

ANNUAL REPORT 2020



**PIR MEHR ALI SHAH
ARID AGRICULTURE UNIVERSITY RAWALPINDI**

CONTENTS

VICE CHANCELLOR’S MESSAGE	03
EXECUTIVE SUMMARY	04
ABOUT THE UNIVERSITY	05
ACADEMIC ACTIVITIES	06
RESEARCH AND DEVELOPMENT	10
QUALITY ENHANCEMENT CELL	19
FACULTY DEVELOPMENT	23
ACCESS	27
UNIVERSITY BUILDING ECONOMIES	28
INTERNSHIP & PLACEMENT OFFICE	32
UNIVERSITY GREEN OFFICE	35
STRENGTHENING PHYSICAL INFRASTRUCTURE	38
STRENGTHENING TECHNOLOGICAL INFRASTRUCTURE	42
UNIVERSITY BUILDING COMMUNITIES	49
SPORTS	50
UNIVERSITY BUILDING LEADERSHIP	51
FINANCE	54
UNIVERSITY GOVERNANCE	96
FACULTY PUBLICATIONS	62
SEMINARS, WORKSHOPS & CONFERENCES	97

VICE CHANCELLOR'S MESSAGE

I extend my deep felicitation on great success and accomplishment of outgoing students who have completed their degrees in 2020. Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi joins you in celebrating your achievements and bliss on this day of 22nd Convocation.



As the graduates celebrate graduation, we share the joy and glory with their parents, guardians, loved ones, sponsors and faculty members who supported throughout their learning journey and made significant contributions to their education. The source of enduring dynamism at Arid Agriculture University is the learned faculty that has made this day possible for you. I would urge the graduates to acknowledge spirit, dedication and unwavering commitment to excellence.

I am confident that during academic stay at campus the University took every possible step to make your time productive and help providing conducive learning environment. This nation paid for all the resources you enjoyed now time has arrived to return the dividends. I hope in practical endeavors, you would be giving your best and make us proud of you. I expect technological advancements and change from all of you, as you are the best product of the University.

I once again congratulate and felicitate the graduates, their parents and faculty for their contribution and tireless efforts.

PROF. DR. QAMAR-UZ-ZAMAN

EXECUTIVE SUMMARY

During the year 2020, Pir Mehr Ali Shah (PMAS) Arid Agriculture University Rawalpindi made substantial efforts to improve academic as well as research activities along with financial resources. Various teaching departments were upgraded/strengthened through the development of infrastructure, procurement of sophisticated scientific equipments and purchase of books etc. So far, the Research Projects worth Rs. 742.216 million were sponsored by various funding agencies i.e. HEC, PSF, PARC, PARB, UAF and University Own Resources.

Faculty members attended One hundred and Twenty Eight National/International workshops/ seminars/ symposiums/ conferences to share/transfer knowledge in different scientific fields within the country and globally. The faculty members were encouraged to improve their qualifications and visit universities abroad to update their technical knowledge and transfer technical know-how from international universities/institutes. During the year, faculty members of different departments of the University obtained short term trainings, doctoral/post-doctoral fellowships and executed research work in Germany, Sweden, China, Australia, South Korea, Malaysia and Azerbaijan. The strength of the students is increasing day by day by virtue of the academic record and excellence of the university. At present more than twelve thousand students are quenching their thirst of education from this prestigious educational organization. Two Hundred and Thirty Two scholars are doing their Doctorates in different disciplines of Agriculture, Forestry and Biological Sciences at this university.

The linkage between faculty, Industry and farming community was further promoted/strengthened to ensure the penetration and achievements of objectives of the university. Memorandums of Understandings (MoUs) with various national and International organizations were signed for academic and research sharing. The provision of better Research facilities encouraged the faculty to publish 491 Research Papers in National and International reputed journals.

ABOUT THE UNIVERSITY

Pir Mehr Ali Shah Arid Agriculture University Rawalpindi (PMAS-AAUR) was established in 1994 as University of Arid Agriculture by upgrading the Barani Agriculture College on the recommendation of Barani Commission Punjab. The mandate of the university is to produce high quality Agricultural Scientists and to form an organized scientific infrastructure for teaching and research for the development of dry land region of the country in general and Pothwar in particular; thus minimizing the income gap between the rich and poor.

Since its inception, PMAS-AAUR has experienced remarkable growth and is offering undergraduate as well as postgraduate degree programs in variety of disciplines. The University includes a Faculty of Crop and Food Sciences, Faculty of Sciences, Faculty of Social Sciences, Faculty of Forestry, Range Management & Wildlife, Faculty of Veterinary & Animal Sciences, Faculty of Agricultural Engineering & Technology, University Institute of Management Sciences (UIMS), University Institute of Information Technology (UIIT), Institute of Food & Nutritional Sciences, Institute of Geo-Information & Earth Observations, University Institute of Biochemistry & Biotechnology, Institute of Hydroponic Agriculture and Institute of Soil Science. The University building contains an auditorium, multi-storied administrative and academic blocks, a state of the art library and a sports gymnasium.

Pursuit of excellence on the University campus is a function of competent and dedicated university faculty. PMAS-AAUR has therefore, made constant efforts at staff development with the result that nearly 70% of the faculty possesses Ph.D. degrees, while the others have M.Sc. (Hons) and M.Phil degrees.

Furthermore, PMAS-AAUR is committed to delivering an outstanding student experience; as well as to enjoy a reputation for excellence in teaching and learning alongside research. Students actively participate in extracurricular and co-curricular life on campus, which includes speech events, seminars and activities related to entrepreneurial skill development. Together with a research-informed curriculum, and extracurricular activities, PMAS-AAUR strives to provide a well-diversified environment to students so that they can effectively contribute towards development of the country.

ACADEMIC ACTIVITIES

FACULTIES/INSTITUTES

FACULTY OF CROP & FOOD SCIENCES
Department of Agronomy
Department of Horticulture
Department of Entomology
Department of Plant Pathology
Department of Plant Breeding & Genetics
Department of Agricultural Extension
FACULTY OF SCIENCES
Department of Zoology/Biology
Department of Botany
Department of Mathematics/Statistics
FACULTY OF SOCIAL SCIENCES
Department of Sociology
Department of Anthropology
Department of Economics and Agricultural Economics
Division of Continuing Education, Home Economics and Women Development
Department of Humanities
FACULTY OF FORESTRY, RANGE MANAGEMENT & WILDLIFE
Department of Forestry & Range Management
Department of Environmental Sciences
Department of Wildlife Management
FACULTY OF VETERINARY & ANIMAL SCIENCES
Department of Livestock Production & Management
Department of Poultry Science
Department of Veterinary Biomedical Sciences
Department of Parasitology & Microbiology
Department of Clinical Studies
Department of Veterinary Pathology
Department of Animal Breeding & Genetics
FACULTY OF AGRICULTURAL ENGINEERING & TECHNOLOGY
Department of Structures & Environment Engineering
Department of Farm Machinery & Precision Engineering
Department of Land & Water Conservation Engineering
Department of Energy Systems Engineering
UNIVERSITY INSTITUTE OF MANAGEMENT SCIENCES
UNIVERSITY INSTITUTE OF INFORMATION TECHNOLOGY
UNIVERSITY INSTITUTE OF BIOCHEMISTRY & BIOTECHNOLOGY
INSTITUTE OF FOOD & NUTRITIONAL SCIENCES
INSTITUTE OF HYDROPONIC AGRICULTURE
INSTITUTE OF SOIL SCIENCE
INSTITUTE OF GEO-INFORMATION & EARTH OBSERVATIONS

ACADEMIC PROGRAMS

UNDERGRADUATE PROGRAMS		
1. BSc (Hons) Agriculture	2. BS in Biochemistry	3. BS in Computer Science
4. BS in Economics	5. BS in Forestry	6. B.Ed
7. BBA (Bachelor of Business Administration)	8. BS in Information Technology	9. DVM (Doctor of Veterinary Medicine)
10. BSc (Hons) Agri. Engineering	11. B.Sc (Hons) Human Nutrition & Dietetics	12. BS (Microbiology)
13. BS Environmental Sciences	14. BS (Remote Sensing & GIS)	15. BS Commerce
16. BS Software Engineering		
POST GRADUATE PROGRAMS (M.Sc)		
1. Biochemistry	2. M.Ed	3. MBA (Agri. Business) 1-1/2 Years
4. Botany	5. Anthropology	6. MBA (Agri. Business) 3-1/2 Years
7. Zoology	8. Criminology	9. MDM
10. Biology	11. Sociology	12. MCS
13. Statistics	14. Economics	15. MIT
16. Mathematics	17. Wildlife Management	18. MBA (Agri. Business) 1-1/2 Years
19. Education	20. Environmental Sciences	
M.SC (HONS)		
1. Soil Science	2. Agronomy	3. Food Technology
4. Entomology	5. Horticulture	6. Plant Breeding & Genetics
7. Plant Pathology		
M.PHIL/MS		
1. Botany	2. Statistics	3. Forestry & Range Mgt.
4. Zoology	5. Education	6. Wildlife Management
7. Botany	8. Sociology	9. Environmental Sciences
10. Veterinary Microbiology	11. Remote Sensing & GIS	12. Veterinary Pathology
13. Veterinary Parasitology	14. Animal Breeding & Genetics	15. Computer Science
16. Animal Nutrition	17. Livestock Management	
PhD		
1. Soil Science	2. Botany	3. Environmental Sciences
4. Entomology	5. Zoology	6. Computer Science
7. Plant Pathology	8. Education	9. Food Technology
10. Plant Breeding & Genetics	11. Sociology	12. Remote Sensing & GIS
13. Agronomy	14. Botany	15. Computer Science
16. Horticulture	17. Forestry & Range Management	18. Wildlife Management
19. Veterinary Pathology		

ACADEMIC ACHIEVEMENTS

The university offers 79 degree programmes in various disciplines of Agriculture, Agricultural Engineering, Basic & Social Sciences, Veterinary, Forestry, Range Management, Wildlife, Business Administration, Computer Sciences & Information Technology and Education. Currently the enrollment of the University is 12588 which are increasing every year. This University has so far turned out 473 Ph.D., 25912 M.Phil, M.Sc. (Hons.)/ MS/ M.Sc. and 16554 B.Sc. (Hons.)/ D.V.M/ BS/BBA/B.Ed.

PMAS-AAUR Secured 1st Position in the Country by UI Green Metric World Universities Ranking 2020

Pir Mehr Ali Shah Arid Agriculture University Rawalpindi has **been ranked 1st in all over the Pakistan**, and **201 among all 912 participating Universities of the world** as per latest UI Green Metric World Universities ranking 2020. UI Green Metric University Sustainability Ranking is a world university ranking to assess and compare campus sustainability efforts. The criteria for the ranking of Universities includes campus setting and infrastructure, energy and climate change, waste, water, transportation and education. The Arid Varsity has been ranked as 201 among the top 912 universities of the world with the total score of 6775 as per UI GreenMetric World Universities ranking.

The Times Higher Education Emerging Economies University Rankings 2020

Pir Mehr Ali Shah Arid Agriculture University Rawalpindi (PMAS-AAUR) is ranked 12th in the overall and 3rd in Agriculture and Forestry among Pakistani Universities in the Times Higher Education (THE) World Universities **Impact Rankings 2020**. This reflects the significant impact of Quality Assurance for earning a place for Arid varsity on the global map of higher education. The Arid Varsity ranked 8th among all Pakistani Universities (1001+ among the world universities) as per latest Times Higher Education (THE) World Universities Ranking 2020.

HONOURS AND AWARDS

AWARDS OF THE FACULTY

- ☞ *Dr. Bushra Allah Rakha, Assistant Professor, Department of Wildlife Management awarded Dayong Gao Young Investigator from the Society for Cryobiology.*
- ☞ *Dr. Bushra Allah Rakha, Assistant Professor, Department of Wildlife Management awarded ISBER 2020 Travel Award by International society for biological and Environmental Repositories.*

INSTITUTIONAL LINKAGES

- ☞ *Four Brothers Group of Companies Lahore*
- ☞ *Capital Development Authority Islamabad*
- ☞ *The Rawalpindi Chamber of Commerce & Industry*
- ☞ *State Life Insurance Corporation of Pakistan*
- ☞ *Agribusiness Support Fund*
- ☞ *Sustainable Used Specialist Group-Central Asia (SUSG-CASIA) Quetta*
- ☞ *DELL Pakistan*
- ☞ *Water and Power Development Authority (Wapda)*
- ☞ *Dairy and Rural Development Foundation*
- ☞ *CAB International (CABI) Central and West Asia, Rawalpindi*
- ☞ *Barani Agricultural Research Institute (BARI) Chakwal*
- ☞ *Indus Consortium Islamabad*
- ☞ *MKS (Magnus Kahl Seeds) Australia*
- ☞ *Rawalpindi Waste Management Company (RWMC)*
- ☞ *Lantix Technology (Private) Limited Pakistan*
- ☞ *M/S Tamshoon Gold- Pakistan*
- ☞ *Star Farm Pakistan Private Limited*
- ☞ *Foster Learning Pakistan*
- ☞ *NCLBG&G and SCBS*
- ☞ *Allied Bank ltd.*
- ☞ *Alpha genomics pvt. Ltd.*
- ☞ *Eguard*
- ☞ *NHD blood and transport*
- ☞ *Halal assessment & certification institute pvt. Ltd.*
- ☞ *North china electric power Univeristy Beijing P.R china*
- ☞ *Shihezi university xinjiang china*
- ☞ *ARL UN-ESCAP & Govt. of Pakistan*
- ☞ *Cosmopolitan institute of tourism hospitality and media science*
- ☞ *Deakin university victoria Australia*
- ☞ *Guangdong University of petrochemical technology Maoming, china.*

RESEARCH AND DEVELOPMENT

R&D – AN OVERVIEW

The University, being the prime institute for agricultural education and research has the obligation to provide trained manpower to all sectors of agriculture in Punjab Province. The Faculty and Researchers of this University have been conducting basic and applied research in the field of:



- ❖ New Technologies to Overcome Water Shortage
- ❖ Production of Biofuels
- ❖ Formulation of New Food Products
- ❖ Promotion of High Yielding & Drought Resistance Wheat and Canola Cultivars
- ❖ Recycling of Organic Wastes of Sustainable Crop Productivity
- ❖ Production of Pathogen Free Horticultural Plant Nurseries
- ❖ Soil and Water Contamination Studies
- ❖ Biotechnology

The university is focusing its efforts on need base research of arid agriculture in general and Pothwar region in particular. A number of research projects have been completed in the past and still many research projects are being run by the faculty. Conducting research is mandatory for all students of both graduate and undergraduate levels. The faculty and researchers at the University are availing different funding opportunities for their research projects. Some are listed below:

- ❖ Higher Education Commission of Pakistan
- ❖ Pakistan Science Foundation
- ❖ Pakistan Agricultural Research Council (PARC)
- ❖ Punjab Agriculture Research Board (PARB)
- ❖ Endowment Fund Secretariate, University of Agriculture, Faisalabad.
- ❖ International Foundation for Science

RESEARCH FOCUS

University faculty focused their research activities on the issues of farming community of Barani areas in general and Pothwar in particular. These included projects related to soil conservation, weed management, drought tolerance studies in wheat through genetic engineering and environmental related issues. The following Research projects are operational during 2020:

- ❖ *Somatic Hybridization for Citrus Improvement: A Way Towards a Low Input Sustainable Citrus Culture in Pakistan*
- ❖ *Screening for the Selection of Exopolysaccharide-Producing Strains for Yoghurt Making*
- ❖ *Improvement of Host Disease Resistance in Tomato Through Genetic Transformation*
- ❖ *Evaluation of biochar from different sources to control heavy metal toxicity to soil Microorganisms and Plants*
- ❖ *Nutritional quality assessment and comparison of commonly consumed rainfed arid cereal varieties of Pakistan for their effective marketing and commercialization*
- ❖ *Expression of pathogenesis - related (PR) proteins to acquire systemic resistance against fungal pathogens (Alternaria and Fusarium) of sesame*
- ❖ *Optimization of Agro-management techniques for sinapis alba*
- ❖ *Modeling rainfed cereal-based cropping systems to climatic extremes*
- ❖ *Evaluation of rapeseed (canola) germplasm for erucic acid content based on presence and expression of genes*
- ❖ *Perspective study of using weeds nano material for the management of weeds, tolerance of drought and improvement of productivity in wheat*
- ❖ *Screening of wild grape biodiversity for drought tolerance and their rootstock-scion compatibility for sustainable grape production in Pakistan*
- ❖ *Development of high yielding, more sugar content and increased stay green leaf sorghum lines*
- ❖ *Development of high yielding wheat breeding material with improved grain iron and zinc content for rain-fed areas of Pakistan*
- ❖ *Development of double haploid lines of chillies resistant to phytophthora root rot*
- ❖ *Physio-morphic and biochemical characterization of wheat varieties in response to silver based nanoparticles against heat stress*
- ❖ *Parental decisions on girls schooling levels within demographic framework of rural households in Pothohar Region, Punjab, Pakistan*
- ❖ *Improving agricultural extension in Pakistan through communication for development*
- ❖ *Buffer Optimized High Gradient Magnetic Separation Technology to Study the Biology of Livestock Parasites*
- ❖ *Comparison of Carbon Sequestration in Different Cropping System of the Punjab*
- ❖ *Ostrich farming in Pakistan: Novel and key nutritional solutions to accelerate profitability*
- ❖ *Detection and Molecular Characterization of Mastitis, Mammitis and Reproductive Tract Disorders Causing Herpesviruses in Dairy Cattle*
- ❖ *Clinical and Therapeutic Functioning of Canine Mesenchymal Stem Cells in Canine Bone Regeneration*
- ❖ *Green synthesis and evaluation of silver nanoparticles for anti-microbial and biochemical profiling in kinnow (citrus reticulata L.) to enhance fruit quality and productivity under biotic stress*
- ❖ *Evaluation of local microbial strains and trace elements for enhancing BNF and production of lentil in Pothwar*
- ❖ *Development of Nutraceutical Products From Indigenous Source*
- ❖ *Validation of Novel Rhizobium for Mass Production of Pulses Biofertilizer*
- ❖ *Genetic studies of human male fertility in Pakistan*

- ❖ *Soybean Based Double Cropping System for Rainfed Areas of Pakistan*
- ❖ *Expression Profiling of Regulatory Factors in Various Phenotypic Classes of Tuberculosis Patients*
- ❖ *Genetic diversity and population structure of markhor in Pakistan*
- ❖ *Mutational and expressional profile of microRNA in thyroid cancer*
- ❖ *Production through suspension culture and in vivo testing of bistorta amplexicaulis bioactive compounds*
- ❖ *Genetic Determinants of Coronary Heart Disease Risk in Central and General Obesity*
- ❖ *Genome editing in plants through oligonucleotide targeted nucleotide exchange*
- ❖ *The study of epigenetic signatures and immune system programming in tuberculosis*
- ❖ *Effectiveness of different processing techniques for the reduction of pesticide residues in vegetables at household level*
- ❖ *Molecular characterization of antibiotics resistant Pasteurella multocida isolated from the buffalo and cattle calves for effective therapeutic approach in Punjab*
- ❖ *Molecular Characterization of Apis Mellifera (L.) Hygienic Behaviour Against Varroa Mite in Pakistan (Phase I)*
- ❖ *Nutritional assesment and phytochemical screeing of some selected wild fruits from balochistan, Pakistan*
- ❖ *Developing Reproductive Technologies for Conserving Quail*
- ❖ *Morpho-molecular characterization and management powdery mildews of cucurbits*
- ❖ *Sustainable Urbanization and the Impact of Sprawling Communities in Pakistan*
- ❖ *Harnessing Untapped Potential of Oleaginous Bacteria for Develoment of Lipid Based Biorefineries Using Food Processing Waste*
- ❖ *Inhibition of TGFBR Signalling Pathway in Cancer Cells Using Selected Natural Compounds*
- ❖ *Systematics and Floristic Diversity Assessment of Salt Range (District Mianwali) with special Emphasis on Georeferencing and Herbarium Development*
- ❖ *Mapping of Punjab Tree Cover and Proposed Tree Suitability Map Inside and Outside of Forest under Changing Climate*
- ❖ *Biodegradation Of Biodegradable Plastic Mulch Films In Soil Environment And Its Impact On Soil Microbial Communities And Ecosystem Functions*
- ❖ *Evaluation of Phytochemical, Biological Potential and Nanoparticle Analysis of Capsicum annum L.*
- ❖ *Sex determination in date palm (Phoenix dactylifera L.) through molecular markers*
- ❖ *Molecular Cloning and Heterologous Expression of Endopolygalacturonas Gene in E.coli as a Promising Application for Food Industry*
- ❖ *Preparation and evaluation of bovine serum and cheicken egg derived immunoglobulins for the treatment of staphylococcus aureus mastitis in cattle and buffalo*
- ❖ *Molecular quantification and breeding of heritage chickens (Asil) for better feed efficiency*
- ❖ *Mining for private /unique genes preserve in rapased brassica napus germ plasm regulating draught & salinity tolernace and special seed nutrition quality based on genome*
- ❖ *Traceable Beef Production: An Innovative Production System to Develop Consumer Trust on Food Safety through Traceability*
- ❖ *Identification of Parasitoids and Ants Complex Associated with Psyllids on Trees and Management of Olive Psyllid in Pothwar and KPK*

- ❖ *Adaptability and development of production technology of guar (Cyamopsis tetragonoloba (L.) Tauba) in rainfed Pothwar through simulation modeling*
- ❖ *Research for productivity enhancement of drought tolerant and shattering resistant cultivars of sesame in rainfed areas of Punjab Pakistan*
- ❖ *Improving Drought Tolerance and Quality of Fodder Maize Genotypes for Silage Using Growth Hormone and Selenium*
- ❖ *Validation of Rhizobium for Mass Production of Groundnut Biofertilizer*
- ❖ *Development of a Fourier Function Model for Selection of High Fertility Buffalo Bulls for AI*
- ❖ *Modeling approach for assessing the impact of climate change on growth and yield of wheat and groundnut and possible adaptation/management strategies under rainfed condition.*
- ❖ *Evaluation and Introduction of Some Exotic Kiwi Cultivars*
- ❖ *Building disaster resilience in pakistan (preparing climate risk profiles of selected district in punjab)*

RESEARCH PROJECTS FUNDING

The PMAS-AAUR faculty also undertook Research Projects in addition to teaching assignments. These projects were sponsored by different funding/donor agencies. The detail of Research Projects is given below:

S #	Name of Funding Agency	Completed	On Going	Total No of Projects	Amount (Rs. in M)
1	HIGHER EDUCATION COMMISSION	66	53	119	555.46
2	PAKISTAN SCIENCE FOUNDATION	27	4	31	72.757
3	PAKISTAN AGRICULTURE RESEARCH COUNCIL	11	6	17	51.657
4	PUNJAB AGRICULTURAL RESEARCH BOARD	1	2	3	18.628
5	ENDOWMENT FUND UAF	4	0	4	7.997
6	OTHER FUNDING AGENCIES (INTERNATIONAL FOUNDATION FOR SCIENCE/ WORLD WIDE FUND (WWF) ETC.)	6	1	7	7.378
7	UNIVERSITY FUNDED RESEARCH PROJECTS	199	04	203	28.339
	Total	314	70	384	742.216

PUBLICATIONS

The faculty published 491 Research Publications in National and International reputed journals in 2020. (Details are given at Annexure-I)

CONFERENCES, SEMINARS AND WORKSHOPS, ETC.

Holding of Seminars, Workshops and Conferences is regular feature of the university where experts from various fields are invited to share their experiences with faculty, students & researchers on current issues of international and national importance. Such an activity is important for research and academic development of an institution as it provides guidelines for policy development at national level. During 2020, different



departments of the University organized One hundred and four (104) International and National Workshops/ Seminars/Conferences and Webinars. The university faculty also participated and contributed research papers in Two (02) International and One Hundred and Twenty Six (126) National Workshops/Seminars/Conferences (Details are given at Annexure-II).

Quarterly News Letter

In order to have a close contact with community and activities at university “Quarterly News Letter” is being published on quarterly basis. This is widely circulated among the students, faculty and all other sister organizations.

RESEARCH COLLABORATIONS

The University has initiated collaborative projects with the following R&D organizations for the purpose of research:

- ☞ Himalayan Wildlife Foundation (HWF), Islamabad
- ☞ Punjab Wildlife & Parks Department, Lahore
- ☞ Directorate of Wildlife & Fisheries, AJ&K, Muzaffarabad
- ☞ Sustainable Use Specialist Group, Central Asia, Quetta
- ☞ Human Rights & Minorities Affairs Department. Govt. of Punjab, Lahore
- ☞ Agribusiness Support Fund
- ☞ Dairy and Rural Development Foundation
- ☞ World Wide Fund
- ☞ Pakistan Bait-ul-Mal
- ☞ Rohicon Academy for Research & Professional Excellence, Islamabad
- ☞ National Science Foundation China

FOREIGN LINKAGES

The University has developed external linkages with the reputed R&D organization all over the world in order to strengthen his students and faculty. These are as follows:

- ☞ University of Florida USA
- ☞ International Center for Agriculture Research in the Dry Areas (ICARDA) Syria
- ☞ Institute of Agro Environmental and Forest Biology & National Research Council Italy
- ☞ Ohio State University USA
- ☞ Curtin University of Technology, Western Australia
- ☞ Nova Scotia Agriculture College, Canada
- ☞ Hebei Agriculture University (HAU) China
- ☞ The University of Bedfordshire U.K.
- ☞ Massey University New Zealand
- ☞ Northwest A&F University China
- ☞ Department of Environmental Engineering, Bioenergy Technical University of Denmark
- ☞ Management Committee of Baise National Agricultural Science and Technology Zone of Guangxi, P.R. China
- ☞ Biogas Institution of the Ministry of Agriculture (BIOMA) P.R. China
- ☞ Kyungpook National University
- ☞ Chinese Academy of Agricultural Mechanization Sciences (CAAMS)
- ☞ Engineering Research Center of Biological Control, Ministry of Education, College of Natural Resource and Environment, South China Agricultural University
- ☞ Selcuk University Turkey
- ☞ Kastamonu University Turkey
- ☞ University of Tuscia, Italy
- ☞ Mammalian Ecology and Conservation Unit, University of California, Davis, USA
- ☞ Anyang Quanfeng Biological Technology Co. Ltd China
- ☞ Mugla Sitki Kocman University Mugla, Turkey
- ☞ Joint Laboratory on Livestock and Forage Genetics Resources Beijing China
- ☞ Institute of Soil and Water Conservation, Chinese Academy of Sciences and Ministry of Water resources, China
- ☞ Adiyaman University Turkey
- ☞ Shihezi University, Xinjiang, China.

OPERATIONS OF OFFICE OF RESEARCH, INNOVATION AND COMMERCIALIZATION (ORIC)

The Office of Research, Innovation & Commercialization (ORIC) a central staff office reporting to the Vice Chancellor, is charged with administrative responsibility for all University research and related activities involving extramural sponsorship. In fulfilling its duties, the Office of Research serves as both a center of advocacy for research and related activities, and facilitator of the research environment. The functional areas supported by Office of Research staff include information services, project and proposal development assistance, and grants and contracts administration for pre-award

and selected post-award tasks. All proposals submitted by University personnel must be transmitted to and reviewed by Office of Research staff to assure adherence to internal and external policies and procedures. The Director of the Office serves as the designated University Officer for all related matters. The Office of Research, Innovation & Commercialization seeks to enhance the environment for all research and scholarships by:

- ❖ Supporting the university's strategic research directions and policies
- ❖ Increasing and diversifying external research funding
- ❖ Improving recruitment and retention of top faculty
- ❖ Improving integration of research and education at all levels of the university
- ❖ Improving translation of research into the public benefit
- ❖ Strengthening university-industry relationships
- ❖ Promoting entrepreneurship, technology-transfer and commercialization activities that energize and support the local and national economy
- ❖ Promoting and enhancing crosscutting and multi-disciplinary research initiatives



RESEARCH ENDOWMENT FUND PROGRAM

Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi has setup Research Endowment Fund in order to promote Research, Develop & Disseminate new technologies and capacity building through trainings in the field of agriculture and allied sciences. The University Syndicate in its 30th meeting held on 29th May 2004, approved the rules for Research Endowment Funds of the University of Arid Agriculture, Rawalpindi.

ORIC organized the ceremony to let know the faculty members about the University Research Endowment Fund Program. Director ORIC, Prof. Dr. Khalid Saifullah Khan welcomed the faculty members and thanked the Vice-Chancellor to approve the funds for this program.



Different initiatives/programs have been designed under the umbrella of Research Endowment Fund in 2nd meeting of Board of Directors held on 15 October, 2020 to accelerate the research activities in the university. Prof. Dr. Qamar Uz Zaman Vice Chancellor PMAS AAUR. Prof. Dr. Nadeem Akhtar Abbasi, Pro-Vice Chancellor, PMAS AAUR. Prof. Dr. Khalid Mehmood Khan, Ex-Vice Chancellor, PMAS AAUR, Mr. Aqeel Sultan, Registrar, Syeda Iram Umer, Director, Treasurer Office and all the Deans, Directors, Additional Directors ORIC and Assistant Director ORIC were the members of meeting.



Objectives:

- Promotion of Research
- Developing New Technologies
- Dissemination of Technologies
- Training required for the development of Agriculture in the country

Research Endowment Fund Initiatives:

Following initiatives has been design under the umbrella of Research Endowment Funds:-

1. Research/Performance Awards
2. Funding for Workshops/Symposia/Seminars
3. Publication Incentives
4. Book Writing Incentives
5. Research Grant for PhD Students

Research/Performance Award

The research awards have given to following faculty members for their best performance under the umbrella of Research Endowment Fund:

S. #	FACULTY MEMBER NAME	AMOUNT (RS.)
1.	Prof. Dr. Azeem Khalid, Department of Environmental Sciences	50,000/-
2.	Prof. Dr. Shamim Akhtar, Department of Zoology	50,000/-
3.	Dr. Ahmed Imran, Assistant Professor, UIMS	50,000/-
4.	Dr. Aneela Afzal, Assistant Professor, Department of Sociology	50,000/-
5.	Dr. Naveed Iqbal Raja, Assistant Professor Department of Botany	50,000/-
6.	Dr. Noshin Ilyas, Assistant Professor Department of Botany	50,000/-

QUALITY ENHANCEMENT CELL

QUALITY ENHANCEMENT CELL

Arid Varsity established Quality Enhancement Cell (QEC) in 2007 aimed to assess, monitor and assure quality of educational program and research to converge towards international compatibility using the following tools/practices:-



Arid Varsity established Quality Enhancement Cell (QEC) in 2007 aimed to assess, monitor and assure quality of educational program and research to converge towards international compatibility using the following tools/practices:-

- Review quality standards in teaching, learning and research
- Promote public confidence in academics and research outputs of the University
- Develop quality assurance processes and methods of evaluation to affirm that the quality of provision and the standards of awards are being maintained
- Develop procedures for monitoring, evaluation, departmental review of different degree programs, students' and employer's feedback about quality of education etc.

