forage maize under different seed priming techniques	2019

17.	Sana Gulzar	2017-ag-2726	Comparative performance of different summer legume forages sown under different sowing techniques	2019
18.	Salal Chakar	2017-ag-5424	Agro-qualitative response of Alfalfa forage to different seed rate and sowing date under semi-arid conditions of Faisalabad	2019
19.	Muhammad Ahsan Mazhar	2014-ag-4829	Growth and yield comparison of different Lupine varieties under Faisalabad conditions	2020
20.	Muhammad Irfan	2014-ag-6093	Effect of seed priming and cutting intervals on growth, yield and quality of Alfalfa (<i>Medicago sativa</i> L.) forage	2020
21.	Mussera-tul-Hira	2018-ag-3515	Enhancing the productivity of Rhodes grass sown in association with forage legumes intercropping systems at different nutritional regimes	2020
22.	Sadia Aslam	2018-ag-3514	Enhancing yield and quality of Rhodes grass through different management techniques	2020
23.	Warda Niamat	2014-ag-4976	Effect of staggered planting and sowing methods on Agro-qualitative traits of Sadabahar fodder	2020
24.	Shahid Nazir	2014-ag-5535	Production potential and net income of different maize (<i>Zea mays</i> L.) based intercropping system	2020
25.	Hamad Khan	2018-ag-0021	Maximizing the growth, yield and quality of mungbean by foliar application of Boron, Zinc and Iron	2020
26.	Muhammad Tashfeen Gul Karam	2014-ag-5596	Response of maize (<i>Zea mays</i> L.) to different concentrations of foliar spray of Boron at different growth stages	2020
27.	Mubarraah Arif	2018-ag-3534	Effect of Vermiwash on germination and seedling growth of winter crops	2020
28.	Qasim Farooq	2018-ag-3483	Investigation on the impact of liquid biofertilizers (Earthworm wash) on seed germination and seedling growth of vegetables	2020
29.	Ashir Hameed	2012-ag-2087	Influence of biochar and compost application on growth, yield and Lead uptake in <i>Brassica campestris</i> growth in Lead contaminated soil	2020

30.	Muhammad Mohsin	2012-ag-2302	Comparative use of organic and inorganic amendments in alleviating harmful effects of Pb in Okra growth in Pb contaminated soil	2020
31.	Arooj Javed	2018-ag-3516	Effect of foliar application of Boron, Zinc and Iron on growth, yield and quality of maize (<i>Zea mays</i> L.)	2020
32.	Amina Munir	2018-ag-3511	Maximizing the growth, yield and quality of cowpea (<i>Vigna unguiculata</i> L. Walp.) by foliar application of Zinc, Boron and Potassium	2020
33.	Sana Tariq Awan	2018-ag-3524	Assessment of foliar spray of manganese, iron and boron on growth, yield and quality of cowpea (<i>Vigna unguiculata</i> L. Walp)	2020
34.	Ahmad Ali	2014-ag-4799	Effects of sowing date on growth and sugar production potential of two hybrids of sweet sorghum	2020
35.	Aqsa Iftikhar	2018-ag-3551	Effect of abiotic stresses on germination and seedling growth of different sized seeds of Guar (<i>Cyamopsis tetragonoloba</i> L.)	2020
36.	Ghazanfar Riaz	2018-ag-3493	Allelopathic effect of Parthenium on growth and yield of wheat and chickpea	2020
37.	Muhammad Ammar Siddique	2018-ag-164	Interaction of mycorrhizae and organic amendments to improve growth and phosphorus uptake in brinjal	2020
	Aamir Ali	2012-ag-2334	Effect of different seed priming techniques and irrigation intervals on the agro-qualitative traits of cluster bean forage	2020
	Ghous Muhammad	2015-ag-7317	Response of maize (<i>Zea mays</i> L.) to different concentrations of foliar spray of boron and manganese at tasseling stage	2021
	Aqsa Afzal	2015-ag-6834	Effect of different types of mulch application on yield and quality of maize (<i>Zea mays</i> L.)	2021
	Huzaifa Haider	2015-ag-7294	Response of maize (<i>Zea mays</i> L.) to different concentrations of foliar spray of zinc and iron at tasseling stage	2021