Vision

“To develop the Pir Mehr Ali Shah Arid Agriculture University into a Centre of Excellence by providing an outstanding educational environment with emphasis on arid/ rainfed agriculture and related professions”

Mission

- To achieve excellence in teaching and research through continuous quality enhancement by monitoring and reviewing the progress
- To form a well-organized scientific infrastructure for teaching and high-tech research for the development of dry land regions of the country
- To produce graduates with adequate training for high professional achievements to enhance the scientific vision for the Barani areas

Quality assurance demands not only a standardized mechanism of checks and balances but it also requires an all-embracing training to understand the demands of upcoming challenges in the fields of education and research. The Directorate of Quality Enhancement has played a vital role in creating quality culture at the Arid Varsity. It has got implemented the quality criteria/standards designed by the Higher Education Commission of Pakistan for the quality enhancement/assurance for the HEIs. The DQE has automated feedback system for the evaluation of faculty and courses at the end of every

semester. Significant improvements in the curriculum and the quality of teaching and research have been made through Self-Assessment Program in place. The weaknesses are identified and corrective actions are taken at program and department level. Awareness about the quality in education and research has also been created among the faculty and staff through training sessions. A strict monitoring of synopsis and thesis defense and implementation of anti-plagiarism policy has improved the quality of post-graduate research significantly.

Overall, the Arid Varsity has started to make rapid progress in the academic, industry linkages, International collaborations and research profile due to aggressive reforms and new initiatives being taken under the leadership of Vice Chancellor, (PMAS-AAUR) Prof. Dr Qamar-uz-Zaman, which will take this institution further higher in the upcoming global ranking of the universities.

Achievements

The DQE is striving hard to enhance the quality of education and research. After its establishment, it has made efforts for the quality enhancement of education and research at this University. A summary of salient activities/reforms is as under during the year 2020:-

A. Times Higher Education- Rankings 2020

- Pir Mehr Ali Shah Arid Agriculture University Rawalpindi (PMAS-AAUR) is ranked 12th in the overall and 3rd in Agriculture and Forestry among Pakistani Universities in the Times Higher Education (THE) World Universities Impact Rankings 2020. This reflects the significant impact of Quality Assurance for earning a place for Arid varsity on the global map of higher education.

- The Arid Varsity ranked 8th among all Pakistani Universities (1001+ among the world universities) as per latest Times Higher Education (THE) World Universities Ranking 2020.

To celebrate THE ranking 2020, the first International Seminar on the Times Higher Education World University Rankings was arranged by THE at the University of Lahore. On this auspicious occasion, the Federal Minister, Shafqat Mahmood and Provincial Minister, Raja Yasir Humayun Sarfraz, presented certificate (issued formally by THE) to Prof. Dr Riaz Ahmad, Director Quality Control, PMAS-AAUR.



B. Self-Assessment Program

Nineteen (19) Program Teams, five (05) Self-Assessment Reports, Corrective actions of two (02) departments and two (02) Implementation Plans were approved during the year 2020.

C. Training of the Quality Enhancement Office staff of the Affiliated Institutes

Training of the Quality Enhancement Office staffs of the Institutes Affiliated with the Arid Varsity have been regularly arranged by the Directorate of Quality Enhancement for their Program Team and Assessment Team, for the writing of Self-Assessment Reports Implementation Plan and Corrective Action, Institutional Performance Self Evaluation and Self Program Review.

D. Review of MS/MPhil/Equivalent & PhD Degree Programs

The Directorate of Quality Enhancement, PMAS-AAUR organized the Review of MS/MPhil/Equivalent & PhD Degree Program on 17th–19th Feb, 2020. The purpose of the visit was to review MS/MPhil/Equivalent & PhD Programs to ensuring compliance with the HEC's minimum criteria/guidelines set for these Programs. With the untiring efforts of Directorate of Quality Enhancement, 28 more programs have been allowed to start admissions in relevant field.

E. PhD Thesis

Sixty six (66) PhD Semi-final and seven (07) Final theses were checked and verified for similarity index by DQE using Turnitin before sending them to foreign evaluators during 2020.

F. Research Laboratory Note Books

To improve the Quality research culture in the University, it has been made compulsory for all the Post Graduate Research students to prepare and maintain Research Laboratory note books. In total, 253 laboratory books were registered during the Year 2020.

G. Plagiarism Case

Directorate of Quality Enhancement disposed off two plagiarism cases during the year 2020 and submitted the reports to the Vice Chancellor.

H. Monitoring of Online Classes, Mid-Term and Final-Term Exams

Directorate of Quality Enhancement has successfully monitored online classes as well as mid-term and final-term exams for the semester Fall-2020 during this year.

I. Visit of Accreditation Councils

Directorate of Quality Enhancement organized successful visit of Pakistan Engineering Council (PEC) and National Agriculture Education Accreditation Council (NAEAC) for the monitoring and evaluation of Engineering and Agriculture departments during the year 2020.

J. Participations/Contributions

- i. Professor Dr. Riaz Ahmad, Director Quality Control participated in Webinar held by Punjab Higher Education Commission on 9th October, 2020 on “Quality Enhancement and uplifting of Higher Education”
- ii. Directorate of Quality Enhancement team participated in the seminar regarding “Orientation of Newly admitted Post-Graduate Research Students (Fall Semester-2020)” held on 14th October, 2020 in the university auditorium organized by Directorate of Advanced Studies.



K. Memberships of Associations/Networks

The following memberships of International Bodies have been obtained by Directorate of Quality Enhancement:

- i. Asia Pacific Quality Network (APQN)
- ii. Association of Quality Assurance Agencies of the Islamic World (IQA)
- iii. TUFTS University/ Talloires Network UK



FACULTY DEVELOPMENT

Faculty Development is a continuous phenomenon in order to achieve academic excellence. Therefore, to improve academic programs, the addition of new faculty is a regular feature at the University. The management of the University has great coherence, liaison and coordination with faculty in enhancing quality educational & research opportunities. Resultantly, PMAS-AAUR is producing useful & trained human resource in specialized sectors of Agriculture, Sciences, Information Technology, Management Sciences and Allied Disciplines. The details of regular faculty members in different faculties are as under:-

Sr. #	Name of Faculty/Institute	Lecturer	Assistant Professor	Associate Professor	Professor	Total
1.	Faculty of Crop & Food Sciences	4	19	13	4	40
2.	Faculty of Sciences	4	15	2	4	25
3.	Faculty of Social Sciences	17	08	4	3	32
4.	Faculty of Forestry, Range Management & Wildlife	3	07	2	2	14
5.	Faculty of Veterinary & Animal Sciences	19	10	7	2	38
6.	Faculty of Agricultural Engineering & Technology	4	5	1	0	10
7.	University Institute of Information Technology	6	12	1	0	19
8.	University Institute of Management Sciences	10	6	2	0	18
9.	University Institute of Biochemistry & Biotechnology	1	5	2	2	10
10.	Institute of Food and Nutritional Science	2	2	2	2	8
11.	Institute of Geo information and Earth Observation	2	1	1	0	4
12.	Institute of Soil Science	0	2	3	2	7
Grand Total		72	92	40	21	225

The University has been encouraging and supporting its faculty and researchers to opt for different professional development training programmes both at national and international level. These programmes include short-term trainings and other joint research and development activities with universities and institutions. The faculty and researchers have also been facilitated for presenting their research and publications at national and international fora. The faculty members were encouraged to improve their qualifications and visit universities abroad to update their technical knowledge and transfer technical know how back home from international universities/institutes. During the year, following faculty members/PhD students obtained doctoral/post-doctoral fellowships and short-term trainings in abroad:

TRAINING COURSE/SHORT TERM TRAININGS

S. #	Name of Faculty Member	Department	Name of Course/Training	Name of Country
1.	Dr. Zuhair Hasnain, Assistant Professor	Agronomy	International training workshop on rain water harvesting	China
2.	Dr. Irfan Ali, Lecturer	URF koont	Management practices for kiwi fruit orchard	China

POST DOCTORATE

S. #	Name of Faculty Member	Department	Name of Country
1.	Dr. Safdar Hussain, Superintendent	Registrar Office	China
2.	Dr. Nasir Mukhtar, Assistant Professor	Poultry Science	China

DOCTORATE

S. #	Name of Faculty Member	Department	Name of Country
1.	Hafiz Muhammad Hafeez, Assistant Professor	UIMS	Malaysia
2.	Mr. Munib ullah, Lecturer	Clinical Studies	China
3.	Mr. Nasir Mehmood Minhas, Assistant Professor	UIIT	Sweden
4.	Mr. Muhammad Akhlaq, Lecturer	F&ET	China
5.	Mr. Ghulam Shabbir Khan, Lecturer	Sub Campus Khasab	Pakistan
6.	Ms. Buhsra Hamid, Lecturer	UIIT	Pakistan
7.	Mr. Zeeshan Akbar, Lecturer	Veterinary Biomedical Science	Australia
8.	Ms. Sumaira Kiyani, Lecturer	Education	China
9.	Ms. Farkhanda Qamar, Lecturer	UIIT	Pakistan
10.	Ms. Sumera Saleem, Lecturer	Economics & Agri. Economics	China
11.	Mr. Muhammad Shoaib, Lecturer	Parasitology & Microbiology	Azerbaijan
12.	Ms. Mahwish Zeeshan, Lecturer	Anthropology	Pakistan
13.	Mr. Irfan Ullah Munir, Assistant Professor	UIMS	China
14.	Mr. zia Ur Rehman, Lecturer	UIMS	Malaysia
15.	Ms. Ainee rubab	Humanities	Pakistan
16.	Ms. Sidra Shehzadi, Lecturer	UIMS	Malaysia
17.	Mr. Nasir Mehmood, Lecturer	Economics	Germany

18.	Mr. Mujeeb Ur Rehman Sohoo, Lecturer	Veterinary Biomedical Sciences	Pakistan
19.	Ms. Sumair Hassan, Lecturer	Veterinary Biomedical Sciences	Pakistan
20.	Mr. Shuja Ilyas, Assistant Professor	UIMS	Pakistan
21.	Mr. Muhammad Shoaib, Lecturer	Parasitology & Microbiology	Azerbaijan
22.	Ms. Sumaira Kayani, Lecturer	Education	China
23.	Hafiz Muhammad Shakeel, Lecturer	Clinical Studies	South Korea
24.	Mr. Nasir Mehmood Minhas, Assistant Professor	UIIT	Sweden
25.	Mr. Ghulam Shabbir Khan, Lecturer	Sub campus Khushab	Pakistan
26.	Mr. Muhammad Akhlaq, Lecturer	FAE&T	China
27.	Ms. Farkhanda Qamar, Lecturer	UIIT	Pakistan
28.	Mr. Munibullah, Lecturer	Clinical Studies	China
29.	Ms. Bushra Hamid, Lecturer	UIIT	Pakistan
30.	Ms. Sumera Saleem, Lecturer	Economics	China
31.	Ms. Beenish Shakir, Lecturer	Mathematics & Statistics	Pakistan
32.	Mr. Nasir ali, Lecturer	Mathematics & Statistics	Pakistan

BASIC ENROLLMENT

The detail of Student's enrollment is as under:

Sr. No	Name of Degree	2016	2017	2018	2019	2020
1.	Undergraduates	6626	7786	8631	8561	8611
2.	Post Graduates	4093	4236	3351	2243	1725
3.	Doctoral	366	425	392	308	232
TOTAL		11085	12447	12374	11112	12588

GENDER-WISE DETAIL

Sr. No.	Program	Male	Female	Total
1.	Bachelors	5678	2933	8611
2.	Masters	317	769	1086
3.	M.Phil/MS (Hons)/MS	358	281	639
4.	Ph.D	149	83	232
TOTAL		6502	4066	12588

EMPLOYABILITY

Directorate of Financial Assistance & University Advancement entrusted the responsibility to provide an interactive platform to closely link Alumni with their Alma Mater and fellow graduates. In order to achieve this goal, this directorate has started compilation of Alumni Database since 2006.

Currently, database consists of over 25,741 registered graduates of different faculties and institutes. 2607 students have been registered in year 2020. Directorate of Financial Assistance & University Advancement regularly shares jobs (published in print & electronic media) and scholarship information with University Alumni and Final Semester Students.

FACULTY-STUDENT RATIO

The faculty-students ratio is Approximately 1: 30.

UNIVERSITY BUILDING ECONOMIES

UNIVERSITY-INDUSTRY LINKAGE

The University is in the process of developing linkage with the industrial / farming community. It has developed linkage with following organizations at National and International level:-

1. Barani Area Research Institute, Chakwal.
2. Fauji Fertilizer Company, Multan.
3. Alfalah Bank, Rawalpindi
4. Agency for Barani Area Development, Rawalpindi.
5. Pakistan Council for Scientific & Industrial Research, Lahore.
6. Ali Akbar Group of Pesticides.
7. Syngenta Pakistan Pvt. Ltd.
8. FMC Pvt. Ltd.
9. Nestle Milk Pack Pakistan.
10. Nuclear Institute for Biotechnology & Genetic Engineering Faislabad.
11. Arqam Foods.
12. Fuji Cereals.
13. Shezan Pak. Ltd. Hattar, Rawalpindi.
14. Vita Bread & Dawn Bread, Rawalpindi,
15. Haleeb, Pepsi Cola (Pvt) Ltd.

NEW INITIATIVES OF THE UNIVERSITY

PMAS-Arid Agriculture University Rawalpindi is striving hard to provide a diversified academic environment for Pothwar youth looking towards joining hands with modern world for exportable surplus. University administration is endeavouring to bring about a tangible change with a view to equip the graduates for self-employment thereby making a positive contribution in national development in addition to providing livelihood for themselves and the poor farming community of the region. The university has embarked upon new initiatives and projects tapping need oriented vision for the Pothwar.

Establishment of University Green Office

The University Syndicate in its 80th meeting held on 30.06.2018, approved to establish the University Green Office at PMAS-Arid Agriculture University Rawalpindi. The University Green Office was established under the auspices of Directorate of Planning & Development to boost up the sustainability practices in the Campus. The Green Office of PMAS-AAUR is the

Establishment of Green Office Nursery

State of the Art Integrated Waste Management Station

ZERO SOLID WASTE CAMPUS
INTEGRATED WASTE MANAGEMENT STATION

A. PRODUCTS FROM DISCOMPOSTABLE WASTE
 1. COMPOST FOR AGRICULTURE
 2. COMPOST FOR FERTILIZER
 3. COMPOST FOR FERTILIZER

B. INCINERATION OF COMBUSTIBLE WASTE
 1. COMPOST FOR FERTILIZER
 2. COMPOST FOR FERTILIZER

C. PICTURE PLAN
 1. COMPOST FOR FERTILIZER
 2. COMPOST FOR FERTILIZER
 3. COMPOST FOR FERTILIZER

WASTE MANAGEMENT SYSTEM
 PMS - And Agriculture University Rawalpindi

With increase in population in the country, the demand for clean drinking water has increased significantly. However, due to burgeoning environmental population, people are being confronted with many water borne diseases and the problem is increasing day by day. The present Government is determined to provide such basic common facilities to common people for better tomorrow and bright, healthy future. Keeping above in view, the university established the Clean Drinking Water Facility for the students and staff of the University.

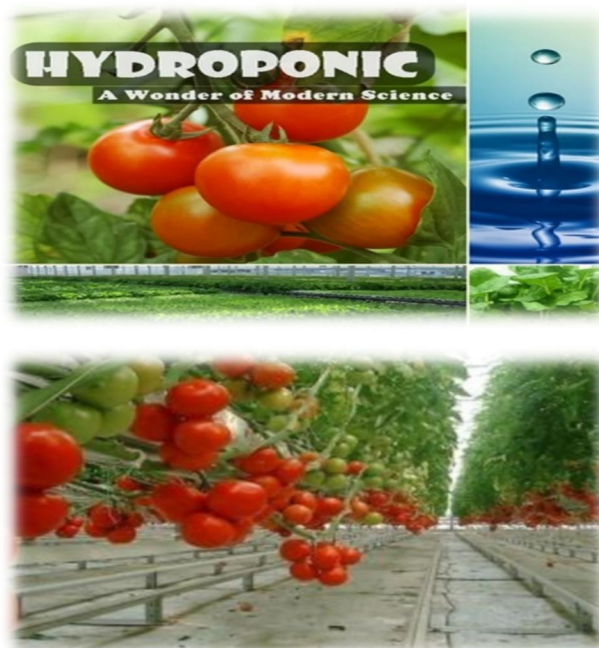
Rain Water Harvesting Model for Small Farmers

Taking advantage of the short spell of monsoon rains, the University has converted its research area into a model farm with provision for collecting summer rains into small reservoirs through which the water saved amounts to 45 acre-foot which is sufficient for irrigation of its entire farm spreading over 250 acres using high efficiency irrigation system operated through solar energy. Similarly, for urban areas a rainwater harvesting model of rooftops of university campus has also been developed and the water stored is enough to irrigate experimental plots on acreage at the campus. This effort presents an excellent model for kitchen gardening through rainwater harvesting in urban areas besides minimizing street flooding and resulting discomforts in civic life during rainy season.



Low Cost Indigenous Hydroponics System

PMAS-Arid Agriculture University is successfully operating a state-of-the-art hydroponic vegetable production facility on commercial basis where certified, spray and disease free vegetables, salads and herbs are being grown and marketed inland and off shore. To lessen the input costs and make adaptable by the small farmers, the university faculty is engaged in development of simplified and low cost hydroponics technology. Objectives of this effort also include provision of inputs such as nursery, nutrients and growing substrates by the University at minimum cost for popularization of the technology at masses level.



In addition to above, the University erected the twelve (12) Hydroponic Units (each on 02 Kanals) at various locations of District Punjab through ADP funded project titled “Testing Indigenous Hydroponic Greenhouses for Vegetable Growing at Various Locations in Punjab”.

PATENTS

The faculty of the University is doing exclusive research and succeeded in applying the patents for the outcomes of their research activities that are beneficial for the local farming community in order to increase the Agriculture and Livestock production in the Barani areas of the region.

S #	Product Name	Ingredients	Effects/Benefits
1.	A polyherbal composition for cooling, refrigerant, antioxidant and appetizer By Prof. Dr. Azra Khanum	Cichorium intybus, Foeniculum vulgare, Corchorus depressus, Citrullus lanatus, Cucumis melo and C. sativus	Cooling, diuretic and refrigerant tonic that can be used for treating jaundice, lack of appetite and burning sensation of palm and soles
2.	Six Transgenic Wheat varieties with Bacterial disease resistant genes By Prof. Dr. Kasusar Nawaz Shah	Six Wheat varieties viz. Chakwal-97, Inqulab-91, GA-2002, Aquab-2002, Tartara-2000 and Punjnanad-2000 with Xa21 gene (a gene produce inhibitor like protein that act as broad spectrum Anti-bacterial protein)	Although bacterial diseases are less destructive for wheat in Pakistan as compare to fungal diseases. But this product and procedure will help in production of Fungal disease resistant wheat in future (project under progress). Similarly, these transgenic wheat varieties can enhance yield up to 20% where bacterial diseases cause a significant loss in wheat yield.
3	Integrated solid waste management system By Prof. Dr. Rai Niaz Ahmad	Machine consists of outer cylinder, inner cylinder, pressure gage, boiler, food hopper, food outlet, water inlet, water outlet, solid waste feeder, digester, catalyst shower, moisture meter, drainage pipe, gas extraction pipe	Production of poultry feed, biogas and valueable compost for organic gardening.
4	Indegenour hydroponic system By Prof. Dr. Rai Niaz Ahmad	Unit consists of greenshed, cooling/ heating system, drip irrigation, fertigation system, drainage and detectors for different controlled parameters	Production of quality vegetables likes tomatoes, cherry tomatoes, pepper, cucumber etc with pesticide residue free and high shelf life, several fold production and affordable to local farming community to produce out of season crops.
5	Water seed drill By Prof. Dr. Rai Niaz Ahmad	Main frame, water tank, water distribution pipes, water nozzles and control valve.	Provision of water to soil at the time of seed sowing in order to facilitate seed germination under moisture stress conditions.

INTERNSHIP AND PLACEMENT OFFICE

Vertical and horizontal expansion of academic programs, subsequent increased gross enrollment and tangible improvement in academic and research standards necessitated a dedicated entity in the form of University Placement Bureau (UPB, Estd. 2006) to facilitate the students/graduates in attainment of scholarships, internships and jobs. In 2009, Higher Education Commission of Pakistan also took this three pronged policy in hand and desired public and private universities to establish their resource and consultation centers for graduates' welfare and university advancement. Thus, UPB was renamed as Students Resource Centre (SRC) in 2009, to pave the linkage between the graduates, prospective employers and scholarship benefactor agencies. Prompt dissemination of information regarding jobs, scholarships, skill enhancement training facilities, workshops, seminars, events/activities at the campus etc. to the registered graduates through electronic mail; were the regular feature of Students Resource Centre. The University has revamped this chapter and transformed in to Directorate of Financial Assistance & University Advancement in 2014.

Directorate of Financial Assistance and University Advancement is a focal point for all types of internal and external scholarships availed by the students of University. The centre strives to ensure the transparency in award of scholarships right from collection of applications to disbursement of funds. Directorate of Financial Assistance and University Advancement also facilitates various entities offering scholarships independently in verification and performance appraisal of their scholars at University.

Directorate of Financial Assistance & University Advancement regularly share jobs (published in print & electronic media) with University Alumni and Final Semester's Students. The communication regarding career counseling and training workshops have been carried out through University Website, Notice Boards, electronic Mail and Job Portal.

ACTIVITIES OF DIRECTORATE OF FINANCIAL ASSISTANCE & UNIVERSITY ADVANCEMENT

Different scholarships offered by directorate are as follows:

Sr. #.	Name of Scholarship	Scholarship Eligibility Criteria
1	Ehsaas Undergraduate Scholarship	Offered for Undergraduate needy students
2	PEEF (Punjab Educational Endowment Fund)	Offered for Undergraduate/Postgraduate students having Punjab domicile
3	Vice Chancellor Talent Scholarship	Offered at subject/discipline level in each semester
4	Pakistan Bait-ul-Mal Scholarship Program	Offered for the deserving students of University

5	HEC Need Based Scholarship	Offered for all Degree Programs
6	Gurmani Foundation Scholarship	Offered for students of Southern Punjab
7	Dr. Sadiq Foundation Scholarship	Offered for Veterinary students
8	National Educational Scholarship for Talent (NEST)	Offered for needy Postgraduate students of Remote Areas
9	Diya Pakistan Scholarship	Offered for needy students
10	Pakistan Scottish Scholarship Scheme	Offered only for female students
11	Award of Scholarships for Students from Gwadar	Offered for the Undergraduate students belonging to Gwadar
12	Prime Minister's Tuition Fee Scholarship	Offered for Ph.D students from less Developed Areas
13	OIC Common Wealth Scholarship	Offered for Foreign students
14	Higher Education Scholarship for Students of Baluchistan & FATA	Offered for students belonging to Baluchistan & FATA
15	National Bank of Pakistan Loan Scheme	Offered for needy students

SUMMARY OF SCHOLARSHIPS:

2142 scholarships have been awarded to the university students and processed in 2020.

Followings are the details:-

Sr. #.	Name of Scholarship	Scholarships Awarded
1	Punjab Educational Endowment Fund Scholarship	89
2	Vice Chancellor Talent Scholarship	566
3	Pakistan Bait-ul-Mal Scholarship Program	238
4	HEC Need Based Scholarship	507
5	EHSAAS Undergraduate Scholarship	583
6	USAID Funded Merit & Need Based Scholarship Program	3
7	Gurmani Foundation Scholarship	36
8	Dr. Sadiq Foundation Scholarship	12
9	National Educational Scholarship for Talent (NEST)	12
10	Diya Pakistan Scholarship	4
11	Pakistan Scottish Scholarship Scheme	6
12	Award of Scholarship to the Students from Gwadar	3
13	HEC Indigenous Ph.D 5000 Fellowship Program	35
14	OIC Common Wealth Scholarship	9
15	Higher Education Scholarship for Students of Baluchistan & FATA	1
16	Directorate of Education - Gilgit Baltistan Scholarship	38
Total		2142

COMPARISON OF SCHOLARSHIPS FROM 2016-2020

Years	2016	2017	2018	2019	2020
Scholarships Awarded	1279	2787	2454	1991	2142

ALUMINI REGISTRATION:

Directorate of Financial Assistance & University Advancement is entrusted the responsibility to provide an interactive platform to closely link Alumni with their Alma Mater and fellow graduates. In order to achieve this goal, this directorate has started compilation of Alumni Database since 2006. Currently, database consists of over 25,741 registered graduates of different faculties and institutes. 2607 students have been registered in year 2020.

Directorate of Financial Assistance & University Advancement regularly shares jobs (published in print & electronic media) and scholarship information with University Alumni and Final Semester Students.

ACTIVITIES RELATED TO SCHOLARSHIP SELECTION

Directorate of Financial Assistance & University Advancement has conducted the following Institutional Scholarship Award Committees (ISAC) for selection of applicants during the Year 2020:-

Sr. #	Details	Month-Year
i.	ISAC of PEEF Scholarship Program	March-2020
ii.	ISAC of Pakistan Bait-ul-Mal Scholarship Program	March-2020
iii.	ISAC of Ehsaas Undergraduate Scholarship Phase-I	April-2020
iv.	ISAC of HEC Need Based Scholarship Program	November-2020

This Directorate also organizes different Seminars/Interactive sessions and Cheque Distribution Ceremonies. Followings are the details:-

Sr. #.	Seminars/ Interactive Sessions and Cheque Distribution Ceremonies	Month-Year
i.	Seminar Regarding Study & Research Opportunities in Germany	January-2020
ii.	USAID Scholars along with team of Directorate of Financial Assistance attended International Women's Day in HEC Islamabad	March-2020
iii.	PEEF Scholarship Cards Distribution Ceremony	March-2020
iv.	Interactive Session with Scholarship Awardees and monitoring visit by PEEF Officials	September-2020
v.	Monitoring visit by HEC officials for Prime Minister's National Laptop Scheme	September-2020

UNIVERSITY GREEN OFFICE

The University Syndicate in its 80th meeting held on 30.06.2018, approved to establish the University Green Office at PMAS-Arid Agriculture University Rawalpindi. The University Green Office was established under the auspices of Directorate of Planning & Development to boost up the sustainability practices in the Campus.

The Green Office of PMAS-AAUR is the platform for students and employees of the University where sustainable ideas are shaped, plans are put together and projects are launched, all with the objective to make the university more sustainable. This office raises awareness among students and staff about the sustainable achievements and ambitions of the PMAS-AAUR.

Major Objectives are as under:

- ✦ Reduce the consumption of natural resources in offices of University.
- ✦ Planning and partnerships to achieve environmental goals. Strategic Planning and proper implementation of the university's master plan in issues such as traffic management, energy and green buildings.
- ✦ Policy making for energy efficiency and use of clean and environmentally friendly technologies.
- ✦ Solid Waste Management with an emphasis on source sorting and reduction of waste production by declaring the campus "Zero solid waste campus".
- ✦ Monitoring the activities of the various units of the University in order to follow principles of Green Management.
- ✦ Aligning environmental activities in different areas in order to prevent parallel tasks.
- ✦ Taking incentive policies for the participants in the Green Management of the University.
- ✦ Promoting the principles of environmental education at the university level and society.
- ✦ Engagement and participation in environmental policy and planning in twin cities of Rawalpindi & Islamabad.
- ✦ Encouraging and support of environmental NGOs (NGO) and environmental organizations in the University.

ACTIVITIES OF UNIVERSITY GREEN OFFICE

1. Tree Plantation Campaigns

The environmental pollution and temperature is increasing every day due to highest deforestation rate in the country. Trees can serve as green shelter during extreme climate conditions thus making earth cooler for animal and human life. It provides cleaner air to breath. Plants to earth are like lungs to the human body. Tree plantation campaigns were launched by University Green Office in 2020 at PMAS-Arid Agriculture University Rawalpindi. In these Campaigns, Deans, Directors, Faculty Members and Students were participated for the purpose of planting the tree.



2. Free Plant Distribution by Green Office Nursery

A piece of land has been provided by the University in 2018 wherein, a Green Office Nursery was established under University Green Office. During the year 2020, almost 20,000 plants were distributed free of cost to the students, faculty and local community to strengthen the Prime Minister's Campaign "Plant for Pakistan."

 پیر مہر علی شاہ بارانی ورگی یونیورسٹی راولپنڈی گرین آفس نرسری فہرست موجودہ پودا جات 			
نام پودہ	نمبر شمار	نام پودہ	نمبر شمار
اپل اپل	13	سفیدہ	1
جیک رنڈا	14	چیر پائکن	2
ریشا	15	چنار	3
امرد	16	کپنار	4
جامن	17	سلو راک	5
انگور (3 اقسام)	18	ارجن	6
کالی مرچ	19	املاس	7
ناشپاتی	20	پائدر	8
گلاب	21	شیشم	10
چنبیلی	22	سکدر	9
راست کی رانی	23	شکھ چین	11
سوبا چننا	24	برس	12
دن کارلجہ	25		

3. Participation in UI GreenMetrics World Universities Ranking

The UI GreenMetric World University Ranking is an initiative of University of Indonesia which is being launched in 2010. The aim of this ranking is to provide the result of online survey regarding the current condition and policies related to Green Campus and Sustainability in the Universities



all over the world. It is expected that by drawing the attention of university leaders and stakeholders, more attention will be given to Education & Research, Infrastructure Development, Energy & Climate, Waste Management/Treatment, Water Conservation/Recycling and Green Transportation. It is believed that the ranking is useful to the university leaders in their efforts to put in place eco-friendly policies and manage behavioral change among the academic community at their respective institutions.

Thousands of universities around the world are invited to take part in the International Ranking. These universities include many which already have a presence in other World Universities Rankings, such as THES-QS, Webometrics, and Shanghai Jiao Tong ranking. Universities that wish to participate are asked to provide numeric data on a number of criteria that can give a picture of their commitment to the greening of their campus and putting in place environmentally friendly policies that support sustainability. The criteria include such baseline information as the size of the university, spatially and in terms of population, the campus location



and the amount of green space; and also information on energy use, transport, water use and recycling and waste treatment. In addition, it will ask about efforts being made by the institution towards establishing green policies and management.

Pir Mehr Ali Shah Arid Agriculture University Rawalpindi has been ranked 1st in all over the Pakistan, and 201 among all 912 participating Universities of the world as per latest UI Green Metric World Universities ranking 2020. UI Green Metric University Sustainability Ranking is a world university ranking to assess and compare campus sustainability efforts. The criteria for the ranking of Universities includes campus setting and infrastructure, energy and climate change, waste, water, transportation and education. The Arid Varsity has been ranked as 201 among the top 912 universities of the world with the total score of 6775 as per UI GreenMetric World Universities ranking.

STRENGTHENING PHYSICAL INFRASTRUCTURE

DEVELOPMENT PROJECTS (LABORATORIES, LIBRARIES, ETC.)

Developmental projects play very important role in uplifting and growth of an institution. The University is continuously taking initiatives for improvement the current status through different development projects. Twenty four development projects have already been completed. Currently the University is implementing four such projects (Rs. 3962.535 million) while new proposals were also submitted to HEC and Punjab Government in next year.

The University carried out various plans, formulated strategies & putting in strenuous efforts to enhance the financial resources from avenues outside PMAS-AAUR. Funds were also fetched from the Higher Education Commission of Pakistan under different schemes for establishing/strengthening new departments at PMAS-AAUR. These efforts will create more research facilities for the students and the faculty members.

The funds amounting to Rs. 1439.775 million have been fetched from Higher Education Commission for the project titled



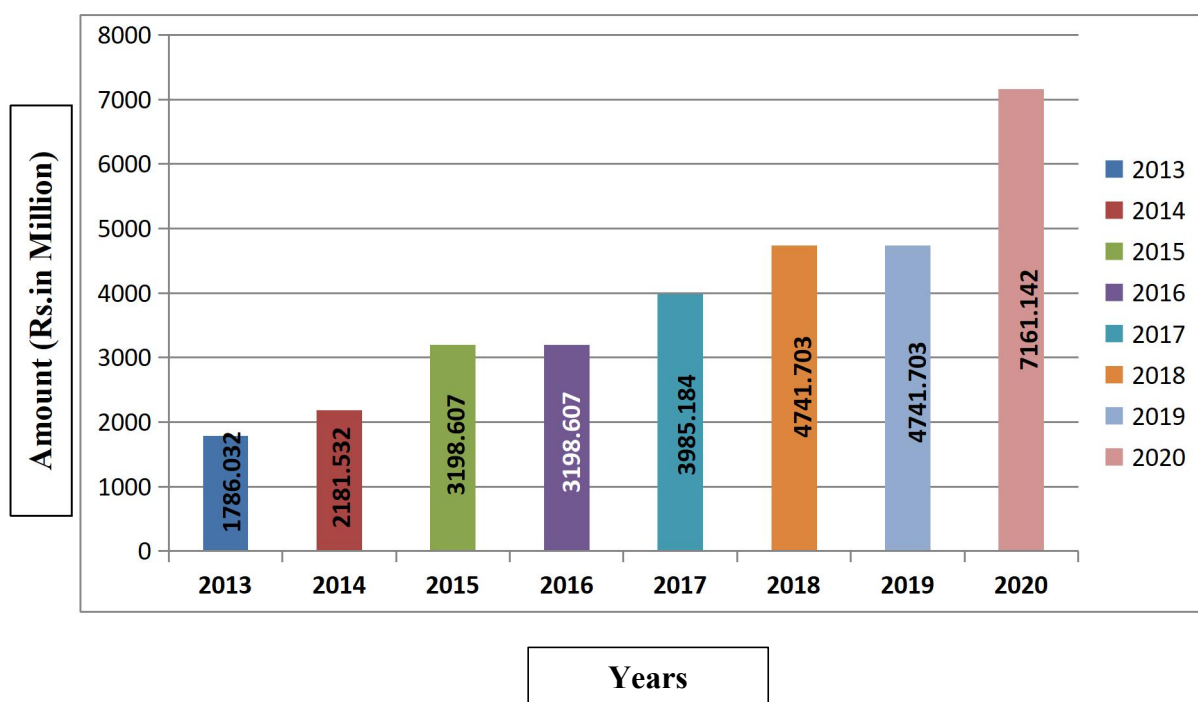
“Establishment of National Center of Industrial Biotechnology for Pilot Manufacturing of Bioproducts Using Synthetic Biology and Metabolic Engineering Technologies”.



Another mega project titled **“Pilot Project for Data Driven Smart Decision Platform for Increased Agriculture Productivity”** amounting to Rs. 979.664 million is approved by Higher Education Commission during 2020.



GROWTH IN DEVELOPMENT FUNDING



Development Projects : i) COMPLETED

Name of the Project	Total Cost Rs. In Million
Development of Academic Facilities at UAAR	49.740
Establishment of Centre for Information Technology	27.961
Strengthening of Higher Education Facilities at UAAR	39.645
Establishment of Centralized Instrumentation Centre	37.108
Establishment of Department of Range Management & Forestry	35.972
Establishment of Fiber Optic Backbone & Campus Wide Local Area Network	25.300
Production of Pathogen Free Horticultural Plants	35.884
Construction of Hostel for Visiting Faculty	24.438
Construction of Hostel for Students	36.436
Strengthening of Department of Soil Science & SWC	33.580
Strengthening of Centre for Information Technology	34.346
Strengthening of Department of PBG	31.783
Strengthening of Sports Facilities at UAAR	38.885
Strengthening of Department of Entomology	34.783
Establishment of R&D Facility in Hydroponic	52.546
Strengthening of Department of Wildlife Management	36.141
Strengthening/ Up gradation of Library Facilities at PMAS-AAUR	41.021
Establishment of University Institute of Biochemistry & Biotechnology	358.619
Establishment of Faculty of Veterinary & Animal Sciences	468.620
Development On Farm Students Research Facilities	343.224
The Establishment of Pak-Korea Capacity Building Center for Agriculture & Livestock Technology at PMAS-AAUR	395.500
Establishment of Sub Campus of PMAS-Arid Agriculture University at Attock	188.260
Testing Indigenous Hydroponic Greenhouses for Vegetable Growing at Various Locations in Punjab	77.571
Strengthening of Agricultural Engineering & Women Development Programs at PMAS-AAUR	751.244
Total (Rs. in Million)	3198.607

ii) ONGOING

Development Projects (On-Going)	Cost (million Rs.)
Establishment of Sub Campus of PMAS-Arid Agriculture University at Attock (Phase-II)	786.577
Establishment of National Center for Livestock Breeding, Genetics & Genomics (NCLBG&G) at PMAS-AAUR	756.519
Establishment of National Center of Industrial Biotechnology for Pilot Manufacturing of Bioproducts Using Synthetic Biology and Metabolic Engineering Technologies	1439.775
Pilot Project for Data Driven Smart Decision Platform for Increased Agriculture Productivity	979.664
Total (Rs. in Million)	3962.535

RESEARCH EQUIPMENT

Research being an integral part of projects is built in the PC-I while planning project proposals. The state of art equipment is up and running at project facilities. These include much high voltage equipment at University Research Laboratories.

The University has a unique facility having Central Research Laboratory in which postgraduate students and faculty are busy for the accomplishment of their research activities. This facility has several sophisticated research equipments being exclusively used for this purpose. The research projects being executed through this facility/laboratory have generated a lot of research findings in the area of Agriculture, Sciences and Forestry. The Laboratory has also produced a number of skilled and trained manpower in the shape of graduate students who by taking up various positions in Government and non-governmental organizations, could significantly contribute towards the over objective of national economy. The major equipments available in the Central Research Laboratory are as under:

Name of Equipment	Make/Model	Main Specification
Gas Chromatograph	GC-NU74 Agilent Technology Singapore	Includes Special Configuration LAN Rs-232 interfaces and 7683 interface, detector EPC Board 6tem ramps, 6 heated zones plus oven, 2 analog out
HPLC	SCL-10A, LC-10NT CTO-10AS, SPD-10A, SIL-10AD Shimadzu Japan	Binary pump with automatic variable piston stroke Delay volume 180-482ul <0.3% RSD setpoints from 0.001 to 5.0 ml/min in 0.001 ml/min 0-40MPa (0-400bar, 0-5880Psl)
DNA Sequencer	CEQ-800, Beckman Coulter Switzerland	CEQ Genetic Analysis System 100-240V, 5A, 50/60HZ A fully automated high throughput sequencing and fragment analysis system
Total Organic Carbon Analyzer	ASI-V, VCPH, TNM-1 SSM-5000A Shimadzu Japan	High temperature catalytic combustion from 680C ⁰ to 950C ⁰ Method is EPQA4151 Standard methods 5310B, dIN 38409113
Freeze Drier	CRYODOS-50 Telstar Spain	Air cooled Refrigerator 0.37KW (1/2 HP). CFC and H-CFC free refrigerant without vacuum pump ice condenser temperature appro. -55C ⁰
Ultra Centrifuge	Optima-100P. US Beckman Coulter Switzerland	CE Mark Speeds to 100,000 Rpm g. Forces to 802,400g vacuum-encased, frequency controlled direct drive (induction)
Flame Photometer	Jenway-PFP-7	
Deionizer	SG Hamburg	Microprocessor controlled purity monitor. Providing digital resistively readings temperature to 25C
Precision Analytical Balance	(i) Jex 120 Japan (ii) BL-210S Sortorious Germany	(i) Capacity 120g readability 0.1 mg power (ii) Capacity 210g readability 0.1mg power 220VAC 50/60HZ
Aluminum Block Heater	UDK42/26 Italy	Digital Microprocessor Controlled Temperature Settings upto 450C ⁰ built in timer with capacity 42 digestion tubes. Tubes capacity 100 ml operated voltage 220VAC
Oven	(i) UE-600 Memmert Germany (ii) 100-800 Memmert Germany	Digital Microprocessor temperature range up to 300C ⁰ capacity -256 Ltr
Porometer	AP-4 IRMECO England	Portable, microprocessor controlled. For measurement of stomatal gas flow Measurement Range 0-40S-Cm-1(resistance) 0.2-30mmS-1 (Conductance)
IRGA/Plant Photosynthesis Analyzer	LCA-4 IRMECO England	Different measurements, non-dispersive infra-red gas analyzer Range 0.3000ppm frequency 80HZ Source Life 10,000 Hours
Confocal Microscope	TSI Sr. No. 291300105 Canada	Two laser (i) Red (635) (ii) Green (532), Two Micron-Optical, Resolution using one micton

STRENGTHENING TECHNOLOGICAL INFRASTRUCTURE

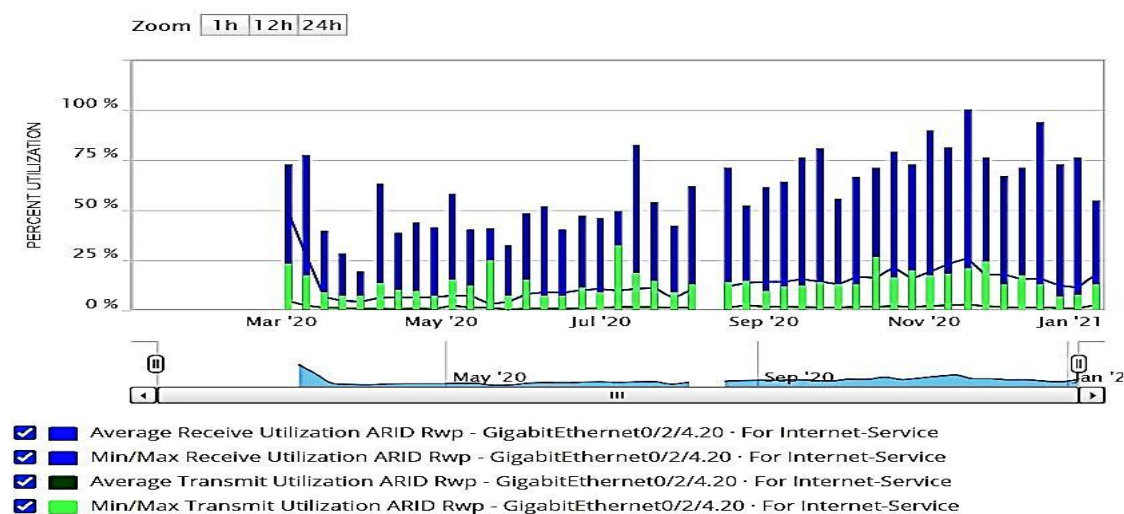
Digital Library

Digital Library 24/7 has easy access in our Network internet protocols (IPs), Usage data of digital library has managed by Pakistan Educational Research Network HEC.

Update on PERN

Pakistan Education and Research Network, we are connected with HEC PERN2 with bandwidth of 270MB, campus network (24/7 Access), server virtualization management, load balancing, reliable, scalable, environmental protection, wireless network facility (Boys and Girls hostels) and digital library throughout the university network.

Network Availability in PMAS-AAUR Graph



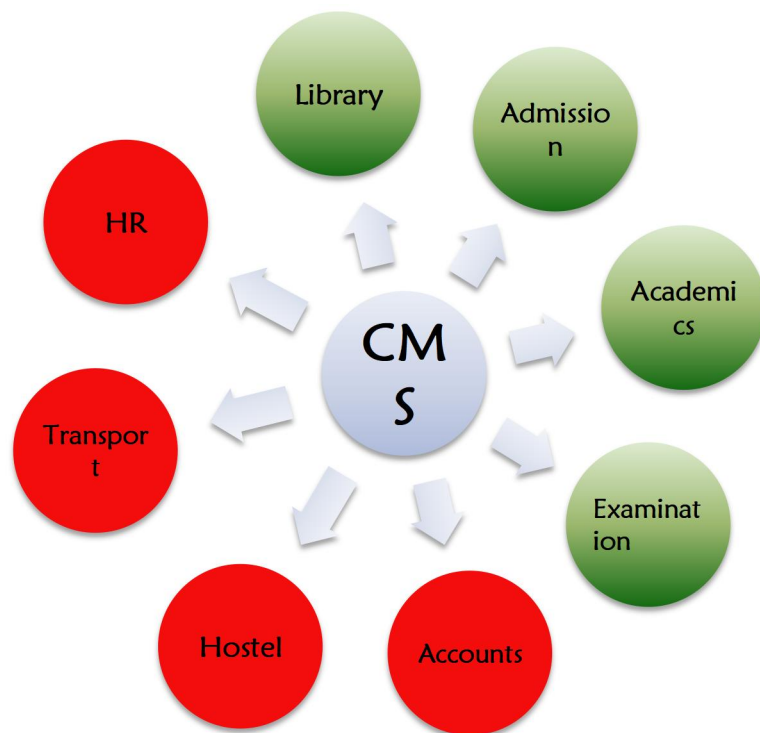
Video Conferencing System

Video conferencing equipments and software installed at conference room University Institute of Information Technology (UIIT). It's set up consist of HD video cam, premium audio system, recording facility, presentations equipments and sound proofed room with live IP address that is connected with 24/7 online support meeting capabilities and competent compelling team.

Campus Management Solution (CMS)

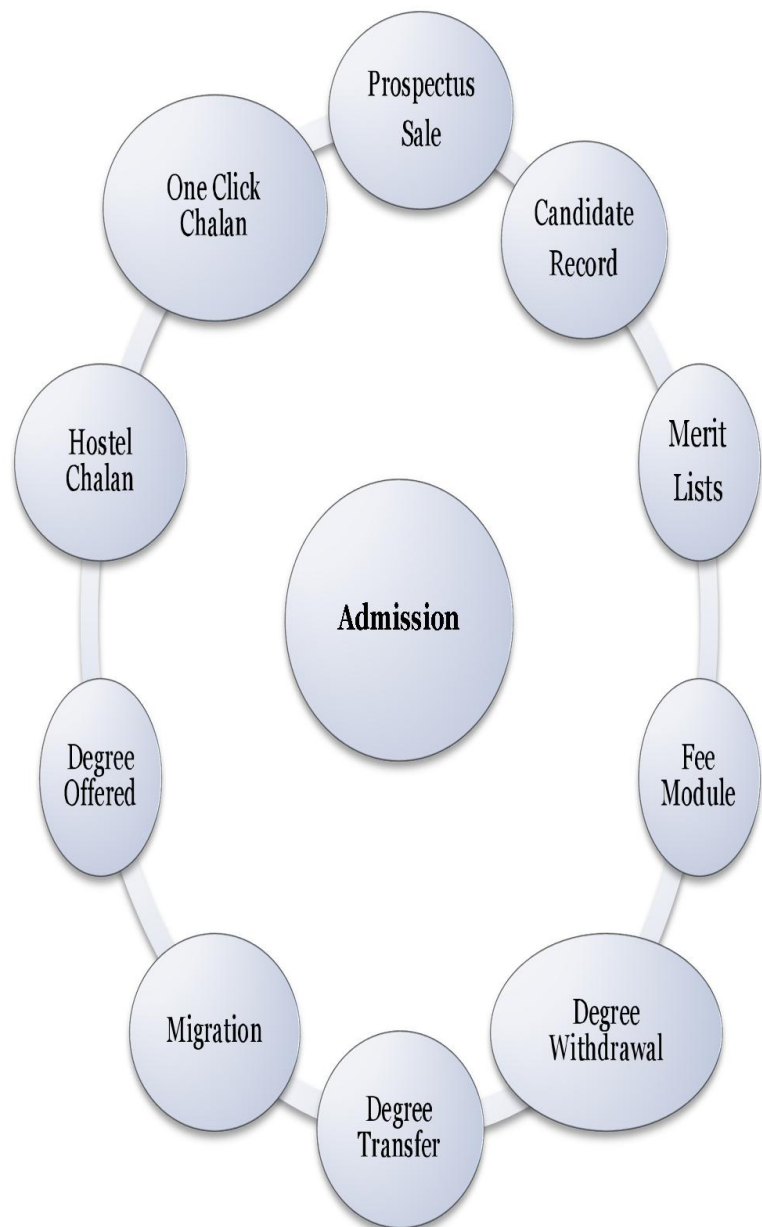
- ☞ Campus Management Solution is the most effective tool that has automated the management functionality of this university by streamlining some of the processes involved.
- ☞ It has reduced the manual handling of processes and thus helps in effective and accurate outcomes.
- ☞ CMS also helps in maintaining transparency in admissions and accounts processes and reduces administrative overhead by providing powerful services.
- ☞ It helps in effective decision making of authorities by generating reports from different aspects.

CMS-A Glance



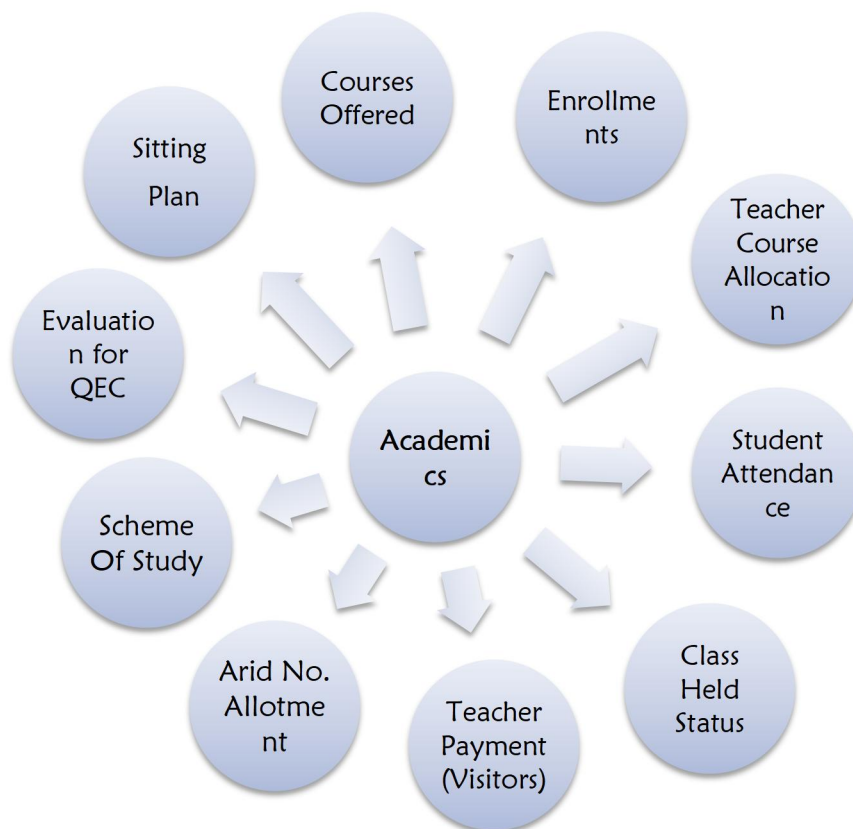
Admission-a glance

- Prospectus Sale Report
- Date wise Candidate entry report
- Tracking Of Merit(Waiting Merit List)
- Total vs Vacant Seats Information Report
- Fee Vouchers Generated through system
- Banks Uses Fee Module
- Fee Reports in different formats
- Bank Departments and Treasure Office Reconcile fee Data
- Different Fee Structures
- Fee Installments
- Quota System
- Admission Scroll



Academics-A Glance

- ☞ Student's University Card
- ☞ GS-10/ Gs-12 Reports in different formats
- ☞ Attendance/Enrollment Status online at university network
- ☞ Teacher Evaluation Reports (Graphical)for QEC
- ☞ Section Assignments
- ☞ Students Attendance Sheets
- ☞ Attendance shortage Attendance Feeding status
- ☞ Student Profile

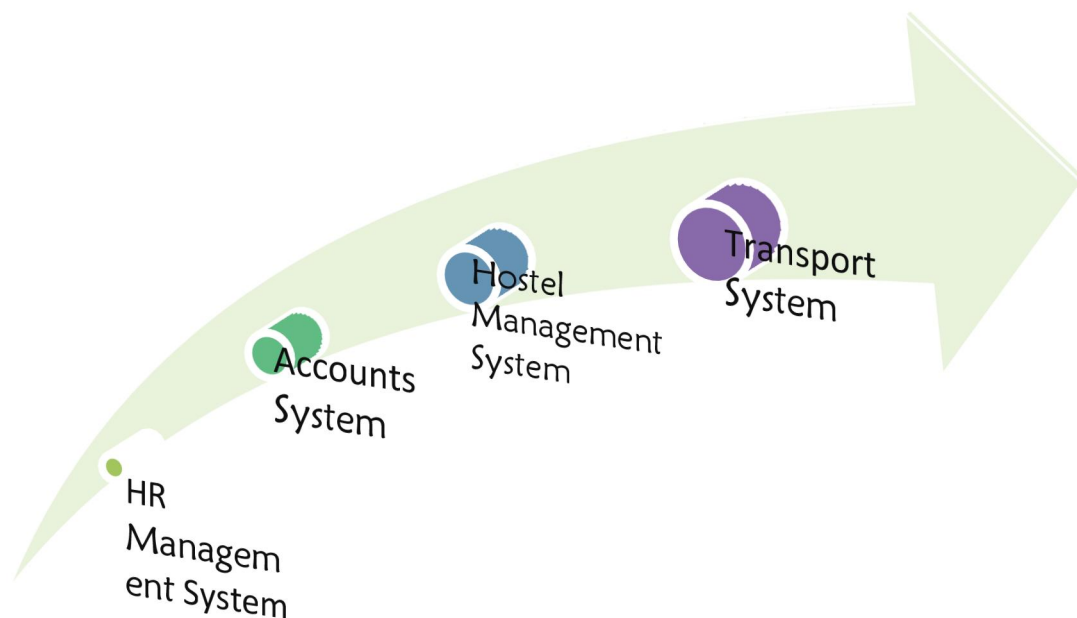


Examination-a glance

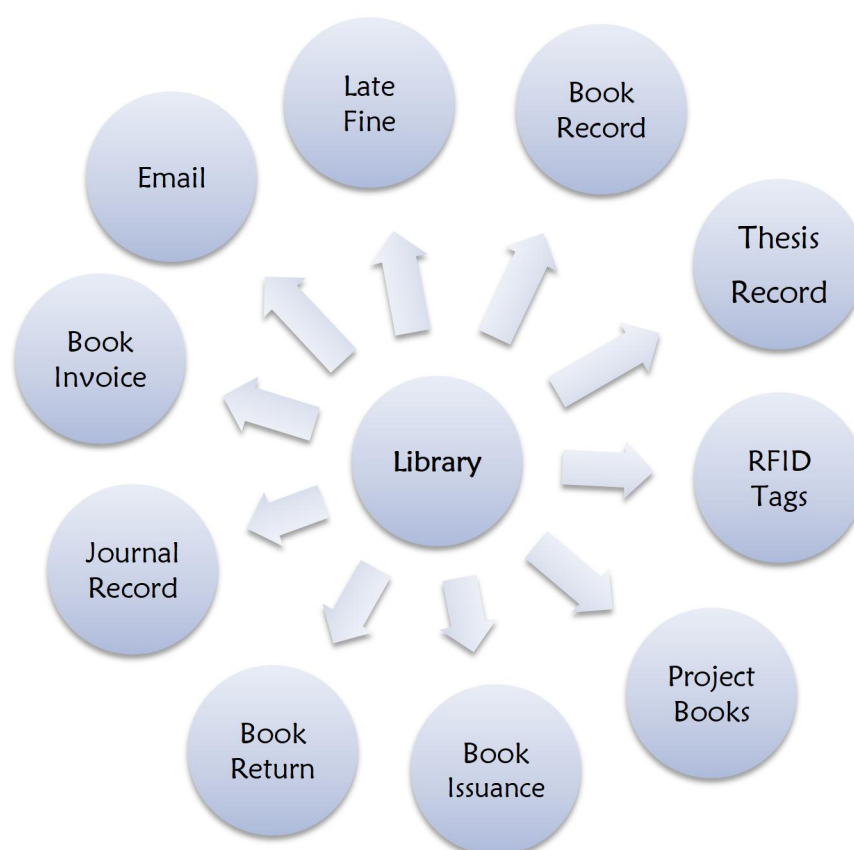
- Calculation of GPA, CGPA, Quality Points, Grades & All others Report Cards required to Controller Office and any other departments.
- Exam Attendance Sheet
- Award List
 - Mid Result
 - Final Result
- Transcripts
- Medal Lists
- Semester Result Notifications
- Final Result Notifications
- Provisional Certificate
- Intermediate Transcript with Picture
- Degrees Printing
- Graduate Directory



Future Enhancement



Library-a glance



WEB PORTAL:

The web portal consist of different modules, some are given below:

Scholarships: University offers different scholarship programs (e.g. HEC, USAID, PEEF, and NEST etc.) for the deserving students. Web portal facilitates those students to apply online for these scholarship programs.

Alumni Junction: Graduates of different faculties can register through this forum for development of friendly and business relationships.

Alumni Job info Portal: The University has about number of registered members on its Alumni Association who are regularly informed about various job openings through electronic emails to the members.

Academics: In this section all faculties and respective departments which are related to university have all the information i.e. faculty's basic information, staff members, degree programs and their completed or ongoing research projects.

Admissions: The web portal provides all the information about latest admission programs which are offered by the university and it also facilitates the candidates to apply online. For this ease number of applicants throughout the Pakistan had applied through website during the last session. The website also uploads the list of eligible students (Merit lists). If student name is in the list, in turn they can enter CNIC in the form to download the fee challan.

Complaint Cell: Website has provided the platform in which different walk of personnel can send their queries related to university. The concerned department can then entertain those queries accordingly.

News & Events: Web portal has provided all information about the events which are held in university. This information is in the form of news, photos, videos and in print media. This section also contains the information about the latest jobs and tenders.

Visiting Faculty Job Portal: The Job portal is developed for Visiting Faculty members. All Visiting faculty members apply online in every semester. Portal create detailed Job Application with all of candidate Personal, Academics, and Experience record in pdf form.

Admin Panel: All the data in web portal is managed through admin panel (i.e. upload, edit, delete). This includes photos, videos, news, press clipping, tenders, staff members information and events.

Admin Panel Online Admission portal: There is also an admin panel for Admission portal through which they can receive online form of all the candidates who's apply online throughout the Pakistan. The candidate also checks their application form status, if it is received or not.

Admin Panel -SRC: There is also an admin panel for SRC through which they can manage alumni data of the registered members. They can send emails for new job announcements to members. Latest events are also handled through this panel.

Along with all these, web portal provides the download facility for different manuals, Performa, application forms, notes, membership forms and scholarship forms.

Admin Panel Visiting Faculty Job Portal: There is also an admin panel for selection of visiting faculty. Admin panel allow to respective Faculty/institute to search course wise application and view these applications.

UNIVERSITY BUILDING COMMUNITIES

UNIVERSITY-COMMUNITY INTERACTION

PMAS-AAUR is one of the leading higher education institutions in Pakistan. It plays a major role in grooming future leaders who can make a positive difference to the world around them. University has been involved with numerous community support programs. It has been working with different NGOs, government, semi-government/ non-profit organizations.

UNIVERSITY'S ROLE IN BUILDING COMMUNITY

The University has a significant social impact on the region. This impact extends beyond the staff and students to the broader community in general. University offers a wide range of cultural and recreational programs, contribute to the provision of health and community services, provide services to local government and provide assistance to community groups.

In addition to providing research, cultural and social fields, university provides valuable infrastructure for the community including venues for public events, libraries, sporting facilities and research laboratories.

The scholarly activities of a university serve to enhance the reputation of the local region both nationally and internationally. This may result in an increased attractiveness of the region to industries and investment. The University also offers regional communities a better chance to retain their talented youth population.

SPORTS

The Directorate of Sports is working hard for the promotion of sports and healthy activities at PMAS-Arid Agriculture University. The beautiful and prestigious Khalid M. Khan Gymnasium was completed in the university premises in 2010. The following Intervarsity Sports Championship was organized by Directorate of Sports:



Directorate of Sports organized the following Inter Faculty Sports Competitions during the Year.