	Usama Saeed	2015-ag-6725	Effect of silicon and salicylic acid application of growth of maize under saline condition	2021
	Iqra Ghafoor	2019-ag-423	Evaluating the effect of Si on growth and yield and Pb uptake of Brassica (<i>Brassica campestris</i>)	2021
	Muhammad Umar	2015-ag-6910	Influence of seed inoculation and different nitrogen levels on yield and quality of forage oat (<i>Avena sativa</i> L.)	2021
	Muhammad Hussain Tariq	2015-ag-6761	Comparative efficacy of different herbicides for weed management in lentil (<i>Lens culinaris</i> L.)	2021
	Rehan Ashiq	2013-ag-3529	Influence of sowing dates and seed priming techniques on Agro qualitative traits of forage sorghum (<i>Sorghum bicolor</i> L)	2021
	Tehmeena	3333333	Agro-qualitative response of moringa (<i>Moringa oleifera</i>) fodder on different seed priming and harvesting intervals	2021
	Shahnawaz	2016-ag-6074	Evaluating efficacy of herbicides using different nozzles for weed control in maize (<i>Zea mays</i>)	2022
	Muhammad Zeshan Aslam	2020-ag-20	Evaluating the effect of different levels of foliar applied manganese on growth, yield and quality of mung bean (<i>Vigna radiata</i> L.)	2022
	Ali Asad	2016-ag-6522	Evaluating the effect of different levels of foliar applied iron on growth, yield and quality of mung bean	2022
	Bisma Yaseen	2020-ag-1637	Effect of different seeding rates and harvesting intervals on the forage yield and quality of maize (<i>Zea mays</i> L.)	2022
	Muqadas Ahmad	2020-ag-1681	Agro qualitative response of sadabahar (<i>Sorghum Sudan Hybrid</i>) as affected by different seeding rates and harvesting intervals	2022
	Muhammad Muazzam Jamal	2016-ag-8257	Effect of moringa leaves extract on yield of maize (<i>Zea mays</i> L)	2022

Courses taken during PhD

Course Number	Title
RI-5700	Communication Skills for Scientists
AGRI-5710	Graduate Module (Remote Sensing of Plant Nutrients)
BIOL-5060	Analysis of Biological Data
ERTH-5600	Expl. Geographic Information Systems (GIS)
ERTH-5530	Environmental Remote Sensing
ENGM-6671	Applied Regression Analysis
CHEM-5205	Chemometrics
AGRI-5630	Intermediate Statistical Methods

Publications

Publications From 2010 to 2019

1. Percival, D.C., S. Sharpe, **R. Maqbool** and Q. Zaman 2010. Narrow band reflectance measurements can be used to estimate leaf area index, flower number, fruit set and berry yield of the wild blueberry (*Vaccinium angustifolium* Ait.). Proc. XXVIII IHC-International Berry Symposium. Eds. B. Mezzetti and P. Brás de Oliveira. ISHS. Acta Hort. 926.
2. **Maqbool, R.**, D.C. Percival, M. S. Adl, Q. U. Zaman, and D. Buszard. 2012. In-situ estimation of foliar nitrogen in wild blueberry using reflectance spectra. Can. J. Plant. Sci. 92(6): 1155-1161. **Impact factor: 0.716**
3. Safdar, M. E., A. Tanveer, A. Khaliq and **R. Maqbool**. 2016. Critical competition period of parthenium weed (*Parthenium hysterophorus* L.) in maize. Crop Protection. 80: 101-107. **Impact factor: 1.652**
4. Nadeem, M. A., T. Abbas, A. Tanveer, **R. Maqbool**, A. Zohaib, and M. A. Shehzad 2016. Glyphosate hormesis in broad-leaved weeds: a challenge for weed management. Archives of Agronomy and Soil Science. <http://dx.doi.org/10.1080/03650340.2016.1207243>. **Impact factor: 1.118-2015**
5. **Maqbool, R.**, D.C. Percival, Q. Zaman, T. Astatkie, M. S. Adl and D. Buszard. 2016. Improved growth and harvestable yields through optimization of fertilizer rates of soil-

applied nitrogen, phosphorus and potassium in wild blueberry (*Vaccinium angustifolium* Ait.). HortScience 51(9): 1092-1097. **Impact factor: 0.943**

6. Mehmood, A., A. Tanveer, Nadeem, M. A., **R. Maqbool** and H. H. Ali. 2017. Phenolics in two Alternanthera species residues affect the germination and early seedling growth of rice (*Oryza sativa*). Planta Daninha. Doi: 10.1590/S0100-83582017350100061. **Impact factor: 0.461**
7. **Maqbool, R.**, D. Percival, Q. Zaman, T. Astatkie, S. Adl and D. Buszard. 2017. Leaf nutrients ranges and berry yield optimization in response to soil-applied nitrogen, phosphorus and potassium in wild blueberry (*Vaccinium angustifolium* Ait.). Eur. J. Hortic. Sci. 82(4), 166-179. **Impact factor: 0.446**
8. Nadeem, M. A., A. Tanveer, **R. Maqbool**, T. Abbas and N. Farooq. 2018. Efficacy evaluation of fertilizers and weed control practices to mitigate wheat nutrient and yield losses. Planta Daninha. Doi: 10.1590/S0100-83582018360100029. **Impact factor: 0.461**
9. Nadeem, M. A., T. Abbas, F. Bashir and **R. Maqbool**. 2018. Integrated role of row spacing and adjuvants to reduce herbicide dose in maize under semi-arid conditions. Planta Daninha. Doi: 10.1590/S0100-83582018360100037. **Impact factor: 0.461**
10. **Maqbool, R.**, W. Ali, M. A. Nadeem and T. Abbas. 2018. Boron application in Clay-Loam soil for improved growth, yield and protein contents of mungbean in water-stresses. Sains Malaysiana 47(1): 51-58. **Impact factor: 0.470**
11. Ikram, R. M., A. Tanveer, **R. Maqbool** and M. A. Nadeem. 2018. Modeling the competitive effect of *Euphorbia dracunculoides* and *Astragalus* sp. In zero input rainfed chickpea. Planta Daninha. Doi: 10.1590/S0100-83582018360100021. **Impact factor: 0.461**
12. Rehman, A. R. Qamar, M. E. Safdar, A. Rehman, H. M. R. Javeed, M. Shoaib, **R. Maqbool** and T. Abbas. 2018 Influence of Competitive duration of blessed milkthistle (*Silybum marianum*) with wheat. Weed Technol. doi: 10.1017/wet.2018.77 **Impact factor: 1.54**
13. Tanveer, A., M. Nadeem, A. Khaliq, T. Abbas, **R. Maqbool**, and M. E. Safdar. 2018. Estimation of critical period of exotic invasive weed *Alternanthera philoxeroides* interference in maize. Pak. J. Bot. 50(5): 1885-1892. **Impact factor: 0.75**
14. A Rehman, R Qamar, ME Safdar, A Rehman, HMR Javeed, M Shoaib, nfluence of competitive duration of blessed milkthistle (*Silybum marianum*) with wheat. Weed Technology 33 (2), 280-286

Publications in 2020

1. Rehman, A. R. Qamar, M.E. Safdar, A. Rehman, H. M.R. Javeed, **R. Maqbool**, N. Farooq, M. Shahzad, M. Ali and Z. H. Tarar. 2020. Critical competition period of *Parthenium hysterophorus* L. in spring maize (*Zea mays* L.) Planta Daninha. 2020;38:e020214143. **HEC Y-Category, , Impact factor: 0.62**
2. Iftikhar, A., A. Tanveer, R. Maqbool, and M. Yaseen. 2020. Effects of cytochrome P450 inhibitors on accase resistant *Phalaris minor* biotypes. Pak. J. Agri. Sci, 57(4): 1073-1078. **HEC X-Category, Impact factor: 0.31**
3. Ikram, M.R., A. Tanveer, R. Maqbool, A. Aziz, M.A. Nadeem, M. Nadeem, T. Abbas, and A. Raza. 2020. Potential allelopathic implications of a rain-fed weed *Astragalus spp.* On chickpea crop. Pak. J. Agri. Sci., 57(6): 1549-1555. **HEC X-Category, Impact factor: 0.31**
4. Khan, B. A., M. A., Nadeem, S. Anwar, **R. Maqbool**, M. Yasin, M. M. Amin, A. Aziz, M. Asif, and M. S. Hayyat. 2020. The Phytotoxic effect of *Sonchus oleraceus* L. on emergence and seedling growth of *Echinochloa crus-galli*. Pak. J. Weed Sci. Res. 26(4): 433-446. **HEC Y-Category**
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9. Tanveer, A., M. Nadeem, A. Khaliq, T. Abbas and **R. Maqbool**. 2018. Comparative efficacy of Dicamba, Clopyralid and Carfentrazone-ethyl at reduced rates with adjuvants against invasive weed *Alternanthera philoxeroides*. 14th National Conference of Weed Science Society of Pakistan. March 24- 25, 2018, Islamia College University, Peshwar.
10. Tanveer, A., M. Nadeem, A. Khaliq, T. Abbas and **R. Maqbool**. 2018. Estimation of critical period of exotic invasive weed *Alternanthera philoxeroides* interferences in maize. 14th National Conference of Weed Science Society of Pakistan. March 24- 25, 2018, Islamia College University, Peshwar.
11. Tanveer, A., M. S. Rafique, **R. Maqbool**, A. Hamid, T. Ahmad and R. M. Ikram. 2019. Weed control potential of mesotrione + atrazine with adjuvants in autumn maize. International Conference on High Quality Fodder & Forage Production in Climate Shift Paradigm. March 26- 27, 2019, Institute of Plant Breeding and Biotechnology, MNS University of Agriculture, Multan.
12. Iqbal. A., **R. Maqbool**, S. I. Khan, M. Tahir, M. A. Nadeem and R. M. Ikram. 2019. Effect of different sowing methods and cutting intervals on forage production of Alfalfa. International Conference on High Quality Fodder & Forage Production in Climate Shift Paradigm. March 26- 27, 2019, Institute of Plant Breeding and Biotechnology, MNS University of Agriculture, Multan.
13. **Maqbool, R.**, M. Bilal, M. Ayub, A. Iqbal and R. M. Ikram. 2019. Forage yield and quality response of Oat (*Avena sativa* L.) to nitrogen application and seed inoculation. International Conference on High Quality Fodder & Forage Production in Climate Shift