- ❖ T-10 Cricket Match Faculty Staff Vs Administration Staff 2020-21 held on November 12, 2020
- ❖ T-10 Cricket Match Faculty Staff Vs Administration Staff 2020-21 held on January 28, 2021
- ❖ Tug of War Match Faculty Staff Vs Administration Staff 2020-21. held on January 28, 2021
- ❖ Inter Faculty Staff Vs Administration Staff Badminton(Female) Championship 2020-21 held on Feb. 17, 2021
- ❖ Inter Faculty Staff Vs Administration Staff Badminton(Male) Championship 2020-21 held on Feb. 18, 2021

UNIVERSITY BUILDING LEADERSHIP

STUDENT LEADERSHIP (UNIVERSITY DRAMAS, EXHIBITIONS, EXPOS, COMPLETIONS, DEBATES AT NATIONAL AND INTERNATIONAL LEVELS)

S #	ACTIVITIES	YEAR
Aridian Debating Club		
1.	Rai Arslan Ahmad 2nd All Punjab declamation by Multan Talent and Debating society. 1st in APDC organized by Multiomics 2020 1st in Quiz competition in Arid Agriculture Rawalpindi.	2020
2.	Shakeel Ahmad 3rd position in Aplus TV channel 2020. 3rd position in Twin cities Kashmir day Declamation Competition held by Adal Foundation Rawalpindi 1st position in Interdepartmental Declamation Contest.	2020
3.	Usama Iqbal Khawaja 2nd Runner up at JUNOON organized by FMDC. 3rd position at IST IYC. 3rd position at All Pakistan Declamation Contest UVAS Lahore 3rd position at All Pakistan Bilingual Declamation Contest Army Burn Hall Collage	2020
4.	Noor Huma - Invited as a Guest Speaker at ATV - Invited as a Guest Speaker at PTV	2020
5.	Shanzay Aslam 3rd Position at Inter Universities Declamation competition held by National Accountability Bureau (NAB). HzmaHafeez - Winner of SDGs event held at IST Islamabad. ShaheerShafiq - Winner of SDGs event held at IST Islamabad. Muhammad Usman 1st position in Urdu Declamation (humorous) at Federal Urdu University Islamabad 3rd position in English declamation in Twin cities competition by Adal Foundation at E-library	2020
Aridian Veterinary Scholar Forum (AVSF)		
6.	- Student personality and development club, Two Days Training Session - veterinary Art and media club, newly established club - Companion Animal health and welfare club, newly established club	2020
Arid Media Club		
7.	Online Photography Competition	April, 2020

8.	Online Column Writing Competition	April, 2020
9.	Online Photography Competition for Members	25-11-2020
Aridian Martial Arts Club		
10.	Free Online Martial Art's Classes in Ramzan.	2020
11.	Participation in Grand Marathon Race.	2020
12.	Awarded International Black Belt 3 rd DAN form Japan.	2020
Aridian Literary Society (ALS)		2019-2020
13.	Young Writer Workshop	14-01-2020
14.	Bilingual Essay Writing Competition	31-01-2020
15.	Online Mehfil Mushaira	30-05-2020
16.	Session On Mental Health And Literature	30-06-2020
17.	Bait Bazi Competition	23-07-2020
18.	Faiz Ahmed Faiz, This was also our online session where our members and cabinet got connected via ZOOM and relished a very comprehensive and productive discussion having bird's eye view of Well Known Poet Mr.Faiz Ahmed Faiz (Late).	2020
19.	Communication Skills This was very wonderful idea generated by our President Mr. Aqeel Arshad Randhawa by which we discussed all the problems and possible solutions nearly every student faced in his/her student as well as practical life.	2020
20.	Afsana Kia Hai? This was about to make all the members being aware about different terms of literature and its bodies. Purpose was to made them discriminate in various areas of prouse.	2020
21.	Annual Report. This was the report session being hosted by our worthy President where he individually analyse the performance of all members and on basis of that performance , he was able to announce the next cabinet for his tenure.	2020
Aridian House of Arts		
22.	Jid-O-Jahad Competition By Riphah University	18.03.2020
23.	Ishq Ast (Art Competitions) By Rung School Of Music And Arts	02-11-2020
24.	Aridian Online Skepaca (Online)	10-05-2020
Aridian Health Care Society		
25.	Webinar on importance of health and nutritious food in covid19 scenario.	26-12-2020
26.	Webinar with ShaukatKhanum Hospital on breast cancer awareness.	19-10-2020
27.	Breast cancer awareness week	03-01-2020
28.	Seminar on world dengue day	25-01-2020
29.	Seminar on the implementation of complete SOPs of covid-19 compaing	22-01-2020
30.	First aid training for two days by Pakistan red crescent society	28-01-2020
31.	Mental health event	23-01-2020

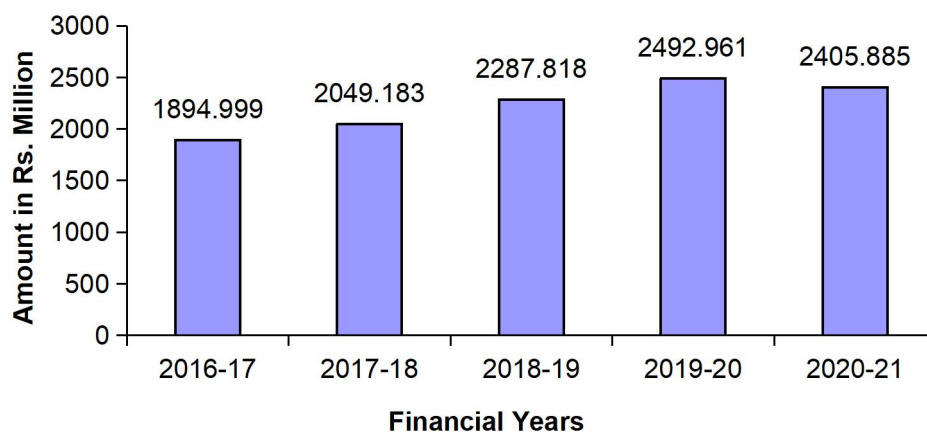
32.	Launch the Face Book feature by the Ministry of Health.	24-09-2020
Aridian Dramatic Club		
33.	Organized student weeks Long play performances in university auditorium by ADC	2020
Aridian Array Software Society		
34.	GitHub Hands on Session	10-03-2020
35.	An Ultimate Guide for FYP	26-07-2020
36.	Industrial Visit to National Incubation Center	12-03-2020
37.	Data Camp Courses Online	20-04-2020
38.	Become WordPress Expert and Start Career as Freelancer	10-05-2020
39.	Summer Short Course: React native mobile app development.	07-09-20
40.	Summer Short Course: Video editing and effects.	07-09-20
41.	Summer Short Course: Graphic designing Basic and Advance.	07-09-20
42.	Summer Short Course:phpLaravel	07-09-20
43.	Summer Short Course: MEAN Stack (mongo db, express.js, Angular.js ,Node.js) development.	07-09-20
44.	Summer Short Course: Python app development and computer vision.	07-09-20
45.	Summer Short Course: Python app development and computer vision.	07-09-20
46.	Summer Short Course: SEO and freelancing.	07-09-20
47.	Summer Short Courses: Cyber security and ethical hacking.	20-01-2020
48.	Business in Digital Age	23-01-2020
49.	IP NAT PAT and Port Forwarding	28-01-2020
50.	Purpose Of Life	05-03-2020
51.	Technical Test and Talk	11-03-2020
52.	Data Science for Everyone	12-03-2020
53.	Free Lancing Session	10-05-2020
54.	TensorFlow Coding Session	22-05-2020
55.	The Flutter Dev-QA	07-06-2020
56.	Webinar on Freelancing	30-06-2020
57.	Building your Dev Portfolio and How Recruiters review	12-07-2020
58.	How to secure yourself from Cyber Attack	23-08-2020
59.	Pie and AI(deeplearning.ai)	19-11-2020
60.	Data warehouse and Business Intelligence	
Aridian Floral Art Club		
61.	Student participation Pakistan Hort. Expo-2020, at Expo Centre, Lahore (University Stall)	22-01-2020 to 24-01-2020

FINANCE

SUMMARY OF REVISED BUDGET ESTIMATES FOR THE YEAR 2020-21

INCOME ESTIMATES				EXPENDITURE ESTIMATES			
Sources of Income	Revised Budget- Estimates 2019-20	Budget Estimates 2020-21	Revised Budget Estimates 2020-21	Head of Accounts	Revised Budget Estimates 2019-20	Budget Estimates 2020-21	Revised Budget Estimates 2020-21
Opening Balance	885322859	950000000	826913395	Pay and Allowances	947102075	963739901	948234106
Punjab Government	75479000	71003000	62469000	Purchase of durable goods	48000000	33000000	29500000
Federal Government	592402000	592402000	673738100	Research projects	6250000	6250000	1150000
Supplementary Grant from Federal Government	62590000	0	0	Construction works	173550000	174700000	170049993
Own Resources	346410490	343920300	332924660	Repair of durable goods	9500000	14500000	11000000
University Fee From UIMS	92159026	90127120	89362800	Commodities & services	189860000	203325000	192040000
University Fee from UIIT	183016360	181561838	176264800	Transfer payments	319650000	318350080	308350080
Income from Affiliated Institutes	94423454	88049459	88133308	Miscellaneous expenditure	55000000	55000000	51000000
Khushab Campus	17267490	14632357	14744846	Contingent paid staff	60550651	60500000	75306558
Federal Government Grant for Tenure Track Faculty	15886151	20509599	22070927	Overtime/evening classes Rmuner	19000000	19000000	19000000
Federal Government Grant for Need Based Scholarships	33501000	33501000	35459900	Reimbursement of Medical charges	13000000	13000000	15000000
PMAS-AAUR Sub Campus Attock	5795600	1578720	891860	Agriculture strategy center	2000000	2000000	200000
Institute of Soil Sciences & Water Conservtaion	809400	146600	2332680	Building rent	200000	200000	100000
Institute of food Technology/ Human Nutrition & Dietics/Food safety	30498474	29601700	31539920	Tenure track system	15886151	20509599	22070927
Institute of Biochemistry & Bio technology (UIBB)	42126112	40440040	43284920	Need based scholarships	33501000	33501000	35459900
Institute of Geo information & Earth Observation	5273966	4508300	5753960	IT network & Data Center	49298612	49827796	51227079
Federal Government Grant for Covid-19 response initiatives	10000000			University Institute of Information Technology UIIT	103186548	104954520	106312499
				University Institute of Management Sciences UIMS	75045808	76769142	72319154
				Institute of Soil Sciences & Water Conservation	28427720	29796966	29573188
				Institute of food Technology/ Human Nutrition & Dietics/Food safety	35665472	36305192	34362578
				Institute of Biochemistry & Bio technology (UIBB)	37906698	39314114	37733202
				Institute of Geo information & Earth Observation	19697856	25524612	20418253
				Institute of Hydroponic Agriculture	42278320	45210388	33895732
				UAAR Research Farms Chakwal Road	38208580	41549220	39950026
				PMAS AAUR Sub Campus Khushab	60713376	61132552	71096268
				PMAS AAUR Sub Campus Attock	32364652	33082572	30482623
Total	2492961382	2461982033	2405885076		2415843519	2461042654	2405832166

SUMMARY OF BUDGET ESTIMATES



RECURRING BUDGET

Recurring Funding (Punjab Govt.) In Million Rs.						
2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
55.265	73.984	78.423	78.423	71.003	75.479	62.469
Recurring Funding (HEC) In Million Rs						
2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
464.379	533.344	606.153	651.180	663.714	592.402	673.738

SELF GENERATED INCOME

For FY 2019-20 = Rs. 744.700 million

For FY 2020-21 = Rs. 785.233 million

SUMMARY OF DEVELOPMENT BUDGET ESTIMATES (2020-21)

S. No.	Name of Project	Estimated Cost (Rs. In m)	Total Exp. Upto (30.06.19) Actual (Rs. In m)	Unspent Balance Carried Forward for (2019-20) (Rs. In m)	Releases during (2019-20) (Rs. In m)	Total Available Funds (2019-20) (5+6) (Rs. In m)	Exp. During (2019-20) (Rs. In m)	Total Exp. (4+8) (Rs. In m)	Unspent Balance Carried forward 2020-21 (7-8) (Rs. In m)	PSDP/ADP Allocation (2020-21) (Rs. In m)	Estimated Budget During (2020-21) (10+11) (Rs. In m)
1	2	3	4	5	6	7	8	9	10	11	12
i.	Establishment of Sub Campus of PMAS-Arid Agriculture University at Attock (Phase-II)	786.577	170.524	0.000	123.694	123.694	123.272	293.796	0.422	100.000	100.422
ii.	Establishment of National Centre for Livestock Breeding, Genetics & Genomics at PMAS-Arid Agriculture University Rawalpindi	756.519	1.568	78.432	200.000	278.432	141.860	143.428	136.572	200.000	336.572
iii.	Establishment of National Center of Industrial Biotechnology for Pilot Manufacturing of Bioproducts Using Synthetic Biology and Metabolic Engineering Technologies	1439.775	0.000	0.000	0.000	0.000	0.000	0.000	0.000	350.000	350.000
iv.	Pilot Project for Data Driven Smart Decision Platform for Increased Agriculture Productivity(DDSDP)	979.664	0.000	0.000	0.000	0.000	0.000	0.000	0.000	441.300	441.300
Grand Total		3962.535	172.092	78.432	323.694	402.126	265.132	437.224	136.994	1091.300	1228.294

UNIVERSITY GOVERNANCE

SYNDICATE

The syndicate is the executive body of the University. Subject to the provisions of the Act and the Statutes, it takes effective measures to raise the standard of teaching, research and publications and other academic pursuits and exercises general supervision over the affairs and management of the property of the University. During the reporting period, Two (02) Syndicate meetings were arranged and necessary decisions were taken in the best interest of PMAS-AAUR.

The University Syndicate consists of:

a.	The Vice Chancellor	Chairman
b.	Member of Provincial Assembly of the Punjab nominated by the Speaker of the Assembly	Member
c.	Chief Justice of the Lahore High Court, or his nominee	Member
d.	Secretary, Department of Agriculture, Government of Punjab, Lahore	Ex-officio Member
e.	Secretary, Department of Livestock and Dairy Development, Government of Punjab, Lahore	Ex-officio Member
f.	Secretary, Department of Finance, Government of the Punjab, Lahore.	Ex-officio Member
g.	One nominee of the Higher Education Commission	Member
h.	One Dean to be nominated by the Chancellor on the recommendations of the Vice Chancellor	Member
i.	Four elected members from the faculty of the University	Members
j.	Three persons of eminence to be nominated by the Chancellor	Members
k.	The Registrar	Secretary

ACADEMIC COUNCIL

The Academic Council is the academic body of the University. It is responsible to lay down proper standards of teaching / instructions, research, publications and examinations and to regulate and promote the academic life at the University. In year 2020, One (01) meeting of Academic Council was conducted, wherein revised/amended and new curricula for Undergraduate and Postgraduate studies were discussed and approved. The general rules and regulations pertaining to academic and administration were also argued and the decisions were made for implementation.

The Academic Council consists of:

a.	The Vice Chancellor	Chairman
b.	The Deans of the Faculties	Members
c.	The Directors of the Divisions/Institutes	Members
d.	All University Professors including Professors Emeritus	Members
e.	The Chairmen/Chairpersons of the Teaching Departments	Members
f.	All Associate Professors	Members
g.	Two Assistant Professors and two Lecturers to be elected by and from amongst themselves	Members
h.	The Librarian	Members
i.	The Controller of Examinations	Members
j.	Two Agricultural Scientists to be nominated by the Chancellor	Members
k.	Four representatives of NARC to be nominated by the Director General, NARC, Islamabad	Members
l.	The Registrar	Member/Secretary

ADVANCED STUDIES AND RESEARCH BOARD

The Advanced Studies and Research Board advise the authorities on all matters concerning promotion of advanced studies, publications and research in the University. The board considers and reports to the authorities on the institution of research degrees in the University. In the academic year 2020, Advanced Studies & Research Board was met one time; the board accorded approvals and advised amendments, where necessary, on admission to post-graduate level, synopsis and research titles of post-graduate students, rules and regulations. The Board also scrutinized various research projects and approved/referred for revision.

Advanced Studies and Research Board consists of:

a. The Vice Chancellor		Chairman
b. The Deans		Members
c.	Directors of the Divisions and the Institutes of the University	Members
d.	Three University Professors, other than Deans, to be appointed by the Syndicate	Members
e.	Three University teachers to be appointed by the Academic Council	Members
f.	Five experts from other sister Institutions to be nominated by the Syndicate	Members
g.	Director Advanced Studies	Secretary

FINANCE AND PLANNING COMMITTEE

The Finance and Planning Committee advise the Syndicate on all matters relating to planning, development, finance, investments, and accounts of the University. In year 2020, three (03), meetings of Finance and Planning Committee were conducted.

The Finance and Planning Committee consists of:

a. The Vice Chancellor

Chairman

b. One member of the Syndicate to be appointed by the Syndicate

Member

c.

Two members of the Academic Council to be appointed by the Academic Council

Members

d.

Two nominees of the Chancellor, one each from Agriculture Department and Finance Department, Punjab

Members

e.

The Registrar

Member

f.

The Treasurer

Member/Secretary

CAMPUS COMMITTEE

The syndicate of the University approved the constitution of Campus Committee with the following Rules of Business:

- To approve all estimates for the purchase of lands and construction work on the campus
- To engage Architects and Engineering consultants
- To let out works to the contractors
- To do other necessary works to complete the construction at the campus

In year 2020, Six (06) Meetings of Campus Committee were conducted. The Campus Committee consists of:

a.	The Vice Chancellor	Chairman
b.	Director General RDA or His representative	Member
c.	Superintending Engineer Building Department Rawalpindi.	Member
d.	DCO Rawalpindi or His representative (for purchase of Land)	Member
e.	Dean FAE&T	Member
f.	Principal Officer Student Affairs	Member
g.	Principal Officer Estate Care & Security	Member
h.	The Registrar	Member
i.	The Treasurer	Member
j.	The Resident Auditor	Member
k.	Project Director Works	Member
l.	Director Planning & Development	Member/Secretary

FACULTY PUBLICATIONS

1. Ahmed, A., Rani, H., Amir, R. M., Khalid, T., & Khalid, N. 2020. Evaluation of buckwheat for management of diabetes. *Pakistan Journal of Public Health*, 9(4), 184-189.
2. Ali, S., Cheema, M.J.M, Bakhsh, A. and Khaliq, T., 2020. Near real time flood forecasting in the transboundary Chenab river using Global Satellite Mapping of Precipitation. *Pakistan Journal of Agricultural Sciences*, 57(5).0.663 September 2020
3. Ali, M., A. Sohail, M. Mazahir, K. S. Abbasi, R. M. Amir, W. Ali and M. Asim. 2020. Assessment of physico-chemical and phyto-chemical properties of six apple varieties cultivated in district Nagar and Hunza Gilgit Baltistan, Pakistan. *Pure Appl. Biol.*, 9(2): 1627-1636, <http://dx.doi.org/10.19045/bspab.2020.90171> (HEC recognized).
4. Aadil, R. M, Khalil A. A, Rehman A, Khalid A, Inam-ur-Raheem M, Karim A, Gill AA, Abid M, Afraz MT. Assessing the impact of ultra-sonication and thermo-ultrasound on antioxidant indices and polyphenolic profile of apple-grape juice blend. *Journal of Food Processing and Preservation*. 2020 May;44(5):e14406. Impact Factor (1.310)
5. Ameer, K., Jo, Y., Amir, R.M., Shahbaz, H.M. and Kwon, J.H., 2020. Screening and identification of electron-beam irradiated dried spice-mixture products by electronic sensing and standard analytical methods through dose estimation. *LWT*, 125, p.108957. Impact Factor (4.006)
6. Ahmed A, M Bilal, S Jabbar, A Mumtaz, N Khalid, M Asghar, RM Amir, K Ameer, AM Malik. 2020. Physicochemical and sensory evaluation of indigenous rice genotypes. *Journal of Agricultural Research*. 58(2): 89-96. (HEC recognized Journal) https://apply.jar.punjab.gov.pk/upload/1598526541_140_06_1570.pdf
7. Ahmed, A., Raza, A., Khalid, N., Malik, A. M., Asghar, M., & H. M. R. Abid. 2020. Development of apricot (*Prunus armeniaca* L.) powder and its food application. *Journal of Pure and Applied Agriculture*, 5(2), 26-33. (HEC recognized Journal) https://jpaa.aiou.edu.pk/wpcontent/uploads/2020/07/JPAA_2020_5_2_26-33.pdf
8. A Qadir, G Irshad, S Ghuffar, M Shahid, K Mehmood, A Sattar, M A Zeshan, A M Hamzah, H M Asadullah, M F Manzoor. 2020. Symptom-based indexing of Barley Yellow Dwarf Disease infecting wheat in Pakistan. *Journal of Biodiversity and Environmental Sciences*. 17(2), 32-36 Aug-2020
9. A, Hussain, H, Javed, K, Javed, M. Hanif (2020), Effect of Physico-Morphic Characters and Environmental Factors on Infestation of Thrips (Thrips Tabaci) on Five Onion Cultivars. 4: 1. Plant protection.
10. A. Ali, Y. Hafeez, S. Hussain & S. Yang. 2020. Role of requirement prioritization technique to improve the quality of highly configurable systems. *Journal: IEEE Access*. The multidisciplinary open access journal. Print ISSN: 2169-3536 publisher: IEEE Explore.
11. A. Raheem , M. Javaid , M. Hanif, R. Hasni Nasir, S. (2020): Super magic deficiency of graphs. *Journal of Discrete Mathematical Sciences and Cryptography*. ISSN 0972-0529 (Print), ISSN 2169-0065 (Online).
12. A. Raheem, M. Javaid , R. Hasni , M. Hanif & Nasir Shah (2020): RSEMT labeling of union of paths and subdivided star, *Journal of Discrete Mathematical Sciences and Cryptography*, DOI: 10.1080/09720502.2020.1756046.

13. A. Sarwar, Y. Hafeez, S. Hussain, S. Yang. 2020. Towards taxonomical based situational model to improve the quality of agile distributed teams. Journal: IEEE Access. The multidisciplinary open access journal. Vol. 08. ISSN: 2169-2536
14. Abbas, G., Ahmad S, Hussain M, Fatima Z, Hussain S, Iqbal P, Ahmed M, Farooq M (2020) Sowing Date and Hybrid Choice Matters Production of Maize–Maize System. International Journal of Plant Production. doi:10.1007/s42106-020-00104-6 1.169 06 April 2020
15. Abbas, G., Fatima Z, Hussain M, Hussain S, Atique ur R, Sarwar N, Ahmed M, Ahmad S. 2020. Nitrogen Rate and Hybrid Selection Matters Productivity of Maize–Maize Cropping System under Irrigated Arid Environment of Southern Punjab, Pakistan. International Journal of Plant Production. doi:10.1007/s42106-020-00086-5 1.169 24 January 2020
16. Abbas, R.A., N. Akhtar, M.I. Hamid, A. Aziz, T. Mahmood, S. Shoukat, A. Tanveer and S. Noureen. 2020. Demarking genotypic, phenotypic variability, broad sense heritability and principal components of sugarcane (*Saccharum officinarum* L.) genotypes for better yield, quality and resistance against sugarcane mosaic virus (SCMV). WULFENIA J. 27(5):103-118.
17. Abbasi, N. A., M. Shafique, I. Ali, A. A. Qureshi, & I. A. Hafiz. 2020. Pre-harvest foliar application of calcium chloride improves berry quality and storage life of table grape cvs. 'perlette' and 'kings's ruby'. Journal of Pure and Applied Agriculture, 5(2), 104-115.
18. Abbasi, N. A., M. Shafique, S. Qamar, A. A. Qureshi, I. A. Hafiz and I. Ali. 2020. Effect of altitude variations on summer pea crop in Poonch Division of Azad Jammu and Kashmir. Pure and Applied Biology (PAB), 9(3):1911-1919.
19. Abdul S. , S.M. Saqalan Naqvi, Mazhar Qayyum, Abida Raza Rao, Uteuliyev Yerzhan Sabitaliyevich, M. Sheeraz Ahmad. Calcium based siRNA coating: a novel approach for knockdown of HER2 gene in MCF-7 cells using gold nanoparticles, Cell Mol Biol (Noisy-le-grand). 2020 Sep 30;66(6):105-111. PMID: 33040794. 1.463 Sep-20
20. Abdul, R, S. M. Nizami, A. Saleem, L. Ansari, S. Gulzar, B. Ali, M. Saleem. 2020. Biomass Allometric Equations of Naturally Growing *Cedrus deodara* in Dry Temperate Forests Ecosystems. Pak. J. of Agri. Res., Vol.33 (3): 498-507. Published on July 26, 2020
21. Adil, M.F., S. Sehar, G. Chen, Z-H. Chen, G. Jilani, A.N. Chaudhry, I.H. Shamsi. 2020. Cadmium-zinc cross-talk delineates toxicity tolerance in rice via differential genes expression and physiological / ultrastructural adjustments. Ecotoxicology and Environmental Safety, 190: 110076. (Impact factor 4.872)
22. Adil, M.F., S. Sehar, Z.Han, J.L.W. Lwalaba, G. Jilani, F. Zeng, Z-H. Chen, I. H. Shamsi. 2020. Zinc alleviates cadmium toxicity by modulating photosynthesis, ROS homeostasis, and cation flux kinetics in rice. Environmental Pollution, 265 B: 114979. (Impact factor 6.792)
23. Afzal, M. S., Cheema, M.J.M., Shahid, M.A., Arshad, M. and Khaliq, T., 2020. Optimization of subsurface drip lateral depths and irrigation levels for best yield response of onion (*Allium Cepa* L.). Journal of Animal and Plant Sciences, 30(3), pp.702-712. 0.481 March 2020
24. Ahmad M., Qadir M. A. Rahman A. Zagrouba R. Alhaidri F. ali. T. & Zahid F. 2020. Enhanced query processing over semantic cache for cloud based relational database. Journal of Ambient intelligence and humanized computing.
25. Ahmad, Z., , H. Zhong, A. Mosavi, M. Sadiq, H. Saleem, A. Khalid, S. Mahmood and N. Nabipour. 2020. Machine Learning Modeling of Aerobic Biodegradation for Azo Dyes and Hexavalent Chromium. Mathematics 8, 913; Doi:10.3390/math8060913(IF=1.747)
26. Ahmed A., T Sultan, G. Qadir, O. Afzal, M. Ahmed, S. S. Shah, M. Asif, S. Ali and M. Z. Mehmood, 2020. Impact Assessment of Plant Growth Promoting Rhizobacteria on Growth and Nutrient

27. Ahmed I. H., Ali A. and Bakari H. 2020. Investor & Inherent Risk towards potential returns. NUML International Journal of Business and Management. (HEC Y category)
28. Ahmed I. H., and Mahood, A. 2020. How does CSR mediate the relationship between culture, religiosity and firm performance? Finance Research Letters. (Scopus, Q1 & ABDC:A)
29. Ahmed I. H., MAhmood, R. and Tayachi T. 2020. Do corporate social responsibility and corporate governance affect stock price crash? Journal of risk & Financial Management, (ESCI, ABDC: B)
30. Ahmed I. H., Tayachi, T & Mehmood, r. 2020. Impact of ownership structure on risk taking behavior of banks in Pakistan, india and Bangladesh. Corporate Ownership & control. (Q4 & ABDC: B)
31. Ahmed I. H., Tayachi, t. Chani, M. I. Verhoeven P. & Mehmood, R. 2020. The moderating effect of institutional quality on environmental quality and financial development nexus. Sustainability, (Scopus & Q2)
32. Ahmed I. H., Tayachi, T. Mehmood, r. Malik, S. and Malik, Z. 2020. Impact of credit risk on momentum & contrarian strategies: Evidence from south Asian Markets. Risks, (Scopus, ESCI & ABDC: B).
33. Ahmed I. H., Uzma, P. Li. L. Chani I. M. and M. Rashid. 2020. Impact of ownership concentration, institutional ownership and earnings management on stock market liquidity. Corporate ownership & control. (Q4 & ABDC: B)
34. Ahmed I. H., Zureigt, Q. and Mahmood R. 2020. Impact of capital regulation and market discipline on capital ratio selection: A cross country study. International Journal of Financial studies. (Scopus, ESCI & ABDC: B)
35. Ahmed M. N, Mansoor Q, Baig R. M, Tahir T, Abbasi SA. Potential risk assessment of miR-143 gene polymorphisms rs41291957 and rs353292 in colorectal cancer. Cell Mol Biol (Noisy-le-grand). 2020 Oct 31;66(7):169-173. PMID: 33287937.
36. Ahmed, A., Chaudhry, A. G. 2020. A Sociology of Shame and Blame: Insiders vs Outsiders by Graham Scambler. 2020 Palgrave Pivot (118 pp. HB. ISBN 978-3-030-23142-2). International Journal Social Welfare 2020: 0: 1–1.
37. Ahmed, A., H. M. R. Abid, A. Mahmood, N. Khalid, S. Shibli, R. M. Aamir, A. M. Malik and M. Asghar. 2020 “Utilization of Mango Peel in development of Instant Drink” Asian J Agric & Biol. 2020;8(3):260-267. DOI: 10.35495/ajab.2020.02.094. Y September,2020
38. Ahmed, D., R.M. Amir, K. Ameer, A. Ahmad, M. Nadeem, M.F. J. Chughtai, A. Khaliq, S. Ahsan, M.I. Khan, A. Riaz and R. Kausar, 2020. Assessment of quality attributes of tomato sauce supplemented with Moringa root. Food Science and Technology, 1-7. (IF=1.028).
39. Ahmed, K., G. Shabbir, M. Ahmed and K.N. Shah. 2020. Phenotyping for drought resistance in bread wheat using physiological and biochemical traits. STOTEN, 729: 139082. (Impact Factor = 5.589).
40. Ahmed, M. 2020. Introduction to Modern Climate Change. Andrew E. Dessler: Cambridge University Press, 2011, 252 pp, ISBN-10: 0521173159. Science of The Total Environment, 734, 139397. doi: <https://doi.org/10.1016/j.scitotenv.2020.139397> 6.551 10 September 2020
41. Ahmed, M., S. Ahmad, M. A. Raza, M. Ansar, G. A. Shah, D. Parsons, G. Hoogenboom, T. Palosuo, and S. Seidel. 2020. Model calibration and evaluation. In: System Modeling. Tyagi, A. (Editor). Springer Nature Book Services.