Paradigm. March 26- 27, 2019, Institute of Plant Breeding and Biotechnology, MNS University of Agriculture, Multan.

14. **Maqbool, R.,** M. H. ullah, M. A. Nadeem, M. Tahir and R. M. Ikram. 2019. Chemical weed control in wheat (*Triticum aestivum* L.) sown as relay crop in cotton. 6th International Conference on “Sustainable Agriculture in Changing Climate: Strategies and Management” 19-21 June, 2019. University of the Poonch, Rawalakot.
15. **Maqbool, R.,** M. M. Z. Haider, M. A. Nadeem, M. Tahir and R. M. Ikram. 2019. Effect of harvesting time and seed rate on forage yield and quality of maize (*Zea mays* L.). 6th International Conference on “Sustainable Agriculture in Changing Climate: Strategies and Management” 19-21 June, 2019. University of the Poonch, Rawalakot.
16. **Maqbool, R.,** M. Ayub, Zubair, M. A. Nadeem, M. Tahir and R. M. Ikram. 2019. Forage yield and quality response of cluster bean (*Cyamopsis tetragonolobus* L.) to seeding rates and nitrogen levels. 6th International Conference on “Sustainable Agriculture in Changing Climate: Strategies and Management” 19-21 June, 2019. University of the Poonch, Rawalakot.
17. **Maqbool, R.,** M. A. Rashid, M. Ayub, M. A. Nadeem, M. Tahir and R. M. Ikram. 2019. Response of linseed (*Linum usitatissimum* L.) genotypes to foliar application of zinc sulphate. 6th International Conference on “Sustainable Agriculture in Changing Climate: Strategies and Management” 19-21 June, 2019. University of the Poonch, Rawalakot.

ORAL/POSTER PRESENTATIONS, PARTICIPATION IN SEMINARS/CONFERENCES/WORKSHOPS/SCIENTIFIC ACTIVITIES

1. Participated in 5th International and 12th National Conference of Weed Science held on 12-14 June, 2015. Organized by Weed Science Society of Pakistan at S.B.B. University Sheringal.
2. Participated in International Conference on “Major Environmental Constraints to Plants: Assessment & Reclamations” held on March 28-30, 2016. Organized by Department of Botany, Government College University, Faisalabad.
3. Participated in Training Workshop SPS compliance through the Fresh Produce Supply Chain on 3 and 4 August 2016, University of Agriculture, Faisalabad. Organized by Phytosanitary Risk Management Program in Pakistan CAB International, Central and West Asia.
4. Participated in International Seminar on Prospects of Bulbous Flower Production in Pakistan. August 17, 2016. Organized by Institute of Horticultural Sciences, University of Agriculture, Faisalabad.
5. Participated in ass Mid Term Workshop Phase II Hands on training of TOA-MD, Theme: Assessing Climatic Vulnerability and Projecting Crop Productivity using Integrated Crop and Economic Modeling Techniques. Organized by Agro climatology Lab, Department of Agronomy. UAF
6. Participated in One Day Seminar on “Dissemination of Seed Production Technology of Vegetables Crops” August 20, 2016. Organized by Vegetable Lab, Institute of Horticultural Sciences, University of Agriculture, Faisalabad.
7. Participated in 2nd Pakistan SEED congress-Seed Security for Sustainable Agriculture, November 21-22 2016. Organized by U.S.-Pakistan Center for Advanced Studies in Agriculture and Food Security.