42. Ahmed, S., I. Bodlah and M. S. Nadeem.2020. Studies on Genus *Xanthopimpla* Saussure, 1892 (Ichneumonidae: Pimplinae) in Pothwar region (Punjab) of Pakistan. *The Journal of Animal & Plant Sciences*, 30(3). (IF=0.529)
43. Ahmed, S., I. Bodlah and M. S. Nadeem.2020. Addition of three new species of Metopinae (Ichneumonidae: Hymenoptera) for Pakistan fauna from Pothwar region of Pakistan. *International Journal of Agriculture and Biology* 23:423-430. (IF=0.8)
44. Ahmad, A., S. Zulfiqar and Z.A. Chatha. 2020. Development of roasted flax seed cookies and characterization for chemical and organoleptic parameters. *Pakistan Journal of Agricultural Sciences*, 57(1): 229-235. Impact Factor (0.618)
45. Ahmed, W., M. Rais, M. Saeed, A. Akram, I.A. Khan, and S. Gill. 2020. Site occupancy of two endemic stream frogs in different forest types in Pakistan. *Herpetological Conservation and Biology*. 15(3):506–511. Impact Factor: 0.761
46. Ahsan, M., M. Ashfaq, T. Mukhtar and N. A. Abbasi. 2020. Current status and genetic variability of cucumber mosaic cucumovirus (CMV) isolates infecting major cucurbits and solanaceous vegetables in pothwar region of pakistan *Pak. J. Agri. Sci.*, 57(5), 1353-1361. Impact Factor: 0.663
47. Ahsan, M., M. Ashfaq, T. Mukhtar, N.A. Abbasi, Z. Asad. 2020. First report of cucurbit aphid borne yellows virus (CABYV) infecting melon in Pakistan. *Journal of Plant Pathology*, 102(2): 563–564. 0.818 2020
48. Ain, N.U., Latif, M., Ullah, K., Adnan, S., Ahmed, R., Umar, M. and Azam, M., 2020. Investigation of seasonal droughts and related large-scale atmospheric dynamics over the Potwar Plateau of Pakistan. *Theoretical and Applied Climatology*, 140(1), pp.69-89. 2.882 2020
49. Aisha G. , S. Khan , M. Arshad , S. I. Anjum , S. Attaullah , I. Ali, A. Rauf , A. Arshad, Suliman M. Alghanem, S. N. Khan. Peripheral blood T cells response in human parainfluenza virus-associated lower respiratory tract infection in children. *Saudi Journal of Biological Sciences* (2020) 27: 2847–2852 (IF 2.8)
50. Aisha R., A., Razzaq, S., Tabish, T.A., Tahseen, S., Sandhu, M. A., Shahnaz, G. 2020. Investigating the intracellular bactericidal effects of rifampicin loaded S-protected thiomeric chitosan nanocargoes against *Mycobacterium tuberculosis*. *Journal of Drug Delivery Science and Technology. In Press* (102184). (IF = 2.734).
51. Akbar, M., Bhutta, M., Hashmi, N., Khan, A., Afzaal, A. (2020). Flood Experience And Victims' Perceptions About Community Cohesion. *International Journal of Disaster Recovery and Business Continuity*. 11 (1), 2181 -2195 Y- Category 2020
52. Akhtar, N., H. Fatima, S. Shaukat, I. Ul Haq, U. Saleem, T. Mahmood and I. Kousar. 2020. Elucidation of indigenous wheat breeding lines for grain yield and yield related traits. *Int. J. Biosci.* 16(2):200-207.
53. Akhter, S., M. A. Awan, J. Arshad, B. A. Rakha, M. S. Ansari, S. Iqbal. 2020. Effect of Synergism Between Carboxylated Poly-L-Lysine and Glycerol on Freezability of Nili-Ravi Buffalo (*Bubalus bubalis*) Semen. *Biopreservation and Biobanking*. DOI: 10.1089/bio.2019.0120
54. Akram, Z., Q. Ahmed, M. U. Hassan and M. Naeem. 2020. Genetic analysis of groundnut genotypes for quality related traits. *Intl. J. Innov. Appr. Agric. Res.*, 4(1):69-77.
55. Akrim, F., T. Mahmood, B. Jerrold. M. S. Nadeem, S. Qasim, I. D. Zangi, and M. A. Asadi. 2020. Livestock depredations by leopards in Azad Jammu and Kashmir, Pakistan: characteristics, control, and costs. *Wildlife Biology*. 2020. WLB-00782. DOI: 10.2981/wlb.00782 Impact Factor: 1.258
56. Alam, S., M. Tariq, A. Gulzar, R. Ali, S. Khan and M. Iqbal, 2020. Toxicity of new chemistry insecticides on the haemocytes of *Chilo partellus*. *Plant Protection*. DOI:10.33804/pp.004.01.3209
57. Alawi, S. M. Colombage, S. Sahtoo, U. and Hanif, M. 2020. Portfolio construction by using different risk models. A comparative among diverse economic scenarios, risks. 8(04)

58. Ali A., S. Mohammad, M. A. Khan, N. I. Raja, M. Arif, A. Kamil and Z. R. Mashwani. 2020. Silver nanoparticles elicited in vitro callus cultures for accumulation of biomass and secondary metabolites in *Caralluma tuberculata*. *Artificial Cells, Nanomedicine and Biotechnology*. <https://doi.org/10.1080/21691401.2019.1577884> (IF: 3.93)
59. Ali, A., Ashraf, M.I., Gulzar, S. Akmal, M. (2020). Estimation of forest carbon stocks in temperate and subtropical mountain systems of Pakistan: implications for REDD+ and climate change mitigation. *Environmental Monitoring & Assessment*. 192(3), 198. <https://doi.org/10.1007/s10661-020-8157-x>. [IF 1.959]
60. Ali, A., Imran, M. (2020). Evaluating the potential of red edge position (REP) of Hyperspectral remote sensing data for real time estimation of LAI & Chlorophyll content of Kinnow fruit orchards. *Scientia Horticulturae*. Vol. 267. 109326. DOI: 10.1016/j.scienta.2020.109326.
61. Ali, A., Khan, M. Q., Anjum, M. Z., Khan, M. A. A., Safi, S. Z., Zahid, H., Nawab, J., Shah, M. I. A and A. Kamil. 2020. Genetic diversity of *Schizothorax*, *Tor*, and *Mystus* spp. in Khyber Pakhtunkhwa, Pakistan: Species of economic importance. *Pakistan Journal of Zoology*. 2020 Aug 12. (IF= 0.79)
62. Ali, M., Man, N., & Muharam, F. M. (2020). Intention level of farmers to use information communication technologies for agricultural risk management in Malaysia. *Journal of International Agricultural and Extension Education*. 27(2): 108-117. doi: 10.5191/jiaee.2020.272108
63. Ali, M., Man, N., Muharam, F. M., & Omar, S. Z. (2020). Factors influencing behavioral intention of farmers to use ICTs for agriculture risk management in Malaysia. *Pakistan Journal of Agricultural Research*. 33(2): 295-302. <http://dx.doi.org/10.17582/journal.pjar/2020/33.2.295.302>
64. Ali, M; Khan, N. (2020). Perception of Mango growers about agricultural extension services provided to tackle climate change in District Muzafergarh, Punjab.
65. Ali, S., Bashir, S., Mumtaz, S., Shakir, H.A., Ara, C., Ahmad, F., Tahir, H.M., Faheem, M., Irfan, M., Masih, A. and Ulhaq, M., 2020. Evaluation of Cadmium Chloride-Induced Toxicity in Chicks Via Hematological, Biochemical Parameters, and Cadmium Level in Tissues. *Biological Trace Element Research*, pp.1-13. (IF = 2.450).
66. Ali, S., Cheema, M.J.M., Waqas, M.M., Waseem, M., Awan, U.K. and Khaliq, T., 2020. Changes in Snow Cover Dynamics over the Indus Basin: Evidences from 2008 to 2018 MODIS NDSI Trends Analysis. *Remote Sensing*, 12(17), p.2782. 4.509 2020
67. Ali, S., O. Shafique, S. Mahmood, T. Mahmood, B. A. Khan and I. Ahmad. 2020. Biofuels production from weed biomass using nanocatalyst technology. *Biomass & Bioenergy* 139: 105595 <https://doi.org/10.1016/j.biombioe.2020.105595> I.F= 3.551
68. Ali, S., S. Akhter, H. Neubauer, F. Melzer, I. Khan, Q. Ali and M. Irfan. 2020. Serological, cultural and molecular evidence of *Brucella* infection in small ruminants in Pakistan. *The Journal of Infection in Developing Countries*. 9(5):470-475. (IF=1.138).
69. Aliya T. , F. Naz , C. A. Rauf , M. A. Khan. (2020). Surveillance and morpho-molecular characterization of *Sclerotium rolfsii* causing root rot of bell pepper in Pothohar Plateau, Pakistan. *International Journal of Biosciences (IJB)*. Vol. 16(2):45-52. 2020
70. Al-Wabel, Mohammad I; Ahmad, Munir; Usman, Adel RA; Sallam, Abdulazeem S; Qaiser Hussain; Binyameen, Ridwan B; Shehu, Muhammed R; Ok, Yong Sik; Evaluating the efficiency of different natural clay sediments for the removal of chlortetracycline from aqueous solutions. *Journal of hazardous materials* 2020; Vol 384 Pages 121500.
71. Amanat, A, A. I. Hunjra, Ahmad, f. How corporate political Strategies are related to cost of debt? *Indonesian capital market Review*. (ESCI)
72. Amin, A., Khan, M.R., Baig, M.H.A., Baig, I.A., Imran, M., Hanif, M. Calculation and validation of actual evapotranspiration from satellite derived indices with observed data in delineated agro-climatic

zones of Punjab using remote sensing and GIS techniques. *Applied ecology and environmental research*. Vol. 18, Issue 3, pp. 4637-4650. \newline DOI:10.15666/aeer/1803_46374650

73. Amin, M., K. Mahmood and I. Bodlah. 2020. *Asptegopteryx bumbusae* (Buckton, 1893) (Hemiptera: Aphidoidea): New to Pakistan! Westernmost range in Asia redefined. *Munis Entomology & Zoology* 15, No. 1.
74. Amin, M., Khan, M. R., Hassan, S.S., Khan, A.A., Imran, M., Goheer, M.A., Hina, S.M. and Perveen, A., 2020. Monitoring agricultural drought using geospatial techniques: a case study of Thal region of Punjab, Pakistan. *Journal of Water and Climate Change*. DOI:10.2166/wcc.2020.232
75. Amin, M., Bano, D. & Hassan, Sher, Goheer, M. & Khan, Aftab & Khan, Mobushir Riaz & Hina, Syeda. (2020). Mapping and monitoring of glacier lake outburst floods using geospatial modelling approach for Darkut valley, Pakistan. . 10.1002/met.1877. (1.71)
76. Amir, R. M., H., Muhammad N., A., K. Ahmad, A. Ahmad, Asif A, Nadeem, M. Riaz, A., Chughtai, M. F. Jahangir, K. Adnan, A., Samreen, K., Ruksana. 2020. Comprehensive assessment and evaluation of selected wheat varieties for their relationship to chapatti quality attributes. *Food Sciences and technology*. 2020. (IF. 1.7)
77. Amna K., M. E. Babar, S. Khan and M. S. Ahmad, controlling of polyphenol oxidase-based browning in selected fruits and vegetables, *Agrobiological Records* (2020) 2:69-75. <https://doi.org/10.47278/journal.abr/2020.016> Jul-20
78. Amtul. W. W., M. J. Asad*, R. T. Mahmood, T. Zainab, S. Nazir, J. Khan, M. B. Shah, M. Ahmed, S. L. Shah, M. Ismail, N. Zaman, D. Ahmed, M. I. Khan and M. Rizwan. (2020). Production, Purification and characterization of Alkaline protease from *Aspergillus flavus* and its compatibility with commercial detergent. *Bio Resources*. 16(1), 291-301. 1.409 15-Nov-20
79. Anam Z., Fozia, M. Ramzan, M. A. Bashir, M. A. Khatana, M. T. Akram, S. Nadeem, M. S. Qureshi, W. Iqbal, M. Umar, S. Walli, R. M. S. Tariq, S. Atta, Dunia A. Al Farraj, M. T. Yassin. (2020). Effect of humic acid enriched cotton waste on growth, nutritional and chemical composition of oyster mushrooms (*Pluerotus ostreatus* and *Lentinus sajor-caju*). *Journal of King Saud University – Science* 32: 3249-3257.
80. Andleeb, S., Z. Ahmad, T. Mahmood, S. Bao, A. A. Saeed and S. K Jha. 2020. Evaluating toxicity impacts of environmental exposed chromium on small Indian mongoose (*Urvaauropunctatus*) hematological, biochemical and histopathological functioning. *Chemosphere* 259 (2020) 127485. Impact Factor: 5.778 DOI: <https://doi.org/10.1016/j.chemosphere.2020.127485>
81. Anwaar, A., U. Sarwar, N. Khalid, H. M. R. Abid, S. Khalid, S. Shibli, A. M. Malik and M. Asghar. 2020 “Preservation of table grapes through innovative techniques” *Journal of Pure and Applied Biology* 5(1): 39-45. Y January, 2020
82. Anwar A., Muhammad I. A., S. Gulzar and M. Akmal. 2020. Development of an Allometric Model for Biomass Estimation of *Pinus Roxberghii*, Growing in Subtropical Pine Forests of Khyber Pakhtunkhwa, Pakistan. *Sarhad Journal of Agriculture*. 36: 236-244
83. Anwar, A., M. Bilal, S. Jabbar, A. Mumtaz, N. Khalid, M. Asghar, R. M. Aamir, K. Ameer and A. M. Malik. 2020 “Physiochemical and sensory evaluation of indigenous rice genotypes” *J Agric. Res.*, 2020, Vol. 58(2): 89-96 Y June, 2020
84. Arshad, M., R. Nawaz, S. Ahmad, G. A. Shah, F. Faiz, N. Ahmad, M. A. Irshad and S. Ranamukhaarachchi. 2020. Growth, yield and nutritional performance of sweet sorghum and legumes in sole and intercropping influenced by type of legume, nitrogen level and air quality. *Polish Journal of Environmental Studies*. 29(1): 533-543
85. Arshad, M., S. Ahmad, G. A. Shah, R. Nawaz, and S. Ali. 2020. Growth and yield performance of *Vigna radiata* (L.) R. Wilczek influenced by altitude, nitrogen dose, planting pattern and time of sowing under sole and intercropping with maize. *Biotechnologie Agronomie Societe Et Environnement*. 24(3): 142-155.

86. Arshad, S. and A. M. Malik. 2020 "Bird Species Richness, Evenness, Riskiness and Habitat Management Around Airports: A Case of Benazir Bhutto International Airport Islamabad, Pakistan" Asian Journal of Agriculture and Biology <http://dx.doi.org/10.35495/ajab.2019.06.237>(emerging SCI indexed) Y 2020
87. Asad, M. R., Ester Ciociola, Imran Nazir Ahmad, Faisal Saud Dar, Syed Muhammad Saqlan Naqvi, Muhammad Moaen -ud-Din, Ghazala Kaukab Raja, Stefano Romeo *, Rosellina Margherita Mancina. Genetic susceptibility to chronic liver disease in individuals from Pakistan. International Journal of Molecular Sciences. 21(10): 3558 4.556 May-20
88. Asad, S., I. A. Baig , A. Saboor and R.Mahmood.2020A Decade of Uni- Dimensional and Multidimensional Inequality: A Comparison between Irrigated and Barani Zones of Punjab, Pakistan. Pakistan Journal of agriculture sciences. Vol. 33, Iss. 2, Pages 192-421 y 17April 2020
89. Asam, H. M., M. Y. Zia-Ul-Haq, M. Ansar, A. Gulzar and A. Islam. 2020. Comparative performance of wheat sowing machinery in wheat-rice cropping system. International Journal of Biosciences (IJB) 16: 168-177.
90. Asfand I., Gulshan Irshad, Farah Naz, Salman Ghuffar, Rabia Khursheed, Aamir Bashir, Muhammad Z. Mustafa, Ammar Mehmood, Najam U. Hassan. Characterization of Fusarium solani, causal agent of wilt of pea and its Bio-management. Pakistan Journal of Phytopathology. Vol 32, No 2 Dec-2020
91. Asghar, A., T. Mukhtar, M.U. Raja, and A. Gulzar. 2020. Interaction between Meloidogyne javanica and Ralstonia solanacearum in chili. Pakistan Journal of Zoology, 52(4): 1525-1530. 0.79 Aug-2020
92. Asghar, M., T. Hassan, M. Arshad, A. Aziz, M. T. Latif, and A. M. Sabir. 2020. Effect of plant spacing on incidence of rice planthoppers in transplanted rice crop." International Journal of Tropical Insect Science. <https://doi.org/10.1007/s42690-020-00242-4> (Impact factor: 0.748)
93. Asif Kabir, Gohar Rehman, Syed Mushad Gillani, Edwin J. Kitindi, Zain ul Abidin Jaffri, The role of caching in next generation cellular networks: A survey and research outlook. Trans emerging Tel. Tech. 2020
94. Aulakh, A. M., G. Qadir, Fayyaz-Ul-Hassan, R. Hayat, T. Sultan, M. Billah, M. Hussain & N. Khan,(2020) Desert Soil Microbes as a Mineral Nutrient Acquisition Tool for Chickpea (Cicer arietinum L.) Productivity at Different Moisture Regime. Plants, 9, 1629; doi:10.3390.9121629: IF: 2.652
95. Awais M, L. Ansari, A. Naz, Hidayatullah. 2020. Fourier Transformed Infrared Spectroscopy (FT-IR) and Secondary Metabolites Production of Zizyphusmauritiana. Commonwealth Journal of Academic Research (CJAR. EU . Vol. 1 (2) 33-42.
96. Awais M., Syed M. M. Gillani, M. J. Iqbal, Z. Haider, S. Daud. Analysis and evaluation of secure solutions for terrestrial networks. Technical Journal vol. 24. 2020
97. Awan, H. M. A. Hussain A. Saeed A. Ahmed Imran Hunjra and Sultana F. 2020. Determinants of liquidity Risk management across the Asian countries. International Journal of Management. (HEC Y category)
98. Awan, S. A., N.Ilyas, I. Khan, M.A. Raza, A. Rehman, M. Rizwan, A. Rastogi, R. tariq, M. bresticPlants Bacillus siamensis Reduces Cadmium Accumulation and Improves Growth and Antioxidant Defense System in Two Wheat (Triticum aestivum L.) Varieties 2.762 2020
99. Ayesha, R., I. Hassan, N. A. Abbasi and K. S. Khan. 2020. Regulation of morpho-physiological and vase quality attributes of carnation (Dianthus caryophyllus) cv. tabasco mediated by GA3. Pak. J. Bot., 52(5): 1561-1568. Impact Factor: 0.80
100. Ayub. H., Ahmed.A.,Amir.R.M.,Irshad,G. Multivariate analysis of peach quality treated with essential oil coatings. Journal of food processing and preservation. 1.28 Nov-2020

101. Aziz h. Sayed M. M. Gillani, Hussain I. et al. A Novel symmetric image cryptosystem resistant to noise perturbation based on s8 elliptic curve S-boxes and chaotic maps. *Eur Phys. J. plus* 135, 907.2020
102. Aziz, N., A. Sami, A. Jabeen, M. Gulfraz, R. Qureshi, T. Ibrahim, A.A. Farooqi, S.M.S. Naqvi and M.S. Ahmad. 2020. Formulation and evaluation of antioxidant and antityrosinase activity of *Polygonum amplexicaule* herbal gel. *Pakistan Journal of Pharmaceutical Sciences*, 33 (5): 1961-1969. (Impact Factor: 0.596).
103. B Javed, NI Raja, A Nadhman, ZUR Mashwani 2020. Understanding the potential of bio-fabricated non-oxidative silver nanoparticles to eradicate *Leishmania* and plant bacterial pathogens. *Appl Nanosci*, 2020(IF: 2.8)
104. B. Javed; Mashwani, Z. R; Sarwer , A ; Raja, N. II; Akhtar, N. 2020. Synergistic Response of Physicochemical Reaction Parameters on Biogenesis of Silver Nanoparticles and their Action Against Colon Cancer and Leishmanial Cells. *Artificial Cells, Nanomedicine and Biotechnology*. 48(1): 1340-1353. <https://doi.org/10.1080/21691401.2020.1850467> (Impact Factor 3.930)
105. Baig, M. H. Ali, Abid, M., Khan, M. & Jiao, W. & A., Muhammad & A., Shahzada. (2020). Assessing Meteorological and Agricultural Drought in Chitral Kabul River Basin Using Multiple Drought Indices. *Remote Sensing*. 12. 10.3390/rs12091417. (IF 4.53)
106. Bajwa, M.S., M. Tariq, A. Gulzar, H. Saeed, Z. U. R Mashwani. 2020. Toxicity of green silver nanoparticles of plant extracts against Citrus Mealybug *Planococcus citri*. *Plant Protection*. 4(1):1-10 <https://doi.org/10.33804/pp.004.01.3214>
107. Bakari, H. Ahmed Imran Hunjra, and Jaros, S. 2020. Commitment to change among health care workers in Pakistan. *Journal of Health Management*. (Scopus, Q3 & ESCI)
108. Barakat, M. A., Anjum, M., Kumar, R., Alafif, Z. O., Oves, M., Ansari, M. O. (2020). Design of ternary Ni (OH) 2/graphene oxide/TiO2 nanocomposite for enhanced photocatalytic degradation of organic, microbial contaminants, and aerobic digestion of dairy wastewater. *Journal of Cleaner Production*, 258, 120588.(IF=7.246)
109. Basharat, F., Jamal, N., Hanif, M., Shahzad, U., 2020, Use of Bioequivalence Tests and Its Properties under Different Sampling Techniques, *Asian Journal of Advanced Research and Reports*, 11, 4, 36-45.
110. Basharat, H., M. R. Ali, M. M. Shahid, A. Ahmed and S. Akhter. 2020. Introduction Of African Catfish (*Clarias Gariepinus*) In Aquaculture System Of Pakistan: Its Transportation, Acclimatization And Cannibalism Study. *Pak. J. Agri. Sci.*, 56:1645-1652
111. Bashir, M. A., C. Silvestri, T. Ahmad, I. A. Hafiz, N. A. Abbasi, A. Manzoor, V. Cristofori, and E. Rugini. 2020. Osmotin: A Cationic Protein Leads to Improve Biotic and Abiotic Stress Tolerance in Plants. *Plants*. 9 (8): 992-1008. doi:10.3390/plants9080992. Impact Factor: 2.762
112. Batool A., Z. Batool, R. Qureshi, N.I. Raja, 2020. Phytochemicals, Pharmacological Properties and Biotechnological Aspects of Highly Medicinal Plant: *Datura stramonium*. *Journal of Plant Sciences*. 8(2):29-40. (IF: 0.209)
113. Batool, S. I. Muhammad; A., Munir; A., Mahtab; Q. Hussain; I., Atef; Kong, Jie; Design and characterization of a biomass template/SnO2 nanocomposite for enhanced adsorption of 2, 4-dichlorophenol; *Environmental Research* 2020; Vol 181 Pages 108955.
114. Beig, B., M. B. K. Niazi, Z. Jahan, E. Pervaiz, G. A. Shah, M. Ul Haq, M. I. Zafar and M. Zia. 2020. Slow-release urea prills developed using organic and inorganic blends in fluidized bed coater and their effect on spinach productivity. *Sustainability*. 12: 5944:5960.
115. Beig, B., M. B. K. Niazi, Z. Jahan, S. J. Kakar, G. A. Shah, M. Shahid, M. Zia, M. U. Haq and M. I. Rashid. 2020. Biodegradable Polymer Coated Granular Urea Slows Down N Release Kinetics and Improves Spinach Productivity. *Polymers*. 12: 2623-2641.

116. Bhutta, M. A., F. A. Shaheen, M. U. Raja, M. Raza, M. Raza and M. Amjad. 2020. Pathogenicity of *Photorhabdus luminescens* and *Xenorhabdus Nematophila* against *Rhyzopertha dominica* (Bostrichidae: Coleoptera) in Stored Wheat Grains. *Plant Protection*, 4 (2): 75-82.
117. Bilal M. K., Hua-Mai Qiu, Shu-Ying Xu, Yang Liu and Kit-Leong Cheong. Physicochemical characterization and antioxidant activity of sulphated polysaccharides derived from *Porphyra haitanensis*. *International Journal of Biological Macromolecules*, Vol. 145, pp. 1155-1161, DOI: 10.1016/j.ijbiomac.2019.10.040. 5.162 Feb-20
118. Blouch, A., A. U.Mohsin, M. Naeem, R. Mahmood. 2020. Comparative efficacy of *Bacillus thuringiensis* commercial formulations against leaf worm *Spodopteralitura* (Lepidoptera: Noctuidae) Fabricius under laboratory conditions. *Pak. J. Zool.* 52(2): 609-616.
119. Bodlah M.A., Y. Niaz , M.T. Rasheed , A.G.E. Fareen , M. Nawaz , K. Ikram , M.M. Waqas , B. Rasool and I. Bodlah . 2020. Contribution to non-Apis bee fauna of family Apidae (Hymenoptera) from Layyah, Punjab, Pakistan. *Asian Journal of Agriculture and Biology*. 8(x): x-x.
120. Chatha, Z.A., A. Ahmad, F. Faiyaz and H. Ayub. 2020. Comparative effects of gamma irradiation, UV-C and hot water treatments on sensory attributes of mango fruit (*Mangifera indica* L.) cv. white and black chaunsa. *Pakistan Journal of Agricultural Sciences*. 57(2): 499-504.(0.618). Impact Factor (1.223)
121. Chaudhry, A. G., Ahmed, A. 2020. Disease Contour and Household Decision Making: A Gender Comparative Study of Older Persons. *Global Sociological Review*, V (I), 19-23.
122. Chaudhry, A. G., Ahmed, A., & Hayat, U. 2020. Polio Endemic: Perceptions and Practices from Sohan Village, Islamabad. *Global Political Review*, V(I), 62-71
123. Cheema, M. J. M., Khaliq, T., Liaqat, M.U., Khan, M.M. and Amin, H., 2020. Quantification of land use changes in complex cropping of irrigated Indus basin, Pakistan using MODIS vegetation time series data. *Pakistan Journal of Agricultural Sciences*, 57(2). 0.663 February 2020
124. Din, A., A. R. Muhammad, A. Kashif, A., A. Nadeem, M., Chughtai, M. F. Jahangir, K., A., A.. Samreen K., M. Imran, R. Aayesha, K. Rukhsana. 2020. Assesment of quality attribute of tomato sauce supplemented with moringa root. *Food science and technology*. (IF 1.7)
125. Din, A., Munir Ahmad, F.M. Watto, S. Ahmed, I. Ali and M.K.N. Shah. 2020. Drought tolerance screening in thirty common wheat (*Triticum aestivum* L.) genotypes. *Sarhad Journal of Agriculture*, 36(1): 168-177. (HEC recognized).
126. Din, S., and Hashmi, N. (2020). Socio-Economic Inquiry of Osteoporosis Patients In Pakistan. *Journal Masyarakat, Kebudayaan dan Politik*. 33 (2) Y- Category 2020
127. Aneela A., Afzal, I., Saleem, S., Afzal, A. (2020). Magnetic field treatments improve sunflower yield. *Polish Journal of Environment Studies*. X- Category 2020
128. Aneela A., Habib, N., Afzal, A., Rehman, S., Aziz, W. (2020). Societal Determinants of Anemia among Women of Reproductive Age and Role of Community Pharmacist for Its Management. *Journal of Pharmaceutical Research International*. 32(14): 135-145, 2020;Article no.JPRI.59795 ISSN Y- Category 2020
129. Aneela A., Habib, N., Rehman, S., Afzal, A., Arooj, S., and Farid, S. (2020). Socio-Cultural Risk Factors of Anemia among Children under Five Years of Age in District Muzaffarabad, Azad Jammu & Kashmir, Pakistan. *Journal of Pharmaceutical Research International*. 32(30): 100-112 Y- Category 2020
130. Aneela A., Tahir, R., Athar, R., Afzal, A. (2020). The Impact of greenwashing practices on green employee behavior. *Cogent Business and Management*. Taylor and Francis Routledge X- Category 2020

131. Ejaz, R., S. Qadeer, M. S. Ansari, B.A. Rakha, S. Shamas, I. Maqsood, A.U. Husna, A. Azam and S. Akhter. 2020. Fertility of Cryopreserved Buffalo Semen Can be Improved by Supplementation of Arachidic Acid in Extender. DOI: <http://dx.doi.org/10.17582/journal.pjz/2020.52>.
132. Evelyn S., S. H. Kim, Y. Y. Lee, H. K. Kim, S. S. Roh, Yi-Seong Kwak, Chae-Kyu Park, Sung-Dae Kim, and Man Hee Rhee. 2020. Anti-Melanogenic Effects of Korean Red Ginseng Oil in an Ultraviolet B-Induced Hairless Mouse Model. *Molecules*. 25: 4755 (IF = 3.267).
133. Evelyn S., S. H. Kim, Y. Y. Lee, C. Kyu Park, Jae-Wook Oh 4, Tae-Hwan Kim, Hyun-Kyoung Kim, Seong-Soo Roh and Man Hee Rhee. 2020. Korean Red ginseng extract ameliorates melanogenesis in humans and induces antiphotaging effects in Ultraviolet B-irradiated hairless mice. *J Ginseng Res* 44: 496-505 (IF = 5487).
134. Evelyn S., Y. sil L., W. K. Yang, Y. Y. Lee, M Ki Kim, Su-MinWoo, K. Kim, Young-Sam Kwon , Tae-Hwan Kim, Dongmi Kwak, Yang-Chun Park, Han Jae Shin, Chang Kyun Han, Jae-Wook Oh, Young Cheol Lee, Hyung-Sik Kang, Man Hee Rhee & Seung-Hyung Kim. 2020. Effects of a herbal formulation, KGC3P, and its individual components, nepetin, on coal-fly dust induced airway inflammation. *Scientific Reports* 10:14036 (IF = 3.998).
135. Evelyn S., Y. Y. Lee, M. H. Rhee, and S. Dae Kim. 2020. Alleviation of Ulcerative Colitis Potentially through th1/th2 Cytokine Balance by a Mixture of Rg3-enriched Korean Red Ginseng Extract and *Persicaria tinctoria*. *Molecules*. 25, 5230 (3.267).
136. Evelyn S., Y. Y. Lee, M. Kim , S. H. Hyun, C. K. Park, E. Son, D. S. Kim, Sung-Dae Kim and Man Hee Rhee. 2020. A novel herbal formulation consisting of Red ginseng extract and *Epimedium Koreanum Nakai* attenuated dextran sulphate sodium induced colitis in mice. *J Ginseng Res* 44: 833-842 (IF = 5.487).
137. Fahim, R., X. Lu, G.A. Jilani, H. Mahdi, M. Aslam. 2020. Synergistic long-term temperate climate nitrogen removal performance in open raceway pond and horizontal subsurface flow constructed wetland operated under different regimes. *Water, Air and Soil Pollution*, 231(5): 255. (Impact factor 1.900)
138. Farah B., N. Haider, S. U. Din, J. Krishin, N. Qayyum, T. Khaliq, G. K. Raja, H. Houlden, W. Ahmad, A. Ullah. S. Variants in Three Genes Underlying Leukodystrophy in Pakistani Families. *International Journal of Developmental Neuroscience*. 80(5): 380- 388 1.911 May-20
139. Fareen, A. G., I. Bodlah, M. T. Rasheed, Y. Niaz, M. A. Bodlah and M. Asif. 2020. Trophic associations of ants with aphid partners and new distribution records of some ants in Pothwar region of Pakistan. *Pakistan Journal of Zoology*. 1-10.
140. Farooq, F. Q., N., I. Hamid, S. M. Gillani, M. J. Iqbal. DWT based image fusion technique for infrared and visible images using particles swarm optimization. *Technical journal* 25. No. 1. 2020
141. Farooq, M. Z., Siddiqui, B. N., Masud, K., Khan, M. R. A., Tareen, W. H., Ali, M., Rayit, A., Shah, S. A. A., Dawood, K. M., Muhammad & Naeem, G. (2020). Comparison between public and private extension services for sugarcane production in Muzaffargarh District, Punjab, Pakistan. *Journal of Agricultural Extension and Rural Development*. 12(1): 1-5. DOI: 10.5897/JAERD2018.0946
142. Faryal K., M. Gulfraz, G. K. Raja, M. I. U. Haq, M. Awais, M. S. Mustafa, S. U. Khan, I. Tlili, M. S. Shadloo. Screening of native hyper-lipid producing microalgae strains for biomass and lipid production. *Renewable Energy*. 160:1295-1307 6.274 Jul-20
143. Fatima, H., T. Mahmood, S. Ali, F. Akrim, M. Farooq and S. Andleeb. 2020. Sympatric mongoose species may opt for spatial adjustments to avoid feeding competition at Margalla Hills National Park Islamabad, Pakistan. *Wildlife Biology*. 2020. wlb. 00654. DOI: 10.2981/wlb.00654. Impact Factor: 1.258