8. Participated in International Conference on Forestry and Environment: Challenges and Prospects November 21-22 2016. Organized by: Department of Forestry and Range Management, UAF. Pakistan & Faculty of Forestry, Kastamonu University, Turkey.
9. Participated in Seed Training Workshop “Dry Chain Technology For Reducing Post Harvest Losses of Seeds and Grains” November 23, 2016. Organized by U.S.-Pakistan Center for Advanced Studies in Agriculture and Food Security.
10. Participated in Workshop on Effective Communication Skills & Innovative Methods for Extension & Outreach. December 8-09, 2016. Organized by U.S.-Pakistan Center for Advanced Studies in Agriculture and Food Security.
11. Participated in Brain Storming Workshop, Theme: Brain Storming on future M.Sc.(Hons)/MPhil and Ph.D researchable areas. January, 4, 2017. University of Agriculture, Faisalabad and HEC
12. Participated in Workshop on Agricultural Policy of Pakistan Past Present and Future, Theme: Brain Storming on future M.Sc. (Hons)/MPhil and Ph.D researchable areas. January, 5, 2017. University of Agriculture, Faisalabad and HEC.
13. Participated in Seminar on Food Security Policy Research Priorities, Theme: Brain Storming on future M.Sc. (Hons)/MPhil and Ph.D researchable areas. January, 6, 2017. University of Agriculture, Faisalabad and HEC.
14. Participated in Capacity Building Workshop Biosafety Measures in Agriculture. February 20-21, 2017 Organized by Office of Research, Innovation & Commercialization (ORIC), University of Agriculture, Faisalabad.
15. Participated in the Two-Day National Conference on Recent Advances in Biotechnology held at K.U.S.T, Kohat, from April 26-27, 2017. Department of Biotechnology & Genetic Engineering K.U.S.T Kohat.
16. Participated in 1st International Conference on Climate Change & Biodiversity (IC³B-2017) held on 02-04 May, 2017 at The Islamia University of Bahawalpur, Pakistan. Organized by Cholistan Institute of Desert Studies (CIDS).

17. Participated in 4th International Conference on Global Environmental Changes held on May 4-5, 2017. Organized by Department of Environmental Sciences & Engineering. Government College University Faisalabad.
18. Participated in International Workshop on Beans and Benefits, Potential & Limitations for Mungbean Production held on August 8-10, 2017. Organized by ORIC, University of Agriculture, Faisalabad.
19. Participated in 7th International Conference on Environmentally Sustainable Development held on August 26-28, 2017. Organized by Department of Environmental Sciences, COMSATS Institute of Information Technology Abbottabad.
20. Participated in one day seminar on “Recent Research and Developments in Mango Technologies in the world held on September 23, 2017, organized by Institute of Horticultural Sciences, University of Agriculture, Faisalabad.
21. Participated in Workshop on Scientific Writing on October 23, 2017 at University of Agriculture, Faisalabad. Organized by The AGRARIAN Society, UAF.
22. Participated in International Workshop on Developing Vegetable Seed Industry held on January 11, 2018. Organized by Institute of Horticultural Sciences, University of Agriculture, Faisalabad.
23. Participated in International Horticulture Conference 2018, Theme: Pak Horticulture: Strategies for Sustainable Production and Export held on January 14, 2018. Organized by Institute of Horticultural Sciences, University of Agriculture, Faisalabad in collaboration with Department of Agriculture, Government of the Punjab & Pakistan Society for Horticultural Science.
24. Participated in One Day Seminar on Value Added Food Products: Issues & Opportunities for Entrepreneurs held on January, 19, 2018. Organized by National Institute of Food Science & Technology (NIFSAT) & Office of Research Innovation & Commercialization (ORIC), University of Agriculture, Faisalabad.
25. Participated in One Day Project Writing Workshop (on Research Proposal Writing, CV Writing by using Latex & Foreign Scholarship Hunting) held on 1st March, 2018.

Organized by Pakistan Society of Plant Breeders & Genetics, Department of Plant Breeding & Genetics, University of Agriculture, Faisalabad.