144. Fatima, Z., Ahmed, M., Hussain, M., Abbas, G., Ul-Allah, S., Ahmad, S., Ahmed, N., Ali, M. A., Sarwar, G., Haque, E. u., Iqbal, P. and Hussain, S. 2020. The fingerprints of climate warming on cereal crops phenology and adaptation options. *Scientific Reports*, 10(1), 18013. doi: 10.1038/s41598-020-74740-3 4.120 22 October 2020
145. Fatima, Z., Atique ur, R., Abbas, G., Iqbal, P., Zakir, I., Khan, M.A., Kamal, G.M., Ahmed, M., Ahmad, S. 2020. Quantification of Climate Warming and Crop Management Impacts on Phenology of Pulses-Based Cropping Systems. *International Journal of Plant Production*. <https://doi.org/10.1007/s42106-020-00112-6> 1.169 20 August 2020
146. Feng, L., M. A. Raza, J. Shi, M. Ansar, J. K. Titriku, T. A. Meraj, G. A. Shah, Z. Ahmed, A. Saleem and W. Liu. 2020. Delayed maize leaf senescence increases the land equivalent ratio of maize soybean relay intercropping system. *European Journal of Agronomy* 118: 126092. (IF = 3.7)
147. Feroza H. W., A. Akram, R. A. Kiani, M. H. S. Wattoo, M. U. Khan, J. K. Kiani, I. Ahmed. Biochemical and physiological monitoring of stress and cardiovascular diseases in different age groups of urban population. *Ciência e Técnica Vitivinícola*. 35(12): 13-26 0.85 2020
148. Fulin, S., Z. Liu, Y. Liu, K. L. Cheong, B. Teng and B. M. Khan. Comparison of physicochemical characteristics and macrophage immunostimulatory activities of polysaccharides from *Chlamys farreri*. *Marine Drugs*, Vol. 18(8), pp. 429, DOI: 10.3390/md18080429. 4.073 17-Aug-20
149. G. K. Raja, A. Mahmood, R. M. Saqlain, M. M. Zafar, A. M. Raja, P. A. Shaiq and S. M. S. Naqvi. B allele of β -lactoglobulin as a marker of dairy traits in Pakistani goat breed. *Journal of Animal and Plant Sciences*.30(1):18-24 0.481 Jan-20
150. Ghaffar A, Hussain R, Noreen S, Abbas G, Chodhary IR, Khan A, Ahmed Z, Khan MK, Akram K, Ulhaq M, Ahmad N, Ali F and Niaz M, 2020. Dose and time-related pathological and genotoxic studies on thiamethaxam in fresh water fish (*Labeo rohita*) in Pakistan. *Pak Vet J*. <http://dx.doi.org/10.29261/pakvetj/2020.002> (IF = 1.36).
151. Ghazal, R. Qadeer N. Malik A. K. Raza B., Ahmed M. Intelligent agent based RBAC model to support cyber security alliance among multiple organizations in global IT systems. 17th International conference on information technology- new generation (ITNG 2020) Las Vegas, USA)
152. Ghazala, R. M., A. K. Qadeer N. Raza B. Shahid A. R., Alquhayz H. Intelligent role based access control model and framework using semantic business roles in multi domain environments. *IEEE Access* ISSN: 2169-3536 vol. 08 2020
153. Ghazanfar, S., Chaudhry, A. G. 2020. Shrines and Religiosity: The Socioeconomic Functions Of Shrines In Potohar Region. *Pakistan Journal of Society, Education And Language*, 69(2):181-187
154. Ghilzai, S. A., Sultana, A., Zeeshan, M. (2020). Proverbial Rhetoric in Sustenance of Gender Biasness; An Ethnological Account of Proverbs from Pakistani Languages. *Global Language Review*, 5(2).
155. Gilani, N., M. Rafique, S. Akhter, H. Qureshi, A. Shoaib, S. Ahmad. 2020. Studies on the impact of key environmental variables on kashmir catfish (*Glyptothorax kashmirensis* Hora, 1923) distribution and abundance in Azad Jammu and Kashmir, Pakistan. *Kuwait J. Sci.* 47:72-81
156. Gill, S., M. Rais, M. Saeed, W. Ahmed, and A. Akram. 2020. The tadpoles of Murree Hills Frog *Nanorana vicina* (Anura: Dicroglossidae). *Zootaxa*. 4759 (3): 440–442.
157. Gill, S., M. Rais, M. Saeed, W. Ahmed, and A. Akram. A note on the oral disc of tadpoles of the Murree Hills Frog, *Nanorana vicina* (Stoliczka 1872). *Herpetology notes*. 13: 1003-1007
158. Gulakhmadov, A., Chen, X., Gulakhmadov, N., Liu, T., Anjum, M.N. and Rizwan, M., 2020. Simulation of the Potential Impacts of Projected Climate Change on Streamflow in the Vakhsh River Basin in Central Asia under CMIP5 RCP Scenarios. *Water*, 12(5), p.1426. 1.094 May 2020

159. Gulzar, A., T. Mukhtar and D.J. Wright. 2020. Effects of entomopathogenic nematodes *Steinernema carpocapsae* and *Heterorhabditis bacteriophora* on the fitness of a Vip3A resistant subpopulation of *Heliothis virescens* (Noctuidae: Lepidoptera). *Bragantia*, 79(2): 281-292. 1.058 Jun-2020
160. Gulzar, A. M. N. Tahir, Y Lan, Y Zhang, Y Wang, F Nawaz, MAA Shah, (2020) Real time estimation of leaf area index and groundnut yield using multispectral UAV Impact Factor 1.05
161. Gulzar, A, A. Asghar, T Mukhtar, MU Raja, Interaction between *Meloidogyne javanica* and *Ralstonia solanacearum* in chili. *Pakistan Journal of Zoology* 52 (4)
162. Gulzar, A. M. Hafeez, S. Liu, H. K. Yousaf, S Jan, RL Wang, GM Fernández-Grandon. RNA interference-mediated knockdown of a cytochrome P450 gene enhanced the toxicity of α -cypermethrin in xanthotoxin-fed larvae of *Spodoptera exigua* (Hübner) ... *Pesticide biochemistry and physiology* Impact Factor; 20751 162, 6-14
163. Gulzar A., M. Shehzad, J. T. Staley, M Tariq The effects of drought stress and type of fertiliser on generalist and specialist herbivores and their natural enemies *Annals of Applied Biology* Impact Factor; 2.037 <https://doi.org/10.1111/aab.12654>
164. Alam S, M. Tariq, A. Gulzar, R. Ali, S Khan, M Iqbal Efficacy of new chemistry insecticides on the haemocytes of maize stem borer, *Chilo partellus*, under laboratory conditions *Plant Protection* 4 (2)
165. H Yasmin, R Naz, A Nosheen, MN Hassan, N Ilyas, M Sajjad, S Anjum *PeerJ* Co-application of Bio-fertilizer and salicylic acid improves growth, photosynthetic pigments and stress tolerance in wheat under drought stress 2.318 2020
166. H Yasmin, R Naz, A. Nosheen, MN Hassan, N Ilyas, M Sajjad, S Anjum. Sustainability Identification of New Biocontrol Agent against Charcoal Rot Disease Caused by *Macrophomina phaseolina* in Soybean (*Glycine max* L.) 2.576 2020
167. Ali, A. 2020. Pre and post privatization assessment and banks performance: A case of south Asian countries. *Journal of Humanities and social sciences*. (HEC Y category)
168. H. M. Awais, M. Jamal and M. Javaid. 2020. Topological properties of metal-organic frameworks. *Main Group Metal Chemistry*. 43: 67–76. (IF=0.558).
169. Hafiz, U. R., W. Asghar, W. Nazir, M. A. Sandhu, A. Ahmed, N. Khalid. 2020. A comprehensive review on chlorpyrifos toxicity with special reference to endocrine disruption: Evidence of mechanisms, exposures and mitigation strategies. *Science of the Total Environment*. 755 (2): 142649. (IF = 6.551).
170. Hafiz, M. W., M. Moaen-ud-Din, M. S. Khan, M. Saif-ur-Rehman and M. S. Nawaz-ul-Rehman. 2020. Prediction of monthly body weight from body measurements in Beetal goats reared under field and farm conditions. *Journal of Animals & Plant Sciences*. 30(1): 25-31 (IF=0.481)
171. Haider, H., Zaman, M., Liu, S., Saifullah, M., Usman, M., Chauhdary, J.N., Anjum, M.N. and Waseem, M., 2020. Appraisal of Climate Change and Its Impact on Water Resources of Pakistan: A Case Study of Mangla Watershed. *Atmosphere*, 11(10), p.1071. 2.397 October 2020
172. Haider, M.I.S., R. Ahmad, S. Hyder, A. Mahmood, A. Khalid, N. Fatima, G. Jilani. 2020. Role of bacterial consortia in promoting plant growth and nutrient bioavailability. *Pakistan Journal of Agricultural Sciences*, 57(5): 1211-1220. (Impact factor 0.663)
173. Hamayat, N., I. A. Hafiz, T. Ahmad, I. Ali and A. A. Qureshi. 2020. Biochemical and physiological responses of peach rootstocks against drought stress. *Journal of Pure and Applied Agriculture*, 5(1): 82-89
174. Hameed, G., Saboor, A. and Sadozai, K. N., Ghaffar, A., Jan, D. and Rasheed, M. 2020. Correlates of poverty in Azad Jammu and Kashmir, Pakistan: A Logit analysis. *Sarhad Journal of Agriculture*, 36(2), 593-602 X Apr 2020
175. Hamid I., I. Binyamin, A. Ahsan, A. Riaz, M. A. Shahzad, M. Qayyum, N. Kanchanakhan, W. Siriwong, T. Pumpaibool , M. Hussain, M. Ashraf and A. Yousaf. 2020. Occurrence and Molecular

- Characterization of Shiga Toxin-Producing *Escherichia coli* Isolates Recovered from Cattle and Goat Meat Obtained from Retail Meat Shops in Rawalpindi and Islamabad, Pakistan. *Pak. Vet. J.*, <http://dx.doi.org/10.29261/pakvetj/2020.045>.
176. Hamid, H. N., M. Rais, M. Arif, and R. Noor. 2020. Amphibians and reptiles of Sheikh Buddin National Park, Khyber Pakhtunkhwa: Diversity, threats and conservation prospects. *Pakistan Journal of Zoology*. Impact Factor: 0.790 DOI: <https://dx.doi.org/10.17582/journal.pjz/20190826180828>
 177. Hamza, A. M., M. U. Hassan, A.U. Mohsin, S.Ghaffar, N.Mehmood, A. Qadir, K.Mehmood, M. S. Qureshi, E. U.Haq, H. M.Asadullah, M.Zeshan Ahmed. 2020. The impact of Entomopathogenic Fungi on the mortality of *Rhyzoperthadominica* (F.) on wheat grains under laboratory conditions. *Int. J. Entomol. Res.* 5(3): 65-68.
 178. Hamza, A., Anjum, M.N., M. Cheema, M.J., Chen, X., Afzal, A., Azam, M., Kamran Shafi, M. and Gulakhmadov, A., 2020. Assessment of IMERG-V06, TRMM-3B42V7, SM2RAIN-ASCAT, and PERSIANN-CDR Precipitation Products over the Hindu Kush Mountains of Pakistan, South Asia. *Remote Sensing*, 12(23), p.3871. 4.509 November 2020
 179. Hanif M. Mehmood R., Nguyen, L. V. Diversification, corporate Governance, regulation and Bank Risk taking. *Journal of financial reporting and Accounting*. (ESCI, Q3 & ABDC: C)
 180. Hanif, H., A. Waseem, S. Kali, N. Akhtar Qureshi, M. Majid, M.Iqbal, T. Ur-Rehman, M. Tahir, S. Yousaf, M. Mazhar Iqbal, I. Ahmad Khan, M. Iqbal Zafar, 2020. Environmental risk assessment of diclofenac residues in surface waters and wastewater: a hidden global threat to aquatic ecosystem. *Environ Monit Assess* 192:204 IF 1.959, March 2020
 181. Hassan, M. A. , I. Bodlah , A. Shehzad , N. Fatima and S. Fazal .2020. First record of the genus *Myolepta* Newman, 1838 (Diptera: Syrphidae) for Pakistan, with description of a new species, *Oriental Insects*, DOI: 10.1080/00305316.2020.1848656 (IF=0.33)
 182. Hassan, M.A., I. Bodlah, A. Shehzad and N. Fatima. 2020. New records of hoverflies of the genus *Volucella* Geoffroy (Diptera: Syrphidae) from Pakistan along with a checklist of known species. *Journal of Threatened Taxa* 12(11): 16632–16635.
 183. Hassan, M.A., I. Bodlah , M. Ahmad, A.R., Kayani, and K .Mehmood, 2020. First record of the genus *Graptomyza* Wiedemann, 1830 (Diptera: Syrphidae) from Pakistan. *The Journal of Animal & Plant Sciences*, 30(2): 512-516. (IF=0.529)
 184. Humayun A, M. A Zafar, AU Rahman and M Abdullah, 2020. Surgical improvisation of accidentally acquired left lateral paracosto-abdominal herniation in farmed deer *Gazella bennettii* (chinkara). *FUUAST Journal Biology*, 10: 67-70.
 185. Husna. A. U, A. Azam, M. A. Awan, M. Khalid, A. Sami, Q. Shahzad, M. S. Ansari, B. A. Rakha, S. M. S. Naqvi, S. Akhter. 2020. Efficiency of sucrose density gradient method for sex separation of buffalo spermatozoa as validated by SYBR Green Real Time PCR. *Animal Science Papers and reports*, 38: 21-33.
 186. Hussain S, Ali S, Mumtaz S, Shakir HA, Ahmad F, Tahir HM, Ulhaq M, Khan MA and Zahid MT. 2020. Dose and duration-dependent toxicological evaluation of lead acetate in chicks. *Environmental Science and Pollution Research*, pp.1-16. (IF = 2.914).
 187. Hussain, A., Cheema, S. A., and Hanif, M. (2020). A game based on successive events. *Stat*, e274 Published: 03 February 2020/ <https://doi.org/10.1002/sta4.274>. (IF 0.47, Wiley online Library).
 188. Hussain, M. I., Muscolo, A., Ahmed, M., Asghar, M. A. and Al-Dakheel, A. J. 2020. Agro-Morphological, Yield and Quality Traits and Interrelationship with Yield Stability in Quinoa (*Chenopodium quinoa* Willd.) Genotypes under Saline Marginal Environment. *Plants*, 9(12), 1763. <https://doi.org/10.3390/plants9121763> 2.762 13 December, 2020

189. Hussain, M., Zeeshan, M., & Chaudhry, A. G. 2020. Mobilising Social Capital in Healthcare Industry of Pakistan. *Journal of Applied Economics and Business Studies*, 4(2), 101-118.
190. Hussain, S. Z. Akram, G. Shabbir and Qadeer Ahmad. 2020. Response of soybean genotypes to different levels of mutagens for yield related attributes. *Biomed J. Sci. & Tech Res.*, 25(1): DOI: 10.26717/BJSTR.2020.25.004135 (Impact Factor = 0.548).
191. Hussain, S., Huang, K., Ilyas, Z. and Niu, B., 2020. Exploring the Novel Input Attributes Affecting eWOM. *Frontiers in Psychology*, 11. 2.067 Aug. 2020
192. Hussain, S., Song, X. and Niu, B., 2020. Consumers' motivational involvement in eWOM for information adoption: the mediating role of organizational motives. *Frontiers in psychology*, 10, p.3055. 2.067 21 2020
193. Hwang, J.H., Azam, M., Jin, M.S., Kang, Y.H., Lee, J.E., Latif, M., Ahmed, R., Umar, M. and Hashmi, M.Z., 2020. Spatiotemporal trends in reference evapotranspiration over South Korea. *Paddy and Water Environment*, 18(1), pp.235-259. 1.262 2020
194. Hwanga, J.H., San Kimb, H., Azamb, M. and Maengb, S.J., 2020. Optimal size estimation of water storage tank for upland crops. *DESALINATION AND WATER TREATMENT*, 200, pp.310-322. 1.2 October 2020
195. Hyder, S., Gondal, A.S., Rizvi, Z.F., Ahmad, R., Alam, M.M., Hannan, A., Ahmed, W., Fatima, N. and Inam-ul-Haq, M., Characterization of native plant growth promoting rhizobacteria and their anti-oomycete potential against *Phytophthora capsici* affecting chilli pepper (*Capsicum annum*). *Scientific Reports*, 3.9 2020
196. Ibrahim, B., S. Asad. 2020 Women Economic Empowerment and Employment Discrimination(Quality education a factor to boost women's economic empowerment and to reduce employment discrimination).Vol 1 No 2 *Pakistan Review of Social Sciences (PRSS)* z July 2020
197. Ibrahim, M., S, A. Ahmad, A. Sohail, and M. J. Asad. 2020. "Nutritional and Functional Characterization of Different Oat (*Avena Sativa* L.) Cultivars." *International Journal of Food Properties* 23(1):1373–85. DOI:10.1080/10942912.2020.1806297. 1.44 18 Aug 2020.
198. Ibrar D, R Ahmad, M. A. Khan, A. Javaid, Z Ahmed, Munir Ahmad, T Mahmood (2020). Population structure, linkage disequilibrium and association mapping study through SSR markers in sunflower (*Helianthus annuus*). *Intl J Agric Biol* 24:51–58. (IF= 0.822)
199. Ifra S., Ishrat N., Raja A. A. K., Musharaf A., Hussain, S. M. 2020. Screening of cucumber (*Cucumis sativus* L.) Cultivars against southern root knot nematode, *meloidogyne incognita* (kofoid and white) chitwood. *Bangladesh Journal of Botany*. 0253-5416. 49(3): 579-584. <https://doi.org/10.3329/bjb.v49i3.49642>.
200. Iftikhar A. K., M. R. Khan, M. H. A. Baig, Z. Hussain, N. Hameed, and J. A. Khan (2020). Assessment of forest cover and carbon stock changes in Sub-tropical Pine Forest of Azad Jammu & Kashmir (AJK), Pakistan using multi-temporal Landsat satellite data and field inventory, *PLOS ONE* 15(1): e0226341. <https://doi.org/10.1371/journal.pone.0226341> (I.F. 2.776).
201. Iftikhar, A., F. Hafeez, M. Hafeez, M. Farooq, M. A. Aziz, M. Sohaib, A. Naeem, and Y. Lu. 2020. Sublethal effects of a juvenile hormone analog, Pyriproxyfen on demographic parameters of non-target predator, *Hippodamia convergens* Guerin-Meneville (Coleoptera: Coccinellidae). *Ecotoxicology*. 29:1017–1028. <https://doi.org/10.1007/s10646-020-02159-7> (Impact Factor=2.440)
202. Ijaz, M.W., Mahar, R.B., Ansari, K., Siyal, A.A. and Anjum, M.N., 2020. Integrated assessment of contemporary hydro-geomorphologic evolution of the Indus River Estuary, Pakistan in context to regulated fluvial regimes. *Estuarine, Coastal and Shelf Science*, 236, p.106657. 2.333 May 2020

203. Ikram, K., Niaz, Y., Mansha, M.Z., Ghani, M.U., Shabir, F., Waqas, M.M., Bodlah, M.A., Nadeem, M., Afzal, A., Omer, M.M. and Waheed, A., cleaning material arrangement testing for sugarcane detriasher: a simulation approach. HEC 2020
204. Ikram, M, N. I. Raja, B. Javed, Z. R. Mishawani, M. Hussain, M. Hussain, M. Ehsan, N. Rafique, K. Malik, T. Sultana, A. Akram. 2020. Foliar Applications of Biofabricated Selenium Nano-particles to improve the growth of wheat plants under drought stress. Green processing and synthesis. 9:1-9 (Impact Factor 1.67)
205. Ilyas, M., R. Qureshi, Z. Haq, I.U. Haq, M. Munir, M. Munazir and M. Maqssod. 2020. Ecological evaluation of existing plant resources of Manrai Hills, Swat, Pakistan using multivariate analysis. Pakistan Journal of Botany, 52(5): 1727-1736. (Impact Factor: 0.672).
206. Ilyas, N.; Mazhar, R.; Yasmin, H.; Khan, W.; Iqbal, S.; Enshasy, H.E.; Dailin, D.J. Agronomy Rhizobacteria Isolated from Saline Soil Induce Systemic Tolerance in Wheat (*Triticum aestivum* L.) against Salinity Stress 2.603 2020
207. Ilyas, Z., Shahed, S. and Hussain, S., 2020. An Impact of Perceived Social Support on Old Age Well-Being Mediated by Spirituality, Self-esteem and Ego Integrity. Journal of religion and Health, pp.1-18. 1.162 January 2020
208. Imran, M., Mehmood, A. (2020). Analysis and mapping of present and future drivers of local urban climate using remote sensing: a case of Lahore, Pakistan. Arabian Journal of Geosciences. Vol. 278, Issue 13. DOI: 10.1007/s12517-020-5214-2
209. Imran, M., Jabeen, M. (2020). Visual exploration of scientific literature to formulate research policy: a case of GIS scholarly communication in Pakistan during 2000-2019. Geography in Higher Education. DOI: 10.1080/03098265.2020.1836480
210. Inam, U. H., M., Ali, S. A., Irshad, G., Khan, M. A., Ismail, S. (2020). Morphological and biochemical characterization of rhizobacteria associated with peach plant and evaluation of these hizobacteria against its fungal pathogens. Pakistan journal of botany, 52(6), 2197-2203.
211. Iqbal, M., F. A. Shaheen, M. Husain, Z. Shaheen and M. Fiaz. 2020. Cramming the effect of entomopathogenic fungi and entomopathogenic bacteria against *Callosobruchus chinensis* in chickpea grains stored in bags for longer duration. Egyptian Journal of Biological Pest Control. (Impact: 0.381)
212. Iqbal, S., Zha, T. S., Hayat, M., Khan, A., Ashraf, M I., Ahmad, B., Jan, S. A. (2020). Spatiotemporal variation and climate change impact on radial growth of chir pine (*Pinus roxburghii*) in a subtropical pine forest in Pakistan. Applied Ecology and Environmental Research. 18(4), 4839-4855. [IF 0.740]
213. Iqbal, U. and T. Mukhtar. 2020. Evaluation of biocontrol potential of seven indigenous *Trichoderma* species against charcoal rot causing fungus, *Macrophomina phaseolina*. Gesunde Pflanzen, 72(2): 195–202. 0.789 Apr-2020
214. Iqbal, U. and T. Mukhtar. 2020. Inhibitory effects of some fungicides against *Macrophomina phaseolina* causing charcoal rot. Pakistan Journal of Zoology, 52(2): 709-715. 0.79 Apr-2020
215. Iqbal, Z., M. F. Nasir, I Bodlahand K. Sawarayn.2020. A new species of *Sasajiscymnus* Vandenberg (Coleoptera: Coccinellidae) from Pakistan. Zootaxa. 4759 (3): 379-390. (IF=0.955)
216. Iqra R., Yamin B., Nabeela A., Sobia N. and Abdul Q. Evaluation of nutritional, phytochemical, antioxidant and cytotoxic potential of *Capsella bursa-pastoris*, a wild vegetable from Potohar region of Pakistan kuwait journal of science In Press 2020 0.89
217. Irfan M, Nasir Mukhtar, M. T Munir, Tanveer Ahamd. 2020. Gastric impaction: an important health and welfare issue of growing ostriches. Agricultura tropica ET subtropica 53/4, 149-155, 2020

218. Irfan, M., Ismail, S. B., Noor, N. M., Hussain, N. (2020). Efficacy of Aspirin for Vasculogenic Erectile Dysfunction in Men: A Meta-Analysis of Randomized Control Trials. *American journal of men's health*, 14(5), 1557988320969082. <https://doi.org/10.1177/1557988320969082> (2020)I.F. 1.605
219. Jamal, M., M. A. Aziz, M. Naeem, Z. Iqbal, A. Khalid, F. Siddique, K. A. Khan, H. A. Ghramh, 2020. Detection of flumethrin acaricide residues from honey and beeswax using high performance liquid chromatography (HPLC) technique. *Journal of King Saud University*. 32(3): 2229-2235. (Impact Factor=2.940) <http://doi.org/10.1016/j.jksus.2020.02.035>
220. Javaid A, Ahmed M, Hassan F. U, Hassan M. U, Ahmad M, Hayat R, (2020) Chickpea Modeling Under Rainfed Conditions In: Ahmed M (ed.), *Systems Modeling*, Springer Nature Singapore Pvt. Ltd., pp. 377-396. https://doi.org/10.1007/978-981-15-4728-7_13
221. Javed, B, Mashwani, Z. U. R. (2020). Phytosynthesis of colloidal nanosilver from *Mentha longifolia* and *Mentha arvensis*: Comparative morphological and optical characterization. *Microscopy Research & Techniques*. 1– 9. <https://doi.org/10.1002/jemt.23518> (IF: 2.117, Q1)
222. Javed, B., Nadhman, A., Mashwani Z. U. R. (2020). Optimization, characterization and antimicrobial activity of silver nanoparticles against plant bacterial pathogens phyto-synthesized by *Mentha longifolia*. *Materials Research Express*, 1–12. <https://doi.org/10.1088/2053-1591/abaf19> (IF: 1.929, Q3)
223. Javed, B., Nadhman, A., Mashwani Z. U. R. (2020). Phytosynthesis of Ag nanoparticles from *Mentha longifolia*: their structural evaluation and therapeutic potential against HCT116 colon cancer, Leishmanial and bacterial cells. *Applied Nanoscience*. <https://doi.org/10.1007/s13204-020-01428-5> (IF: 2.88, Q3)
224. Javed, B., Nadhman, A., Razzaq, A., Mashwani Z. U. R. (2020). One-pot phytosynthesis of nano-silver from *Mentha longifolia* L.: their characterization and evaluation of photodynamic potential. *Materials Research Express*, 7(5), 1–9. <https://doi.org/10.1088/2053-1591/ab903b> (IF: 1.929, Q3)
225. Javed, B., Mashwani Z. U. R. (2020). Synergistic Effects of Physicochemical Parameters on Bio-Fabrication of Mint Silver Nanoparticles: Structural Evaluation and Action Against HCT116 Colon Cancer Cells. *International Journal of Nanomedicine*, 15, 3621–3637. <https://doi.org/10.2147/IJN.S254402> (IF: 5.115, Q1) (IF=0.9) 16(2):516-522 Feb-2020
226. Javed, B., Seerat, W., Sarwer, A., Mashwani Z. U. R. (2020). Ethnopharmacological approaches of the native hill people of Murree and Kotli Sattian, District Rawalpindi, Province of Punjab, Pakistan. *Botany Letters*, 1–17. <https://doi.org/10.1080/23818107.2020.1806106> (IF: 1.048, Q3)
227. Javed, K., H.Javed and D.Qiu. 2020. Biocontrol Potential of Purified Elicitor Protein PeBL1 Extracted from *Brevibacillus laterosporus* Strain A60 and Its Capacity in the Induction of Defense Process against Cucumber Aphid (*Myzus persicae*) in Cucumber (*Cucumis sativus*). *Biology*, 9(7), 179.(IF=3.79)
228. Javed, K., H.Javed and D.Qiu. 2020. Direct and Indirect Effect of *Myzus Persicae* Infestation on Buildup of Whitefly(*Bemisia tabaci*) in Tomato Crop under Laboratory Conditions. *Global Journal of Science Frontier Research*, 20(2), 1-9.(IF=NA)
229. Jawad, H. M., M. Ali Raza, I. Khan, T. Ahmad Meraj, M. Ahmed, G. A. Shah, M. Ansar, S. A. Awan, N. Khan and N. Iqbal. 2020. Selenium and Salt Interactions in Black Gram (*Vigna mungo* L): Ion Uptake, Antioxidant Defense System, and Photochemistry Efficiency. *Plants* 9: 467.
230. Jawad H., M., Ali Raza, M., U. Rehman, S., Ansar, M., Gitari, H., Khan, I., Wajid, M., Ahmed, M, A. Shah, G., Peng, Y., Li, Z., 2020. Effect of Cadmium Toxicity on Growth, Oxidative Damage, Antioxidant Defense System and Cadmium Accumulation in Two Sorghum Cultivars. *Plants* , 9(11), 1575; <https://doi.org/10.3390/plants9111575> 2.762 13 November 2020
231. Jhanzab, H.M.; Razzaq, A.; Bibi, Y.; Yasmeen, F.; Yamaguchi, H.; Hitachi, K.; Tsuchida, K.; Komatsu, S Proteomic Analysis of the Effect of Inorganic and Organic Chemicals on Silver Nanoparticles in Wheat *International Journal of Molecular Sciences* Published 2019 3.687

232. K. Habib, T Ahmad, A Riaz, G M Ali., I Arif, M Imran, S Parveen, A Maqbool, s. Ghazanfar. March 2020. Molecular identification of lactic acid bacteria isolated from lactating cattle lower gut as a potential probiotic species. 2020. (IF 0.3)
233. Karamat,M.Z.,Irshad,G.,Riaz,A.,Ghuffar,S.,Naza,F.,Ashfaq,H.M.,Raja,M.U.,Qadir,A.,Mehmood,K.,Yang,H. and Guo,J. Efficacy of different plant essential oils against *Penicillium expansum* causing fruit rot of grapes. *Int.J.BioSci.*
234. Khalid, H., R. Qadri, M. T. Akram, N. Nisar, A. Iqbal, Y. Yang, M. M Khan, Imran-ul-Haq, Rashid Iqbal Khan, Muhammad Azhar Iqbal. (2020). Clonal propagation of olive (*Olea europaea*) through semi- hardwood cuttings using IBA under shaded polyethylene tunnels (SPTS). (2020) *Fresenius Environmental Bulletin*. 29: 8131-8137.
235. Khan M. N., Hussain M., Abbas G., Fatima Z., Iqbal P., Khan A., Zakir I., Ahmed M., Mateen A., Khan M. A. and Ahmad S. 2020. Improving Resource Use Efficiencies of Sugarcane at Farmer Field under Arid Environment. *International Journal of Agriculture & Biology*. DOI: 10.17957/IJAB/15.1560 0.822 31 August 2020
236. Khan, M A, Tahir A, Khurshid N, Husnain MIu, Ahmed M, Boughanmi H. 2020. Economic Effects of Climate Change-Induced Loss of Agricultural Production by 2050: A Case Study of Pakistan. *Sustainability* 12 (3):1216 <https://doi.org/10.3390/su12031216>, 2.576 7 February 2020
237. Khan, A., Aziz, L., Bhutta, M., Shahzad, M., Abbas, Z. Structural Factors Affecting Police Performance: An Evidence from Pakistan. *International Journal of Psychosocial Rehabilitation*. 24 (9), 4729-4738. Y-Category July, 2020
238. Khan, M. A., Amir, R.M., Ameer, K., Rakha, A., Faiz, F., Hayat, I., Nadeem, M., Ahmed, Z., Riaz, A. and Ashraf, I., 2020. Characterization of oat bran β -glucan with special reference to efficacy study to elucidate its health claims for diabetic patients. *Food Science and Technology*.1-8. Impact Factor (1.443)
239. Khan, A., G. Jilani, D. Zhang, S. Akbar, K.M. Malik, S. Rukh, G. Mujtaba. 2020. *Acidithiobacillus thiooxidans* IW16 and sulfur synergistically with struvite aggrandize the phosphorus bioavailability to wheat in alkaline soil. *Journal of Soil Science and Plant Nutrition*. 20: 95-104. (Impact factor 2.156)
240. Khan, A., Munir. Ahmad, M. K. N. Shah and M. Ahmed. 2020. Genetic manifestation of physiomorphic and yield related traits conferring thermotolerance in wheat. *Pak. J. Bot.*, 52(5): 1545-1552, 2020. (IF= 0.80)
241. Khan, A., Munir. Ahmad, M. Kausar N. Shah and M. Ahmed. 2020. Performance of wheat genotypes for morpho-physiological traits using multivariate analysis under terminal heat stress. *Pak. J. Bot.*, 52(6): 1981-1988. DOI: [http://dx.doi.org/10.30848/PJB2020-6\(30\)](http://dx.doi.org/10.30848/PJB2020-6(30)). (IF= 0.80)
242. Khan, H. A., Siddiqui, B, N., Ullah, M. A. (2020). Assessment of problems faced by groundnut growers of rain fed region of Punjab, Pakistan. *Advances in Agricultural Technology & Plant Sciences*, 3(3), 1-5. (International).
243. Khan, H. G. A., Zeeshan, M., Sultana, A. (2020). How Virtual Qur'an Teaching Empowers Women for Sustainable and Dignified Livelihood? *Journal of Religious Studies*, 3(1), 1-17.
244. Khan, H. S., M. Tariq, T. Mukhtar and A. Gulzar. 2020. Insecticidal toxicity of plant extracts and green silver nanoparticles against *Aedes albopictus*. *Pakistan Journal of Zoology*. Published online. November, 2020. DOI: <https://dx.doi.org/10.17582/journal.pjz/20191214051208>
245. Khan, I. Awan, S.S., Ikram, R. Rizwan M. , Akhtar, N. Yasmin H., Sayyed, R.Z. Ali S. Ilyas N. *Physiologia Plantarum* Effect of 24-Epibrassinolide on plant growth, antioxidants defense system and endogenous hormones in two wheat varieties under drought stress 4.148 2020
246. Khan, I., M. A. Raza, S. A. Awan, G. A. Shah, M. Rizwan, B. Ali, R. Tariq, M. J. Hassan, M. N. Alyemeni and M. Brestic. 2020. Amelioration of salt induced toxicity in pearl millet by seed priming