26. Participated in the Tree Plantation Campaign (Forests and Sustainable Cities) and Seminar on “International Day of Forest held at University of Agriculture, Faisalabad held on March 21, 2018. Organized by UAF in collaboration with Hashoo Foundation and Punjab Forest Company.
27. Oral Presentation and Poster Presentation in 1st International and 2nd National Conference: Challenges and Opportunities to Boost Agriculture in Changing Climate held on March 26-28, 2018. Organized by College of Agriculture BZU, Bahadur Sub-Campus Layyah.
28. Participated in One Day Seminar on “Transformation of Cotton Production Technology according to Agro-ecological Zones” held on October 12, 2018. Organized by Agroclimatology Lab, Department of Agronomy, University of Agriculture, Faisalabad.
29. Participated in Workshop on “Effective use of Mendeley-A Reference Management Tool” organized by Directorate of Academics & Teaching Resource Center, University of Agriculture, Faisalabad. November 22, 2018.
30. Participated in the International Seminar on Soil-Plant-Environment Nexus in changing climate, held on November 30, 2018. Organized by Saline Agriculture Center, Institute of Soil & Environmental Sciences, University of Agriculture, Faisalabad.
31. Participated in the Conference on Innovations in Agriculture, held on 13-15, February 2019. Organized by Institute of Soil & Environmental Sciences, University of Agriculture, Faisalabad & Pakistan Agricultural Scientists Forum (PAS Forum).
32. Participated in One Day Workshop on Papaya Production Technology held on 13, February, 2019. Organized by Institute of Horticultural Sciences, University of Agriculture, Faisalabad.
33. Participated in One Day workshop on Meadow Orchard System in Guava held on 25 February, 2019. Organized by Institute of Horticultural Science, University of Agriculture, Faisalabad.

34. Participated in International workshop “Research Collaboration between University of Agriculture, Faisalabad and Huazong Agriculture University, Wuhan, China to enhance the productivity of Agriculture sector” held on 27 February, 2019. Organized by Society of Young Economists University of Agriculture, Faisalabad.
35. Participated in Training Workshop on “Design & Development of Curriculum and its Assessment Techniques” organized by National University of Computer and Emerging Sciences, Chiniot-Faisalabad Campus. March, 14, 2019.
36. Participated in 1st Aus-Pak International Conference on “Wheat for Food Security” with Poster Presentation “Enhancing the efficacy of metribuzine in combination with different adjuvants against weeds of wheat” March 24-25, 2019, Institute of Plant Breeding and Biotechnology, MNS University of Agriculture, Multan.
37. Participated in 1st Aus-Pak International Conference on “Wheat for Food Security”, organized by Institute of Plant Breeding and Biotechnology, MNS University of Agriculture, Multan. March 24-25, 2019.
38. Participated in International Conference on “High Quality Fodder & Forage Production in Climate Shift Paradigm”, organized by Institute of Plant Breeding and Biotechnology, MNS University of Agriculture, Multan. March 26- 27, 2019.
39. Participated in 1st Aus-Pak International Conference on “Pulses for Food Security: Science for Growers and Entrepreneurs” with Poster Presentation “Seed Priming Techniques for Enhancing Productivity in Mungbean” March 27, 2019, Institute of Plant Breeding and Biotechnology, Department of Agronomy, MNS University of Agriculture, Multan.
40. Participated in 1st Aus-Pak International Conference on “Pulses for Food Security: Science for Growers and Entrepreneurs” with Poster Presentation “Effect of Humic Acid Application Methods on Yield and Quality of Mungbean” March 27, 2019, Institute of Plant Breeding and Biotechnology, Department of Agronomy, MNS University of Agriculture, Multan.
41. Participated in 1st Aus-Pak International Conference on “Pulses for Food Security: Science for Growers and Entrepreneurs” with Poster Presentation “The efficacy of Sulfur and Boron Application in Enhancing Yield and Quality of Green gram” March 27, 2019,

Institute of Plant Breeding and Biotechnology, Department of Agronomy, MNS University of Agriculture, Multan.

42. Participated in 1st Aus-Pak International Conference on “Pulses “for Food Security: Science for Growers and Entrepreneurs” organized by Institute of Plant Breeding and Biotechnology, Department of Agronomy, MNS University of Agriculture, Multan. March 27, 2019.
43. Participated in 2nd International Conference on “Water saving and Plant production strategies: Constraints and Implications for Sustainable Agriculture” held on 26-28 March 2019, organized by Department of Botany, Government College University, Faisalabad.
44. Participated in International Seminar about Awareness of Fodder Cultivation Under the Scenario of Climate Change organized by Department of Plant Breeding & Genetics (PBG) University of Agriculture, Faisalabad. March 28, 2019.
45. Participated in One Day National Seminar on “Climate Change and Environmental Sustainability” held on 18 April 2019, organized by Department of Botany, University of Education, Faisalabad-Campus.
46. Participated in 1st International Conference on “Surface Science Innovations and Applications for Geoenvironmental Challenges” held on 25-26 April 2019, Organized by Institute of Soil & Environmental Sciences, University of Agriculture, Faisalabad.
47. Participated in the 6th International Conference on “Sustainable Agriculture in Changing Climate: Strategies and Management” 19-21 June, 2019. University of the Poonch, Rawalakot.
48. Oral presentation: Chemical weed control in wheat (*Triticum aestivum* L.) sown as relay crop in cotton. 6th International Conference on “Sustainable Agriculture in Changing Climate: Strategies and Management” 19-21 June, 2019. University of the Poonch, Rawalakot.
49. Poster presentation: Effect of harvesting time and seed rate on forage yield and quality of maize (*Zea mays* L.). 6th International Conference on “Sustainable Agriculture in Changing Climate: Strategies and Management” 19-21 June, 2019. University of the Poonch, Rawalakot.

50. Poster presentation: Forage yield and quality response of cluster bean (*Cyamopsis tetragonolobus* L.) to seeding rates and nitrogen levels. 6th International Conference on “Sustainable Agriculture in Changing Climate: Strategies and Management” 19-21 June, 2019. University of the Poonch, Rawalakot.
51. Poster presentation: Response of linseed (*Linum usitatissimum* L.) genotypes to foliar application of zinc sulphate. 6th International Conference on “Sustainable Agriculture in Changing Climate: Strategies and Management” 19-21 June, 2019. University of the Poonch, Rawalakot.
52. Poser presentation: Participated in the Seminar on “Opportunities & threats for Applications of Precision Agricultural Practices in Pakistan” Held in Department of Agricultural Extension, College of Agriculture, University of Sargodha on September 25, 2019.
53. Oral presentation: Participated in the Seminar on “Opportunities & threats for Applications of Precision Agricultural Practices in Pakistan” Held in Department of Agricultural Extension, College of Agriculture, University of Sargodha on September 25, 2019.
54. Participated in International Seminar/Workshop on “Vermi-fertilizer A potential Source of Organic and Sustainable Agriculture in Pakistan held on November 18-19, 2019 at University of Agriculture, Faisalabad.
55. Participated in 2nd International Conference on “Climate Smart Agriculture: The Way towards Sustainability” held on November 26-27, 2019 at MNS University of Agriculture, Multan-Punjab, Pakistan.
56. Participated in one day Workshop on “Establishment of Papaya Orchard” held on December, 19 2019. Organized by Institute of Horticultural Sciences, University of Agriculture, Faisalabad.
57. Participated in National Seminar “Crop Management Strategies for Enhancing Farm Productivity in Punjab” held on 28, October 2019, organized by Directorate of Agronomy, Ayub Agricultural Research Institute, Faisalabad.

58. Attended on day workshop on “Establishment of Papaya Nursery” held on 19, February 2020, organized by Institute of Horticultural Sciences, University of Agriculture, Faisalabad.
59. Participated in International Symposium on “Enhancement of plant productivity under changing climate: Future challenges and perspectives” held on 25-26 February 2020, organized by Department of Botany, Government College University, Faisalabad.

Training Workshops

Training Workshop Conducted

1. Field Spectroradiometers: Data Acquisition and Analysis
U.S.-Pakistan Center for Advanced Studies in Agriculture and Food Security
Facilitated by: Faculty of Agricultural Engineering and Technology, UAF
Date: 26-27, August 2015

Training Workshop Completed/Received

1. Remote sensing for monitoring agricultural crops and assessing soil fertility
Conducted by: Dr. Waqar Ahmad
Principal Research Scientist and Research Leader
Spatial Informatics, Center for Environment and Life Sciences,
CSIRO, Perth Australia
2. Grant Writing Workshop (Competitive Grants Program)
Organized by: Prof. Emeritus
UC Davis, USA
Date: 1, June 2015
3. Remote Sensing and Digital Image Processing for Precision Agriculture
U.S.-Pakistan Center for Advanced Studies in Agriculture and Food Security
Facilitated by: Faculty of Agricultural Engineering and Technology, UAF
Date: 26-27, August 2015

Technical Talks

Technical Talk (ICT in Precision Agriculture)

1. **Crop monitoring using hand-held radiometers- potential of developing customized applications for local needs**

Organized by: DICE 2015

Mega Innovation and Entrepreneurship Event

November 23-25, 2015

UAF

GRANTS PASSED THE INITIAL REVIEW SUBMITTED DURING THE REPORTING PERIOD AS PRINCIPAL INVESTIGATOR

4. **Crop monitoring using hand held radiometers-Potential of developing weed detection system using low cost digital cameras**