- with silver nanoparticles (AgNPs): the oxidative damage, antioxidant enzymes and ions uptake are major determinants of salt tolerant capacity. *Plant Physiology and Biochemistry* 156, 221-232.
247. Khan, M. A.; D. Jablonski, M. S. Nadeem, R. Masroor, C. Kehlmaier, C. Spitzweg, and U. Fritz 2020. Molecular phylogeny of *Eremias* spp. from Pakistan contributes to a better understanding of the diversity of racerunners. *J Zool Syst Evol Res*. DOI: 10.1111/jzs.12426. I.F. 2.159.
 248. Khan, M. F., I. A. Hafiz, N. A. Abbasi and M. K. N. Shah. 2020. Mitigation of seed dormancy and microsatellite analysis of hybrid population of Garden roses (*Rosa hybrida*). *Scientia Horticulturae* 262:109044. doi.org/10.1016/j.scienta.2019.109044. Impact Factor: 2.769
 249. Khan, M. R., B. A. Rakha, M. S. Ansari Diversity and Distribution of Genera *Schizothorax* and *Schizothorichthyes* in River Swat, Pakistan. *Pakistan Journal of Zoology*, 52(6): 2419-2421 . Impact Factor: 0,790
 250. Khan, M. R., T. Mahmood, H. Fatima, F. Akrim, S. Andleeb and A. Hamid. 2020. Distribution, Diet Menu and Human Conflict of Grey Wolf *Canis lupus* in Mahoodand Valley, Swat District, Pakistan. *Pakistan J. Zoology*. 52 (1): 179-191. Impact Factor: 0,790
 251. Khan, M.A., Ali, A., Mohammad, S. Ali, H. Khan, T. Mashwani ZUR, Jan, A. & Ahmed, P. (2020). Iron nano modulated growth and biosynthesis of steviol glycosides in *Stevia rebaudiana*. *Plant Cell Tissue Organ Culture (PCTOC)*, <https://doi.org/10.1007/s11240-020-01902-6> (IF: 2.196, Q2)
 252. Khan, M.B., X. Cui, G. Jilani, L. Tang, M. Lu, X. Cao, Z.A. Sahito, Y. Hamid, B. Hussain, X. Yang and Z. He. 2020. New insight into the impact of biochar during vermi-stabilization of divergent biowastes: Literature synthesis and research pursuits. *Chemosphere*. 238, 124679. (Impact factor 5.778)
 253. Khan, M.I., Zhu, X., Arshad, M., Zaman, M., Niaz, Y., Ullah, I., Anjum, M.N. and Uzair, M., 2020. Assessment of spatiotemporal characteristics of agro-meteorological drought events based on comparing Standardized Soil Moisture Index, Standardized Precipitation Index and Multivariate Standardized Drought Index. *Journal of Water and Climate Change*. 1.254 2020
 254. Khan, M. M., Cheema, M.J.M, Arshad, M. and Khaliq, T., 2020. Evaluation of climate change adaptation practices in the agriculture sector using satellite imagery in Pakistan. *Pakistan Journal of Agricultural Sciences*, 57(5). 0.663 September 2020
 255. Khan, M.R., Khan, I.A., Baig, M.H.A., Zheng-jia, L., Ashraf, M.I. (2020). Exploring the potential of Sentinel-2A satellite data for aboveground biomass estimation in fragmented Himalayan subtropical pine forest. *Journal of Mountain Sciences*. 17(2): 2880-2896. [IF 1.550]
 256. Khan, N., Siddiqui, B. N., Khan N., & Ismail, S. (2020). The Internet of thing in sustainable agriculture. *Artech Journal of Research Studies in Agricultural Sciences (AJRSAS)*, 2(1), 12-15. (International).
 257. Khan, N., Siddiqui, B. N., Khan, N., Ahmad, Z., Ismail, S., Javed, H. H. Ali, S. (2020). Mass media role in agricultural and rural development. *International Journal of Advanced Research in Biological Sciences*, 7(4), 199-209. doi: <http://dx.doi.org/10.22192/ijarbs.2020.07.04.025>. (International). (IF = 6.433).
 258. Khan, N., Siddiqui, B. N., Khan, N., Khan, F., Ullah, N., Ihtisham, M., Ullah, R., Ismail, S., Muhammad, S. (2020). Analyzing mobile phone usage in agricultural modernization and rural development. *International Journal of Agricultural Extension*, 08(02), 131-138. doi: 10.33687/ijae.008.02.3255. (International).
 259. Khan, N., Siddiqui, B. N., Khan, N., Ullah, N., Ismail, S., Ali, S., Hussain, S., Abbas, K. Ahmad, Z. (2020). Impact of newspapers and radio in promoting agricultural information among farmers. A case study of Pakistan. *International Journal of Advanced Research in Biological Sciences*, 7(4), 192-198. doi: <http://dx.doi.org/10.22192/ijarbs.2020.07.04.024>. (International). (IF = 6.433).
 260. Khan, N., Siddiqui, B. N., Khan, N., Ullah, N., Wali, A., Khan, I. U., Ismail, S., Ihtisham, M. (2020).

- Drastic impacts of COVID-19 on food, agriculture and economy. *Pure Applied Biology.*, 10(1): 62-68. <http://dx.doi.org/10.19045/bspab.2021.100008>. (HEC Recognized, Z Category).
261. Khan, N., Zhang, S., Siddiqui, B. N., Khan, N., Javaid, H., Ismail, S. Ahmad, Z. (2020). Role of ICTs in agricultural modernization and rural development. *International Journal of Advanced Research in Biological Sciences*, 7(4),199-209. (International).
 262. Khan, F.A., Ameer, K., Qaiser, M.A., Pasha, I., Mahmood, Q., Anjum, F.M., Riaz, A. and Amir, R.M., 2020. Development and analysis of bread fortified with calcium extracted from chicken eggshells of Pakistani market. *Food Science and Technology*. 1-7. Impact Factor (1.443)
 263. Khan, S. E., Chaudhry, A. G., Zeeshan, M. 2020. Covid-19; Studying Policy Gap in Relation to Role of Primary Health Care in Pakistan. *Global Social Sciences Review*, V (II), 1-9.
 264. Khan, S. U., Zafar, M., Ullah, R., Shahat, A. A., Ahmad, M., Sultana, S., & Malik, K. Pollen diversity and its implications to the systematics of mimosaceous species by LM and SEM. *Microscopy Research and Technique*.(2020). Impact Factor: 1.3.
 265. Khan, W. A., Farooq, S., Kadry, S., Hanif, M., Iftikhar, F. J., Abbas, S. Z. (2020). Variable characteristics of viscosity and thermal conductivity in peristalsis of magneto-Carreau nanoliquid with heat transfer irreversibilities. *Computer Methods and Programs in Biomedicine*, 105-355. (IF 3.424, Elsevier).
 266. Khatak, A., Bhutta, M., Ali, I., Arshad, K. (2020). Social Exclusion Of Transgender Community In District Charsadda. *Pakistan Journal Of Society, Education And Language*. 6(2). 2523-1227. Y-Category July, 2020
 267. Khosa, S.A., K. S. Khan, M. Akmal and K. M. Qureshi. 2020. Effect of combined application of organic and inorganic phosphatic fertilizers on dynamic of microbial biomass in semi-arid soil. *Soil Science Annual*, 71: 47–54.
 268. Khurshid. S, Q. Parveen, I. Yousafa, S. Mustafa, (2020), Prevalence of depressive symptoms among university students in Pakistan and Aaustralia, *J. Ponte*, (76), 1-10
 269. Khushi, S., Ahmad, S.R., Ashraf, A., Imran, M. (2020). Spatially analyzing food consumption inequalities using GIS with disaggregated data from Punjab, Pakistan. *Food Security*. DOI:10.1007/s12571-020-01057-4.
 270. Kinza K., N. Y. Zahid, A. A. Qureshi and K. Qureshi. Screening of local and exotic germplasm of chilli (*capsicum annum*) for drought tolerance. *journal of pure and applied agriculture* 5(1),69-81,2020
 271. Kiran A., S. Kabeer, S. Firasat, S. Jahan, M. Qayyum. 2020. Seroepidemiology of human fascioliasis and its relationship with anti-Fasciola IgG and liver enzymes as biomarkers of pathogenicity. *AfriHealthSci*.1120(1):208-18. <https://dx.doi.org/10.4314/ahs.v20i1.26>
 272. Laala,G. Raja,M.U.Irshad,G.Gardezi,S.R.H. and Akram,A. Four Species of True Morels (*Morchella*) Recorded from Poonch District (Azad Jammu and Kashmir). *J. Hort.Sci. and Technol.* 3(2):52-55. Jun-2020
 273. Li, D., Shangguan, D. and Anjum, M.N., 2020. Glacial Lake Inventory Derived from Landsat 8 OLI in 2016–2018 in China–Pakistan Economic Corridor. *ISPRS International Journal of Geo-Information*, 9(5), p.294. 2.239 May 2020
 274. Liaquat, M., A. M. Malik, M. Ishaq, H.M.Q. Ashraf and I. Naseem. 2020. Evaluation of growth parameters and germination behavior of different tomato (*Lycopersicon esculentum* Mill.) cultivars under hydroponic condition. *Pakistan Journal of Agricultural Research*, 33(3): 544-549. DOI | <http://dx.doi.org/10.17582/journal.pjar/2020/33.3.544.549> Y August 01, 2020

275. M. A. Iqbal, A. Mahmood, M. A. Khan, T. Ahmad, M. Azam, M. I. N. Bhatti, A. A. Awan, I. A. Hafiz. 2020 Role of compatible pollinizer for commercial olive production in Pothwar, Pakistan. *The Journal of Animal and Plant Sciences*. 30(6):1612-1621. IF. 0.4813.
276. Azeem A., S. Hammad, G. J. Hwang, S. Khan, S. M. Gillani, 2020. An Assistive environment for EAL academic writing using formulaic sequences classification interactive learning environment.
277. M. Kaleem, A. Ahmad, T. Masud and G. K. Raja. Physico-chemical analysis and optimization of ultrasound assisted extraction of phytochemicals from King's Ruby grapes. *Journal of Animal and Plant Sciences*. 30(1):205-211 0.481 Jan-20
278. Madiha K., H. Raza, Terri M. D., Paul J. Lee, L. Tejawani, A. Sami, M. Nawaz, S. M. Baig, J. Lim, G. K. Raja. Genetic risk of autism spectrum disorder among Pakistani population. *Genes*. 11(10):1206 3.759 Oct-20
279. Mehmood T. and A. Ahmed. 2020. Tween 80 and Soya Lecithin Based Food Grade Nanoemulsions for the Effective Delivery of Vitamin D. *Langmuir*, 36, 11, 2886–2892. Impact Factor (3.686) DOI: 10.1021/acs.langmuir.9b03944 <https://pubs.acs.org/doi/pdf/10.1021/acs.langmuir.9b03944>
280. Maeng, S.J., Azam, M., Lee, S.W. and Hwang, J.H., 2020. Analysis of River Bed Variation Based on Hydrological and Hydraulic Models: A Case Study on Hosan Stream Watershed, South Korea. In *Advances in Hydroinformatics* (pp. 1039-1053). Springer, Singapore. N/A July 2020
281. Mahmood, R., T. M. J. Asad, M. Asgher, S. H. Hadri, M. Gulfraz, J. H. D. Wu, M. I. Bhatti, N. Zaman, and D. Ahmed. 2020. First Report of Using Response Surface Methodology for the Biodegradation of Single Azo Disperse Dyes by Indigenous *Daedalea Dickinsonii*-IEBL-2. *Romanian Biotechnological Letters* 25(1):1236–45. DOI: 10.25083/rbl/25.1/1236.1245. 0.5 13-Mar-20
282. Mahmood, T., L. U. Khan and M. Naeem. 2020. Diversity and abundance of Avifauna of Manglot Wildlife Park, Nowshera District, Khyber Pakhtunkhwa, Pakistan. *Pakistan Journal of Zoology*. DOI: 6. <https://dx.doi.org/10.17582/journal.pjz/20191101061139> Impact Factor: 0,790
283. Mahwish R. and F. A. Shaheen. 2020. Evaluating insecticidal aptness of certain plant extracts against saw-toothed grain beetle in stored split-chickpea. *Saudi Journal of Biological Sciences* (Impact: 2.820)
284. Malik, K.M., K.S. Khan, M.S. Akhtar and Z.I. Ahmad. 2020. Sulphur distribution and availability in alkaline subtropical soils affected by organic amendments. *Journal of Soil Science and Plant Nutrition* (<https://doi.org/10.1007/s42729-020-00292-0>).
285. Malik, M.A., N. Khurshid and M. Rizwan. 2020 How Tariff Reduction Impact Global Economy- A CGE Analysis of Wood Economy of Pakistan, FWUJSS14-1 2020 1-14 X March 2020
286. Manaf, A., M. Shoukat., A. Sher., A. Qayyum and A. Nawaz. 2020. Seed yield fatty acid composition in sesame (*Sesamum indicum* L.) as affected by silicon application under a semi-arid climate. *Agrociencia* 54:367-376 (IF 0.370)
287. Mazhar R., N. Ilyas, M. Arshad, A. Khalid *Pakistan Journal of Botany* 52 (4), 1159-1168
Amelioration potential of biochar for chromium stress in wheat 0.8 2020
288. Mazhar, R., N. Ilyas, M. Arshad, A. Khalid and M. Hussain. 2020. Isolation of heavy metal-tolerant PGPR strains and amelioration of chromium effect in wheat in combination with biochar. *Iran Journal Science Technol Trans Sci*. 44:1–12 (IF=0.875)
289. Mehdi. M., Ehsan, M. B., Ahmad, B., Sadozai, K.N., Hameed, G. and Asif, M. 2020. Value chain development and social upgrading at upstream of mango value in Pakistan. *Sarhad Journal of Agriculture*, 36(2), 574-585 X April 2020
290. Mehmood A. Nguyen, H. and Tayachi, T. 2020. Do firm specific risks affect the bank performance? *International Journal of Emerging Markets*.

291. Mehmood, K., Arshad, M., Ali, G.M., Shah, S.H., Zia, M.A., Qureshi, A.A. and R. Qureshi. 2020. Drought stress tolerance in transgenic wheat conferred by expression of a dehydrationresponsive element-binding 1a gene. *Applied Ecology and Environmental Research*, 18(2):1999-2024. (Impact Factor: 0.74).
292. Mehmood, M. Z., Afzal, O., Aslam, M. A., Riaz, H., Raza, M. A., Ahmed, S., Qadir, G., Ahmad, M., Shaheen, F. A., Hassan, F.U., & Shah, Z. H. (2020). Disease Modeling as a Tool to Assess the Impacts of Climate Variability on Plant Diseases and Health. In *Systems Modeling* (pp. 327-351).
293. Memuna A., M. Ahmad, A. Farooqi, Q. Hussain, M. Ahmad, M. I A. Wabel, H. Saleem (2020). Arsenic release in contaminated soil amended with unmodified and modified biochars derived from sawdust and rice husk. *Journal of Soils and Sediments*, 20: 3358-3367.
294. Meng, C., Huang, Y. Rehman, Z U, Hu, W. Li. C. Liang, R. Chen, Z, Song, K. Wei, T. and Liu G. (2020) Development of an mca based real time rt qpcr assay for the simultaneous detection and differentiation of duck hepatitis a virus types 1 and 3. *Virologica sinica*. 10.1007/s 12250-00211-8. IF 3.3242
295. Misbah K., M. Gulfraz, A. A. Farooqi, I. Ahmad, M. S. Ahmad. Role of Deglycosylation for Antioxidant Potential of Selected Plant Extracts. *Pharm Chem J* (2020), 54(5) 490-495. <https://doi.org/10.1007/s11094-020-02227-6> 0.538 Aug-20
296. Mobushir, R. K., I. A. Khan, M. H. A. Baig, Z. Liu, and I. Ashraf (2020). Exploring the potential of Sentinel-2A satellite data for aboveground biomass estimation in fragmented Himalayan subtropical pine forest. *Journal of Mountain Science*. J. Mt. Sci. 17, 2880–2896 (2020). <https://doi.org/10.1007/s11629-019-5968-8>.
297. Moid A., A. I. Hunjra. 2020. Use anger to guide your stock market decision-making: results from Pakistan. *Cogent economics & Finance*. (Q3, ESCI, Scopus, ABDC:B)
298. Muhammad A., S. M. Hina, J. Szmerkovsky, E. Lee, , S. Arooj, Effective municipal solid waste collection using geospatial information systems for transportation: A case study of two metropolitan cities in Pakistan (IF 2.3)
299. Muhammad A. A., S. Tabassam, M. Gulfraz, M. S. Ahmad, G. K. Raja and M. Arshad. Isolation of Oxyberberine and β -Sitosterol from *Berberis lycium* Royle root bark extract and in vitro cytotoxicity against liver and lung cancer cell lines. *Evidence-Based Complementary and Alternative Medicine*. Volume 2020, Article ID 2596082, 9 pages 1.813 May-20
300. Muhammad A. H., I. B., M. Ahmad, A R Kayani, K. Mehmood (2020) First record of the genus *Graptomyza* Wiedemann, 1830 (Diptera: Syrphidae) from Pakistan, *Journal of Animal and Plant Sciences* 30(2):512-516 (IF = 0.529).
301. Muhammad A., R. Qadri, M. T. Akram, S. Ejaz. (2020) Cultivation and Growth Constraints of Ornamental Palms. In: Imran Ul Haq and Siddra Ijaz. (eds) *Etiology and Integrated Management of Economically Important Fungal Diseases of Ornamental Palms*. Sustainability in Plant and Crop Protection, vol 16. Springer, Cham. https://doi.org/10.1007/978-3-030-56330-1_3
302. Muhammad A., D. Sund, D. Crowley, R. Hayat, Q. Hussain , A. Ali, M. I. Tahir, P. G. S. Arockiam J., J. Rinklebe, Z. Zhang. 2020. Crop types have stronger effects on soil microbial communities and functionalities than biochar or fertilizer during two cycles of legume cereal rotations of dry land. *Science of the Total Environment* 715; 136958.
303. Muhammad M. K., M. T. Akram, R. W. K. Qadri, R. A. Yahyai. (2020). Role of Grapevine Rootstocks in Mitigating Environmental Stresses: A review. *Journal of Agricultural and Marine Sciences* 2020, 25(2): 1-12.

304. Muhammad, M. K., M. T. Akram, R. Janke, R. W. K. Qadri, A. M. Al-Sadi and A. A. Farooque. Urban horticulture for food secure cities through and beyond COVID-19. Sustainability. 12: 9592. Available online doi:10.3390/su12229592
305. Muhammad, T. A., R. W. K. Qadri, M. J. Jaskani and F. S. Awan. (2020). Phenological and physicochemical evaluation of table grapes germplasm growing under arid subtropical climate of Pakistan. Pakistan Journal of Botany 52(3): 1011-1018.
306. Muhammad, T., S. A. Shad, C. Karavina, M. Ahmad, M. A. Saleem and M. Binyameen. 2020. Economic analyses, injury levels and thresholds for effective management of *Eariasvittella* (Fab.) on *Gossypiumhirsutum*. The Journal of Animal and Plant Sciences, 30(3): 693-701 (IF= 0.529).
307. Muhammad ul Haq, Tariq Mukhtar, Muhammad Inam ul Haq and Azeem Khalid. Reproduction of root-knot nematode, *Meloidogyne incognita* on *Solanum melongena* genotypes determines their host status. Pak.J.Zoology. 2020
308. Muhammad Umer, Saba Shabbir, Neelam Chaudhary, Qaiser Hussain, Shabbar Abbas, Muhammad Inam Afzal, Muhammad Sajjad (2020). Influence of biochemical treatments on consortium of rhizobacteria and soil fertility. Bangladesh Journal of Botany, 49 (3): 437-444.
309. Muhammad, H. R., K. Gul, A. Arshad, N. Riaz, U. Waheed, A. Rauf, F. Aldakheel, S. Alduraywish, M. U. Rehman, M. Abdullah, M. Arshad. Microbiota in cancer development and treatment. Journal of Cancer Research and Clinical Oncology (2020) 145:49-63. (IF=3.3)
310. Muhammad, W., H. Javed, M. Ahmad, T. Mukhtar. 2020. Optimizing transplanting time for better crop yield and damage incidence of brinjal shoot and fruit borer under field conditions. Pakistan Journal of Zoology. 0.79 Aug-2020
311. Muhammad, W., K. Javed, H. Javed, M. Ahmad and M.A. Khan.2020. The impact of transgenic brinjal for the control of *Leucinodes orbonalis* and possible effects on non-target arthropods: a comprehensive review. Plant Protection, 4(3), 131-135.(IF=NA)
312. Mukhtar A, S. Ahmad, M. Tariq, Z. Fatima, Z. Aslam, M. A. Raza, N. Iqbal, M. Akmal, Fayyaz-ul-Hassan, N. A. Abbasi & R. Hayat.2020. Wastes to be the source of nutrients and energy to mitigate climate change and ensure future sustainability: options and strategies. Journal of Plant Nutrition. DOI: 10.1080/01904167.2020.1711944. IF:1.139
313. Mukhtar, T. and M.Z. Kayani. 2020. Comparison of the damaging effects of *Meloidogyne incognita* on a resistant and susceptible cultivar of cucumber. Bragantia, 79(1): 83-93. 1.058 Mar-2020
314. Munawar, N. and T. Mahmood. 2020. Chemical control of rodents and its impact on rodent infestations during subsequent cropping season. International J. Pest Management. DOI: 10.1080/09670874.2020.1861362 Impact Factor: 1.091
315. Muneeb, M., Ayub, M., Khan, S. B., Sohail, A., Jabeen, F., Khan, M. A Khan., & Ahmad, I. (2020). Quality Assessment of Cottage Cheese Available in Peshawar, Pakistan. Pakistan Journal of Zoology, 52(2), 687. Caprine and Ovine Serological evidence of Brucellosis in Five Districts of Punjab (published)
316. Munir A., A. R. Usman, Q. Hussain, A. S F Al-Farraj, Y. F. Tsang, Jochen Bundschuh, Mohammad I Al-Wabel (2020). Fabrication and evaluation of silica embedded and zerovalent iron composited biochars for arsenate removal from water. Environmental Pollution, 266: 115256.
317. Mushtaq, M., M. J. Asad, M. Z. Hyder, S. M. S. Naqvi, S. I. Malik, and R. T. Mahmood. Expression of serpin by *Clostridium thermocellum* and simultaneous saccharification of lignocellulosic biomass to enhance ethanol production. Bio Resources 15(4),8662-8676. 1.409 23-Sep-20
318. Mushtaq, M., M. J. Asad, M. Z. Hyder, S. M. S. Naqvi, S. I. Malik, and R. T. Mehmood. 2020. Serpins: Purification and Characterization of Potent Protease Inhibitors from *Clostridium thermocellum*. 1–17. DOI: 10.1101/2020.04.21.053413. NA 23-Apr-20

319. Mustafa. S., S. Siddique, C. Kadilar, (2020) , Improved Fuzzy Forecasting Model for Stock Exchange Market, Punjab University Journal of Mathematics, Vol. 52, 1-15. (X cateogry).
320. N. Sajjad, S. M. S. Naqvi, M. J. Asad, N. I. Raja M. Pusttai-Carey and M. S. Ahmad. 2021. Biochemical, purification, sequencing and alignment studies of the novel polyphenol oxidase isoforms from *Musa acuminata* fruit pulp. The journal of Animal and plant sciences.31(2):542-555. (Impact Factor 0.481)
321. Nabeela A., I. Riaz, S. Nisa, A. Qayyum and Y. Bibi. Medicinal and Nutritional Assessment of *Solanum villosum* Extracts BLACPMA - Boletín Latinoamericano Y del Caribe de Plantas Medicinales Y Aromáticas In Press 2020 0.8
322. Naqvi, S. M. H., Siddiqui, B. N. (2020). Constraints in using mobile phone as an information source in vegetable development: A case of D. G. Khan, Pakistan. International Journal of Advanced Research in Biological Sciences, 7(7), 69-75. doi: <http://dx.doi.org/10.22192/ijarbs.2020.07.07.008>. (International). (IF = 6.433).
323. Naqvi, S. M. H., Siddiqui, B. N., Naqvi, S. A. H., Irfan, M. (2020). Factors influencing the use of mobile phone as an information source for vegetable growers: A Case of Dera Ghazi Khan, Punjab, Pakistan, International Journal of Biosciences, 17(6), 139-146. (International).
324. Naqvi, S. M. H., Siddiqui, B. N., Tareen, W. U. H., Naqvi, M. A. Q., Hussain, N. (2020). Usage of mobile phone by vegetable growers and its impact on vegetable production. Sarhad Journal of Agriculture. 36(3): 900-905. doi <http://dx.doi.org/10.17582/journal.sja/2020/36.3.900.905>. (HEC Recognized, Y Category).
325. Nargis N, M. Naeem, L. Vilhemsen, I. Bodlah and M.S. Nadeem.2020. New records and spatio-temporal distribution of rarely collected tribe Adeshini (Braconidae: Braconinae) from Pakistan. The Journal of Animal & Plant Sciences, 30(5): 1319-1330. IF (0.481)
326. Naseer Z, E Ahmad, ET Epikmen, M Aksoy.2020. Impact of quercetin supplementation on testicular functions in summer heat-stressed male rabbits. World Rabbit Sci, 28: 19-27
327. Nasir, S., Sajid, M., Zahid, F.M., Anjum, M.N., Khan, N.A., Ashraf, I., Saddiq, B., Ahmad, B., Bashir, W. and Mehmood, S., 2020. An Appraisal Of The Effects Of Organophosphate On Biochemical Parameters Of Farmers. Pakistan Journal of Agricultural Sciences, 57(4). 0.663 July 2020
328. Nasreen, S., M. A. Awan, A.U.Husna, B. A. Rakha, M. S. Ansari, W. Holt and S. Akhter. 2020. Honey as an alternative to antibiotics for cryopreservation of Nili-Ravi buffalo bull spermatozoa. BIOPRESERVATION AND BIOBANKING. 18(1): 25-32
329. Naveed A., M. I. Ashraf, S. U. Malik, I. Qadir, M. N. A and K. Khan, "Impact of Climatic and Topographic Factors on Distribution of Sub-tropical and Moist Temperate Forests in Pakistan", Geomorphology: relief, process, environment [Online], Articles in press, posted online May 25, 2020, accessed July 21, 2020
330. Nawaz R., N.A. Abbasi, I. A. Hafiz and A. Khalid. 2020. Impact of varying agrometrological indics on peel color and composition of Kinnow fruit (*Citrus nobilis* Lour x *Citrus deliciosa* Tenora) grown at different ecological zones. Journal of the Science of Food and Agriculture. DOI 10.1002/jsfa.10300 (IF=2.614)
331. Nawaz, A. , H. Ali, M. Sufyan , M. D. Gogia , M. J. Arif , A. Ali , M. Qasim , W. Islam , N. Ali , I. Bodla , M. Zaynab , K. A. Khan, and H. A. Ghram.2020. In-vitro assessment of food consumption, utilization indices and losses promises of leafworm, *Spodopteralitura*(Fab.), on okra crop. Journal of Asia-Pacific Entomology. 23.60-66.
332. Nawaz, R., M. U. Raja, F. Naz, I. Bodlah and J. Nadir .2020. Estimation efficacy of chemicals, botanicals and antagonist for the management fruit rots of grapes. Journal of Agricture Research, 58(2):77-83.