Name of Funding Agency: National ICT R&D Fund,

Islamabad Amount: (Rs. 30.00 Million)

Duration: 48 months

5. **GreenSeeker/CropScan sensors for variable rate predictive nitrogen applications in field crops**

Name of Funding Agency: U.S.-Pakistan Center for Advanced Studies in

Agriculture and Food Security (USPCAS-AFS) in collaboration with UC Davis -

USA

6. **Sensing soil properties and water table quality using electromagnetic induction (EMI) methods for variable rate agrochemical application and irrigation scheduling**

Name of Funding Agency: U.S.-Pakistan Center for Advanced Studies in

Agriculture and Food Security (USPCAS-AFS) in collaboration with UC Davis -

USA

- 7. Remote sensing of leaf nutrients in field crops using FieldSpec4 spectroradiometer**

Name of Funding Agency: U.S.-Pakistan Center for Advanced Studies in Agriculture and Food Security (USPCAS-AFS) in collaboration with UC Davis - USA
- 8. Development of on-the-go weed detection and variable rate sprayer for spot application of herbicides*

Name of Funding Agency: International Foundation for Science (IFS) Amount: (USD. 12,000 max)
- 9. Mapping water and soil properties using electromagnetic induction method for variable rate irrigation and fertilization to improve crop yield and save input cost*

Name of Funding Agency: Higher Education Commission (HEC), Pakistan
Amount: (Rs. 9.897 Million)
- 10. Leaf colour charts (LCC) for effective Nitrogen management in wheat*

Name of Funding Agency: USPCAS-AFS
- 11. GreenSeeker/CropScan sensors for variable rate predictive nitrogen applications in field crops*

Name of Funding Agency: USPCAS-AFS Amount: Rs. 5.731 Million
- 12. Sensing soil properties and water table quality using electromagnetic induction (EMI) methods for variable rate agrochemical application and irrigation scheduling*

Name of Funding Agency: USPCAS-AFS Amount: Rs. 6.381 Million
- 13. Low cost leaf area meter: scanner/domestic camera digital image analysis for rapid and accurate leaf area measurements**

Name of Funding Agency: Endowment Fund Secretariat, UAF
- 14. Mapping water and soil properties using electromagnetic induction method for variable rate irrigation and fertilization to improve crop yield and save input cost (Precision Agriculture Technology)*

Name of Funding Agency: Punjab Agricultural Research Board (PARB)
- 15. Crop Monitoring using handheld radiometers-precision agriculture technologies*

Name of Funding Agency: Punjab Agricultural Research Board (PARB)
- 16. Weed management studies in medicinal plants*

Name of Funding Agency: Punjab Agricultural Research Board (PARB)
- 17. Weed management studies in vegetables*

Name of Funding Agency: Punjab Agricultural Research Board (PARB)
- 18. Remote sensing leaf nutrients in field crops*

Name of Funding Agency: Pakistan Agricultural Research Council-Agricultural

Linkages Program (PARC-ALP)

19. *Evaluation of herbicide resistance in littleseed canarygrass (*Phalaris minor* Retz) and strategies for its control*

Name of Funding Agency: Pakistan Agricultural Research Council-Agricultural Linkages Program (PARC-ALP)

20. *Determination of critical time of weed crop competition and economic threshold of major field crops*

Name of Funding Agency: Pakistan Agricultural Research Council-Agricultural Linkages Program (PARC-ALP)

21. *Vegetation detection and classification of sugarcane and weeds for spot application of herbicides*

Name of Funding Agency: Sugarcane Research and Development Board (SRDB-Punjab)

22. *Determination of weed crop competition time and economic threshold of weeds in major crops*

Name of Funding Agency: Pakistan Science Foundation (PSF-NSLP)

23. *Remote sensing of leaf nutrients in field crops*

Name of Funding Agency: Pakistan Science Foundation (PSF-NSLP)

PROJECTS SUBMITTED AS CO-PRINCIPAL INVESTIGATOR

24. Mapping *Parthenium hysterophorus* L. (an invasive weed) using GPS and GIS

Name of Funding Agency: International Foundation for Science
(IFS) Amount: (USD 12,000 max)

25. Mechanism and mitigation of ACCase inhibitor resistance in *Phalaris minor*

Name of Funding Agency: Higher Education Commission (HEC), Pakistan
Amount: (Rs. 10.55 million)
Duration: 36 months