333. Nawaz, R., N. A. Abbasi, I.A. Hafiz and A. Khalid. 2020. Impact of varying agrometeorological indices on peel color and composition of Kinnow fruit (*Citrus nobilis* Lour x *Citrus deliciosa* Tenora) grown at different ecological zones. *Journal of the Science of Food and Agriculture*. 2020 Jan 30. Impact Factor: 2.614
334. Nawaz, R., N.A. Abbasi, I.A. Hafiz and A. Khalid. 2020. Impact of climate variables on growth and development of Kinnow fruit (*Citrus nobilis*Lour x *Citrus deliciosa* Tenora) grown at different ecological zones under climate change scenario. *Scientia Horticulturae* 256: 108514.(IF=2.769)
335. Nawaz, R., N.A. Abbasi, I. A. Hafiz and A. Khalid. 2020. Increasing level of abiotic and biotic stress on Kinnow fruit quality at different ecological zones in climate change scenario. *Environmental and Experimental Botany* 171: <https://doi.org/10.1016/j.envexpbot.2019.103936>(IF=4.027)
336. Naz, R., A R. Kayani, M. S. Nadeem, M. Mushtaq and M. Qayyum. 2020. Food habits of Indian bush rat (*Golundaellioti*Gray, 1837) in Pothwar region, Pakistan. *Mammalia*. 84(6): 553-561. (IF=0.679)
337. Noor, R.S., Hussain, F. and Umair, M., 2020. Evaluating Selected Soil Physical Properties Under Different Soil Tillage Systems In Arid Southeast Rawalpindi, Pakistan. *Journal Clean WAS (JCleanWAS)*, 4(2), pp.41-45. HEC May 2020
338. Noor, R.S., Hussain, F., Farooq, M.U. and Umair, M., 2020. Cost And Profitability Analysis Of Cherry Production: The Case Study Of District Quetta, Pakistan. *Big Data In Agriculture (BDA)*, 2(2), pp.74-80. HEC June 2020
339. Noor, R.S., Hussain, F., Umair, M., Aslam, W., Ameen, M., Islam, M.A. and Sheraz, M., 2020. Yield and economic analysis of peanut production under different soil tillage systems in north-east region. *Pakistan Journal of Agricultural Research*, 33(3), pp.490-497. HEC 2020
340. Noor, R.S., Hussain, F., Umair, M., Farooq, M.U., Saad, A. and Sun, Y., 2020. Silage Corn Production Under Different Planting Methods In Rainfed Agriculture System: An Energy Analysis. *Big Data In Agriculture (BDA)*, 2(1), pp.32-35Volume. HEC August 2020
341. Noor, R.S., Wang, Z., Umair, M., Ameen, M., Misaal, M.A. and Sun, Y., 2020. Long-term application effects of organic and chemical fertilizers on soil health and productivity of taramira (*eruca sativa* l.) Under rainfed conditions. *J Anim Plant Sci*, 30(4), pp.970-987. 0.481 The japs April 2020
342. Norhayati N. H. M., Bahari, I. S., Zaharah, S., Hazlina, N. H. N., Aimanazru, Z. M., & Irfan, M. (2020). Metoprolol for prophylaxis of postoperative atrial fibrillation in cardiac surgery patients: systematic review and meta-analysis. *BMJ open*;10: e038364. doi: 10.1136/bmjopen-2020-038364 (2020)I.F.2.496
343. Noshin I., M. W. Amjid, M. A. Saleem, W. Khan, F. M. Wattoo, R. M. Rana, R. H. M., A. Zahid, G. A. Shah, A. Anwar, M. Q. Ahmad, M. Shaheen, H. Riaz, M. J. Ansari. (2020). Quantitative trait loci (QTL) mapping for physiological and biochemical attributes in a Pasban90/Frontana recombinant inbred lines (RILs) population of wheat (*Triticum aestivum*) under salt stress condition. *Saudi Journal of Biological Sciences*. 27 (1) 341-351.
344. Qadeer, A., Butt, S.J., Asam, H.M., Mehmood, T., Nawaz, M.K. and Haidree, S.R., 2020. 3. Hydroponics as an innovative technique for lettuce production in greenhouse environment. *Pure and Applied Biology (PAB)*, 9(1), pp.20-26. HEC March 2020
345. Qadeer, A., Butt, S.J., Asam, H. M., Nawaz, M. K., Haidree, S.R. and Mehmood, T., 2020. 115. Development and testing of re-circulating nutrient film technique. *Pure and Applied Biology (PAB)*, 9(1), pp.1209-1215. HEC March 2020
346. Qamar, H, G. Shabbir, M. Ilyas, S. I. Malik, T. Mahmood and H. S. B. Mustafa. 2020 Studies on genetic divergence of rapeseed genotypes using SSR markers. *Pak. J. Bot.*, 52(1): 197-204.

347. Qayyum M. M., I. Hassan, N. A. Abbasi, and A. Khalid. 2020. Mitigation of Low Temperature stress by polythene for quality production of Gladiolus (*Gladiolus hortulanus* L.) during winter. *Applied Ecology and Environmental Research*. 18(3): 4469-4486. (Impact factor: 0.74)
348. Quratulain, Ata U. M., M. Naeem, G. Shabbir, M. R. Khalid and R. Mahmood. 2020. Screening of onion (*Allium cepa* L.) accessions for susceptibility to *Thrips tabaci* L. (Thysanoptera: Thripidae) under insecticide-free field conditions. *Pak. J. Zool.*, 52(5): 1691-1699. (Impact Factor 0.79)
349. Qureshi, M. S. , A. U. Mohsin , M. Naeem and K. N. Shah, 2020.Parasitism and sex ratio of *Diadegmainsulare* (Cresson) (Hymenoptera: Ichneumonidae) against *Plutella xylostella* (Linnaeus) (Lepidoptera: Plutellidae) on cruciferous cultivars under different temperatures. *Egyptian J. Biol. Pest Control*, 30:122
350. Qureshi, S. T., M. Fiaz, M. I. Khan, K. Ishaq, T. Ahmad, M. Shakeel, M. Yaqoob, M. Aslam, I. H. Jo. 2020. Effect of probiotic and varying dietary protein levels in creep feed on growth performance of Salt Range lambs. *Pakistan Journal of Science*, 72(3): 198-2020. (HEC recognized Category Y)
351. R. Ejaz, S. Qadeer, M.S. Ansari, B. A. Rakha, S. Shamas, A. Azam, I. Maqsood, A.U. Husna, S. Akhter. In vitro Supplementation of Linoleic Acid Improves Quality of Cryopreserved Buffalo Semen. *Indian Journal of Animal Research*, Doi: 10.18805/ijar.B- 1182. Impact Factor: 0,395
352. Rabia K., Xiao Xia Zhang, R. H. and M. Ahmed. 2020. Molecular Characteristics of Rhizobia Isolated from *Arachis Hypogaea* Grown under Stress Environment. *Sustainability*; 12, 6259.
353. Rashid, F., Ahmed, Z., Ameer, K., Amir, R.M. and Khattak, M., 2020. Optimization of polysaccharides-based nanoemulsion using response surface methodology and application to improve postharvest storage of apple (*Malus domestica*). *Journal of Food Measurement and Characterization*, 14(5), pp.2676-2688. Impact Factor (1.648)
354. Rafiq A., Guangrong Li, M. K. Nawaz, M. U. Hassan, S. Saeed, D. Ibrar, J. S. (Pat) Heslop-Harrison, Zujun Yang, Nadeem Khan. Association of sub-telomeric satellite DNA with 45S rDNA in cultivated onion (*Allium cepa*) with denaturing and non-denaturing (ND-) FISH. *International Journal of Agriculture and Biology*. DOI: 10.17957/IJAB/15.1583 0.822 2020
355. Rafiq A., Mahmood U. H., G. B Akhtar, S. Saeed, M. K. N. Shah, N. Khan. Identification and characterization of important sterile and maintainer lines from various genotypes for advanced breeding programmes of onion (*Allium cepa*). *Plant Breeding*. 2020;139:988–995. DOI.org/10.1111/pbr.12844 1.662 May-20
356. Rahman, M. A., S. M. Hashmi, Q. Zaman, A. H. Hashmi and A. Saboor. 2020. Economic Impacts of Climate Change On Rice Production In The Rice-Wheat Cropping Zone Of Pakistan. *Fresenius Environmental Bulletin*, 29(10): 8915- 8919. 0.554 October 2020
357. Riaz, A., Iqbal, M.S., Fiaz, S., Chachar, S., Amir, R.M. and Riaz, B., 2020. Multivariate Analysis of Superior *Helianthus annuus* L. Genotypes Related to Metric Traits. *SainsMalaysiana*, 49(3), pp.461-470. Impact Factor (0.643)
358. Khan, M. R., Batool, M., Amir, R. M., Shabbir, A., Siddique, F., Adil, R. M., Ameer, K., Din, A., Rakha, A, Riaz, A and Faiz, F. (2020). Ameliorating effects of okra (*Abelmoschus esculentus*) seed oil on hypercholesterolemia. *Food Science and Technology*.1-7. Impact Factor (1.443)
359. Rahman, M. A., Saboor, A., Zaman, Q. U, Hameed, G., Hussain, Z., Rizwan, M., Khan, M. and Tanveer, F. 2020. Exercising Ricardian Empirics to Investigate the Impact of Climate Change On Dairy Production in Pakistan, *Fresenius Environmental Bulletin*, 29(6):4831-4840 0.37 June 2020
360. Rajput, H. A., Chaudhry, A. G. 2020. Parental Conflict and Role of CP & WB on children life. *Global Regional Review*, V(I), 269-278.

361. Rakha, B. A., M.S. Ansari, S. Akhter, A. Akhter, E. Blesbois and J. Santiago-Moreno. Effect of dimethylformamide on sperm quality and fertilizing ability of Indian red jungle fowl (*Gallus gallus murghi*). *Theriogenology*, 149: 55-61. Impact Factor: 2,094
362. Rakha, B. A., Qurrat-ul-Ain, M. S. Ansari, S. Akhter, A. Akhter, M. A. Awan, J. Santiago-Moreno. 2020. Effect of Quercetin on Oxidative Stress, Mitochondrial Activity, and Quality of Indian Red Jungle Fowl (*Gallus gallus murghi*) Sperm. *Biopreservation and Biobanking*. Doi.org/10.1089/bio.2020.0007.
363. Rakha, B. A., M. S. Ansari, S. Akhter, E. Blesbois. 2020. Intravaginal Insemination Depth Influences Fertility Outcomes in Indian Red Jungle Fowl (*Gallus gallus murghi*). *Animal Biotechnology*. DOI: 10.1080/10495398.2020.1714634.
364. Rashad Q., M. Azam, I. Khan, Y. Yang, S. Ejaz, M. T. Akram, and M. Arslan Khan. (2020). Conventional and Modern Technologies for the Management of Post-Harvest Diseases. In Imran Ul Haq and Siddra Ijaz (eds.). *Plant Disease Management Strategies for Sustainable Agriculture through Traditional and Modern Approaches* Publisher: Springer, Cham. pp. 137-172. Available online: DOI. 10.1007/978-3-030-35955-3_7
365. Rasheed, M. T, I. Bodlah, A. G. Fareen and M. S. Khokhar. 2020. First record of *Carebara raja* Forel, 1902 (Hymenoptera: Formicidae: Myrmicinae) from Pakistan. *Punjab University Journal of Zoology*. 35 (1). 1-165.
366. Rasheed, M. Tariq, I. Bodlah, A. G. Fareen, M. U. Raja and M. A. Bodlah. 2020. First record of two species of genus *Monomorium* Mayr (1855) (Hymenoptera: Formicidae: Myrmicinae) along with trophic associations with aphids from Pothwar region (Punjab), Pakistan. *The Journal of Animal and Plant Sciences* 24(4):992-997 (IF=0.529)
367. Rasheed, M. Tariq, I. Bodlah, Y. Z. K. Magomedovich , A. G. Fareen, M. A. Bodlah, M. Prebus and A. A. Wachko. 2020. Preliminary contributions toward a revision of the ant genus *Temnothorax* Mayr (Hymenoptera: Formicidae) from Pakistan. *Turkish Journal of Zoology* 44(4):375-381. (IF=0.6)
368. Rasheed, M., 2020. Forages Growth and Yield Response in Crops Mixture and Pure Stands Under Conventional Vs Conservation Tillage in Rainfed. *Pak J Agri . Research*, (20(10): 414-422.
369. Rasheed, M., T. Naseer, A. Hassan, F. Hassan, R. Hayat, G. Jilani, S.G. Vaseer and M.B. Ali. 2020. Isolation of nodule associated bacteria for promotion of lentil growth. *Pakistan Journal of Agricultural Research*, 33(1): 170-179.
370. Rasheed, M. T. Bodlah, I., Gull-e-Fareen, A., Ali, H. Bodlah, M.A. and Raja, M.U. Distribution and trophic associations of ant genus *Monomorium* Mayr, 1855 (hymenoptera: formicidae: myrmicinae) with aphids in pothwar region of Pakistan. *The J. Anim. Plant Sci.* 30(2): 391-397 0.529 Mar-2020
371. Rashid, M., M. Din, M. Tariq, A.A. Khan, M. Kakar and M. Qasim. 2020. Entomocidal effectiveness of some indigenous botanicals' aqueous extracts against maize weevil, *Sitophilus zeamais* (Motschulsky) (Coleoptera: Curculionidae). *Pure Applied Biology*. 9(1): 664-673.
372. Rashid, M., Q. Hussain, K. S. U. Khan, M. I. Al-Weibe, Z. Afeng, M. Akmal, S. S. Ijaz, R. Aziz, G. A. Shah, S. M. Mehdi, S. Alvi and M. F. Qayyum. 2020. Prospects of Biochar in Alkaline Soils to Mitigate Climate Change. In: *Environment, Climate, Plant and Vegetation Growth*. Shah, F. et al. (Editors). Springer Nature Book Services, Cham, 2020. pp. 133-149.
373. Rasool, S., J. M. Baig, A. Moawia, I. Ahmad, M. Iqbal, S. S. Waseem, M. Asif, U. Abdullah, E. U. H. Makhdoom and E. Kaygusuz. 2020. An update of pathogenic variants in ASPM, WDR62, CDK5RAP2, STIL, CENPJ, and CEP135 underlying autosomal recessive primary microcephaly in 32 consanguineous families from Pakistan. *Molecular Genetics & Genomic Medicine*. 8(9):e1408. 1.995 1-Jul-20

374. Raza MA, Feng LY, Iqbal N, Khan I, Meraj TA, Xi ZJ, Naeem M, Ahmed S, Sattar MT, Chen YK, Huan CH, Ahmed M, Yang F, Yang W (2020) Effects of contrasting shade treatments on the carbon production and antioxidant activities of soybean plants. *Functional Plant Biology*: doi:<https://doi.org/10.1071/FP19213> 2.617 11 February 2020
375. Raza, M A, Feng LY, van der Werf W, Iqbal N, Khan I, Khan A, Din AMU, Naeem M, Meraj TA, Hassan MJ, Khan A, Lu FZ, Liu X, Ahmed M, Yang F, Yang W (2020) Optimum strip width increases dry matter, nutrient accumulation, and seed yield of intercrops under the relay intercropping system. *Food and Energy Security* 9 (2):e199. doi:10.1002/fes3.199 5.212 04 April 2020
376. Raza, M. A., van der Werf, W., Ahmed, M. and Yang, W. 2020. Removing top leaves increases yield and nutrient uptake in maize plants. *Nutr Cycl Agroecosyst*, 118(1), 57-73. doi: 10.1007/s10705-020-10082-w 2.450 18 July 2020
377. Razzaq, M., M. Rais, M. A. Asadi, S. Abbasi, and A. Ibrahim. 2020. Diet composition of Black Rock Agama (*Laudakia melanura*). *Biologia*. 66 (1): 21 -25.
378. Rehana B., M. Ahmad and A. Gulzar. 2020. Life history and reproductive physiology of citrus mealybug, *Planococcus citri* (Risso) (Hemiptera: Pseudococcidae) on different host plants. *Fresenius Environmental Bulletin* 29(12A): 11507-11513 (IF= 0.370).
379. Rehman T, Shabbir M. A, I. U. Raheem M, Manzoor MF, Ahmad N, Liu ZW, Ahmad MH, Siddeeg A, Abid M, Aadil RM. Cysteine and homocysteine as biomarker of various diseases. *Food Science & Nutrition*. 2020 Sep;8(9):4696-707. Impact Factor (1.797)
380. Rehman, M. H., A. Ahmad, R.M. Amir and K. Ameer. 2020. Ameliorative effects of fenugreek (*Trigonella foenum-graecum*) seed on Type 2 diabetes. *Food Science and Technology*. <https://doi.org/10.1590/fst.03520> [Published online]. Impact Factor (1.443)
381. Rehman S U. Asgar S. 2020. Online social network trend discovery using frequent subgraph mining. *Social network analysis and mining*. 10(1). 1-13
382. Rehman S. U. Ahmad M. Nawaz A. Ali T. 2020. An efficient approach for vehicle number plate recognition in Pakistan. *The open artificial intelligence journal*. 6(1)
383. Rehman, S.U., S. S. Ijaz, K.S. Khan and M. Ansar. 2020. Long term Reduced Tillage Improved Soil Physical Characteristics and Crop Productivity in Subtropical Dryland of Pakistan. *International Journal of Agriculture and Biology* 24: 229-237.
384. Rehman, Z U, Ren S. Yang B. Yang X. Butt, S. L. Afzal, A Malik, MI, sun, Y. Yu S. Meng. C. and Dang, C. 2020. Newcastle disease virus induces testicular damage and disrupts steroidogenesis in specific pathogens free roosters. *Veterinary research* 51:84 doi.org./10.1186/13567-020-00801-0 IF 3.3357
385. Ren S. Rehman, Z. U. GAO B. Yang Z. Zhou J. Meng. C, Song, C. Nair, V. Sun Y. and Ding C. 2020 ATM mediated double strand DNA damage break response to facilitate oncolytic Newcastle disease virus replication and promote syncytia formation. *PLoS Pathogens* 16(6): e1008514 IF: 6.218
386. Riaz A. , B. Javid , M. A. A. Shah , S. Raza , A. Yousaf , .Rehman , A.U.R. Sial and S. Abbas. Shakeel M., M Nawaz , Z. Naseer , M. Fiaz , A. Khan , M. I. Khan , A.U.R. Sial, A. Y. Qamar and A. Raza. Caprine and Ovine Serological Evidence of Brucellosis in Five Districts of Punjab, Pakistan. *Sarhad Journal of Agriculture*, 36(4): 1040-1046.
387. R, Aayesha, Dry Inga, D. Robert, S. U. Rehman, S. Muhammad, A. Naeem, Y. Arfan, B. Ruqia. (2020). First Study of Molecular detection of Ovine Herpesvirus 2 DNA using heminested PCR in Pakistan. *Virology Journal*. 10.21203/rs.3.rs-30077/v1. 3.02 Sep-2020

388. Riaz A, Yousaf K, Abidin M, Jabbar S, Abid M, Muhammad M. Extraction Optimization, Purification and Immunostimulatory Activity in vitro of Polyphenols from Apple (*Malus domestica*) Peel. *SainsMalaysiana*. 2020 Jul 1;49(7):1553-66. (0.650)
389. Riaz A, Aadil R.M, Amoussa A.M, Bashari M, Abid M, Hashim MM. Application of chitosan-based apple peel polyphenols edible coating on the preservation of strawberry (*Fragaria ananassa* cv Hongyan) fruit. *Journal of Food Processing and Preservation*. 2020 Nov 21:e15018. Impact Factor (1.310)
390. Riaz, L., Yang, Q., Sikandar, A., Safeer, R., Anjum, M., Mahmood, T., Rashid A. Yuan, W. (2020). Antibiotics Use in Hospitals and Their Presence in the Associated Waste. In *Antibiotics and Antimicrobial Resistance Genes* (pp. 27-49). Springer, Cham.
391. Riaz, L., M. Anjum, Q. Yang, R. Safeer, A. Sikandar, H. Ullah, A. Shahab, W. Yuan, and Q. Wang. "Treatment technologies and management options of antibiotics and AMR/ARGs." In *Antibiotics and Antimicrobial Resistance Genes in the Environment*, pp. 369-393. Elsevier, 2020.
392. Rizvi, F.F., Umair, M., Jamil, M. K., Hassan, M., Qayyum, K. and Kazmi, S.M.R., 2020. Review of energy consumption and potential of renewable energy in agriculture sector: a case study of Pothohar region of Pakistan. *Pakistan Journal of Agricultural Research*, 33(2), p.280. HEC June 2020
393. Ruqyya N., A. R. Kayani, M. S. Nadeem, M. Mushtaq and M. Qayyum, 2020. Food habits of the Indian bush rat (*Golunda ellioti* Gray, 1837) in Pothwar region, Pakistan. *Mammalia*, 1-5.27.
394. S. Akram, M. Javaid and M. Jamal. 2020. Bounds on F-index of tricyclic graphs with fixed pendent vertices. *Open Mathematics*. 18; 150–161. (IF=0.77)
395. S. Altaf. Ahmad S. Zaindin, M. Soomoro M. W 2020. Xbee based WSN architecture for monitoring of banana ripening process using knowledge level artificial intelligent technique. *Sensors* 20, 4033
396. S. Ghuffar, M. Z. Ahmad, G. Irshad, M. A. Zeshan, A. Qadir, H. A. Anwaar, M. Z. Mansha, H. M. Asadullah, U. Farooq, A. Abdullah. 2020. First Report of *Aspergillus niger* Causing Black Rot of Grapes in Pakistan. *Plant Disease*. 3.02 Oct 2020
397. S. Hussain, M. Jamal, B. P. Geridonmez. 2020. Impact of fins and inclined magnetic field in double lid-driven cavity with Cu-water nanofluid. *International Journal of Thermal Sciences*. 106707. (IF=3.47)
398. Sultan T, A Ahmed, A. Qayyum, A. Mumtaz and N Khalid. 2020. Effect of Buckwheat Supplementation on the Quality Parameters of Pasta. *Pakistan Journal of Agricultural Research* 33 (3): 535-543. Impact Factor (0.65) <https://researcherslinks.com/current-issues/Effect-of-Buckwheat-Supplementation-on-the-Quality-Parameters-of-Pasta/24/1/3232/figures>
399. S. Hussain, M. Jamal, B. P. Geridonmez. 2020. Impact of power law fluid and magnetic field on double diffusive mixed convection in staggered porous cavity considering Soret and Dufour effects, *International Communications in Heat and Mass Transfer*. 121, 105075. (IF=3.97).
400. S. Hussain, M. Jamal, C. Maatki, K. Ghachem and L. Kolsi. 2020. MHD Mixed convection of Al₂O₃/Cu-water hybrid nanofluid in a wavy channel with incorporated fixed cylinder. *Journal of Thermal Analysis and Calorimetry*. <https://doi.org/10.1007/s10973-020-10260-6>. (IF=2.73).
401. S. Latif, S. M. M Gillani, L. Ali, S. Iqbal, M liaquat. Characterizing the architectures and brokering protocols for enabling clouds interconnection, concurrency and computation: practice and experience.
402. Mushad S. G., M. t. Sultan, Z. Shuai, and A. Kabir. Long range backhaul microwave connectivity in wireless sensor networks via a new antenna designed for ISM 2. 4 ghz band. Vol. 2020. *International Journal of antennas and propagation*.
403. S. Tabassum, Q. Nawaz, I. Hamid, and S. M. M. Gillani. A Novel method for face recognition based on features and gestures. *Jictra*. Pp. 25.35. 2020

404. Saba W. L., A. I. Kayani, M. Hanif (2020) Empowering Women through Educational and Economic Access Programs in Punjab, Pakistan with Reference to SDGs Goal 5. *Pakistan Social Sciences Review*. 4(2): (232-244)
405. Sadaf L., Saiqa S., Yamin B., Sobia N., Rukhsanda A., Abdul Qayyum. Phytochemical Analysis and Some Bioactivities of Leaves and Fruits of *Myrsine africana* Linn *Arabian Journal for Science and Engineering* DOI 10.1007/s13369-020-04710-4 1-11 Published 2020 1.711
406. Sadiq N, A Riaz, M.A.A Shah, S.U Rehman, M.U Hassan, S. Razzaq, M.A Zafar, A Umer, M Imran, M Kamran and SG Mohyuddin, 2020. Molecular characterization of various Newcastle disease virus immunogenic proteins. *Pakistan Journal of Science*, 72: 68-76.
407. Shabbir, M. A., Ahmed, H., Maan, A.A., Rehman, A., Afraz, M.T., Iqbal, M.W., Khan, I.M., Amir, R.M., Ashraf, W., Khan, M.R. and Aadil, R.M., 2020. Effect of non-thermal processing techniques on pathogenic and spoilage microorganisms of milk and milk products. *Food Science and Technology*. 1-16. Impact Factor (1.443)
408. Saeed, H., M. Tariq, A. Gulzar, Z. U. R Mashwani, M.S. Bajwa. 2020. Management of *Aedes aegypti* using green silver nanoparticles and botanical extracts. *Plant Protection*. 4(1):35-42 <https://doi.org/10.33804/pp.004.01.3209>
409. Saeed, M., M. Rais, R. J. Gray, W. Ahmed, S. Gill, A. Akram, and G. Fareed. 2020. Rise in temperature causes decreased fitness and higher extinction risks in endemic frogs at high altitude forested wetlands in Northern Pakistan. *Journal of Thermal Biology*. <https://doi.org/10.1016/j.jtherbio.2020.102809> Impact Factor: 2.361
410. Safdar, H. , M. F. Nasir, A. U. Mohsin, M. S. Qureshi, A. M. Hamza, S. Ghaffar, H. Anwar, U. Shoukat, Q. Ahmad, M. A. Aziz, 2020. Effect of Plant extract on egg deposition of fruit fly (*Bactrocera cucurbitae*) on bitter melon. *Int. J. Entomol. Res.* 5(3):116-119.
411. Sajid A., Irshad G., Naz F., Ghuffar S., Hassan I., Mahmood N., Rani K., Manzoor M F., Meesam A., Hamzah A M and Karamt M Z. 2020. In vitro Evaluation of Plant essential oils against *Alternaria alternata* causing fruit rot of grapes. (AJAB-2019-11-532). *Asian Journal of Agriculture and Biology* 8(2):168-173. Jun-2020
412. Sajid S. M, A Yousaf, H. Irshad, M. A Zafar and S U Rehman, 2020. Effect of various stabilizers on viability of lyophilized *Pasteurella multocida* B:3,4 for use as hemorrhagic septicemia vaccine. *International Journal of Agriculture and Biology*, (IF: 0.802).
413. Sajjad, M., Z. M. Sarwar, S. I. Hussain et al. 2020. First record and taxonomic description of the genus *Thysanoplusia* (Fabricius) (Lepidoptera: Noctuidae: Plusiinae) from Pakistan. *Saudi Journal of Biological Sciences*, 27 (5). 1375-1379 (IF=2.8)
414. Sakina, R., Chaudhry, A. G., & Khan, S. E. 2020. An Exploration of Illness Narratives of Mothers with Maternal Depression in Semi-Urban Areas. *Psychiatr Q*.
415. Saleem I., F. Sohaib and K. Qureshi. 2020. Minimize the delays in software defined network switch controller communication. *Concurrency and computation: Practice and experience*. Wiley ISSN: 1532-0634
416. Saleem I., N. Kanwal and K. Qureshi. 2020. Collaborative energy efficient zone based routing protocol for multi-hop internet of things. *Transactions on emerging telecommunications technologies*. Wiley ISSN: 1532
417. Salma B., M. J. Asad, M. Arshad, R. S. Zaib S. and M. S. Ahmad, "The Supremacy of Synergism: A Comparison of Anticancer Activity of Rhizome Extract of *Bistorta amplexicaulis* and Gallic Acid in Cancer Cell Lines and Primary Cells", *Current Nutraceuticals* (2020) 1:1. <https://doi.org/10.2174/2665978601666200218090845> Mar-20

418. Samar F., Muhammad R., M. I Al-Wabel, Muhammad S. A., Tahira Y., Qaiser H., Mahnaz Roohi, Shah Fahad, Kawsar Ali, Muhammad Arif (2020). Higher biochar rate strongly reduced decomposition of soil organic matter to enhance C and N sequestration in nutrient-poor alkaline calcareous soil. *Journal of Soils and Sediments*, 21: 148–162.
419. Samina A. A., Mazhar Q., Ruqayya M. B. , Mehvish N. A., Akbar S.,Mujeeb U. R., Haroon, 2020. Immunodiagnosis of anti-Toxocara vitulorumIgG antibodies by using commercially available bovine ELISA Kit in bovine of Potohar region Pakistan. *Acta Ecologica Sinica*, 40: 97–101.53.
420. Sandra J., Mansur A. Sandhu, S. Trappe, C. Bermúdez-Peña, Martin Kolisek, Gehaed Sponder and Jörg R. Aschenbach. 2020. Optimizing adipogenic trans-differentiation of bovine mesenchymal stem cells: a prominent role of ascorbic acid in FabP4 induction. *Adipocyte*. 9 (1): 35-50. (IF = 3.533).
421. Saqib B., Q. Hussain, Z. H U. Jun, FU Qingling, David Houben, HU Hongqing (2020). Efficiency of KOH-modified rice straw-derived biochar for reducing cadmiummobility, bioaccessibility and bioavailability risk index in red soil. *Pedosphere*, 30(6): 874–882.
422. Saqib D., Syed M. G., I. Hameed, A. Kabir, and Q. Nawaz. DSDV and AODV protocols performance in internet of things based agriculture system for the wheat crop of Pakistan. In pak. *Journal Agri. Sci.* vol. 57(3). 2020
423. Saqib M., A. Sohail, K. Qureshi, A. Kumar, S. Iqbal, J. Lloret. Unmanned aerial vehicles optimal air time estimation for energy ware deployment in IoT enabled Fifth generation cellular networks. *EURASIP journal on wireless communication and networking*.
424. Saribay M. K., Z. Naseer, G. Doğruer, B. Özsoy, C. T. Ateş. 2020. Variations in serum metabolites in response to season, cyclicity, and pregnancy in estrus-synchronized Damascus goats. *Tropical Animal Health and Production*, 52:1519–1525
425. Sattar, S., Chaudhry, A. G. 2020. Epilepsy Care in Traditional and Professional Health Care Economy. *Global Economic Review*, V(I), 186-13.
426. Shabbir, J., Gupta, S. and Masood, S. (2020). An improved general class of estimators for finite population mean in simple random sampling. *Communications in Statistics-Theory and Methods*, 1-13.
427. Shabbir, J., Masood, S. and Gupta, S. (2020). A new improved difference-cum-exponential ratio type estimator in systematic sampling using two auxiliary variables. *Journal of the National Science Foundation of Sri Lanka*. 48 (1): 27 -36.
428. Shafiq, I., S. Hussain, M. A. Raza, N. Iqbal, M. A. Asghar, A. Raza, Y. Fan, M. Mumtaz, M. Shoaib, M. Ansar, A. Manaf, W. Yang and F. Yang. 2020. Crop photosynthetic response to light quality and light intensity. *Journal of Integrative Agriculture* 20: 4-23. (IF = 1.9)
429. Shah, S., A. Saleem, S. Gulzar, A. M. Malik and J. I. Khattak. 2020 Agroforestry practices and its contribution to combat climate change in subtropical region of Pakistan. *Pure and Applied Biology*. Vol. 9, Issue 1, pp376-389. <http://dx.doi.org/10.19045/bspab.2020.90042> Y Feb. 2020
430. Shaheen, H., R. Qureshi, M. F. Qaseem and P. Bruschi. 2020. The fodder grass resources for ruminants: A indigenous treasure of local communities of Thal desert Punjab, Pakistan. *PLOS ONE* 15(3): e0224061. <https://doi.org/10.1371/journal.pone.0224061>. (Impact Factor: 2.776).
431. Shahid S R A, Shah M. A, R. Ayesha. Malik A M, Hassan M U, Xiangrui L, Babar W and Shahid SKA, 2020. Identification and molecular characterization of eimeria tenella based on EtMic5 gene in Pakistan. *Pakistan Veterinary Journal*, 40(4):443-448 (IF 1.175)
432. Shahid. M., S. Mustafa, M. Imran, (2020), Application of Ruscheweyh q-differential operator to analytic functions of reciprocal order, *J. Studia UBB Math*, (65), 199-210.

433. Shahzad, M., A. Gulzar, J. T. Staley and M. Tariq. 2020. The effect of drought stress and type of fertilizer on generalist and specialist herbivores and their natural enemies. *Annals of Applied Biology*. 1-10. <https://doi.org/10.1111/aab.12654>. Published online October, 2020. (IF= 2.037).
434. Shahzad, N., Bhutta, M., Khan, S. (2020). Social Exclusion of Aged Transgender in Pakistan: A Case Study of District Rawalpindi. *International Journal of Psychosocial Rehabilitation*. 24(3). 2664-2671. 10.37200/IJPR/V24I3/PR2020301. Y- Category March, 2020
435. Shahzad, U., Ahmad, I., Almanjahie, I., Al-Noor, N. H., Hanif, M., 2020, A new class of L-Moments based calibration variance Estimators., *Computers Materials and Continua*, DOI:10.32604/cmc.2021.014101
436. Shahzad, U., Ahmad, I., Oral, E., Hanif, M., Almanjahie, I., 2020, Estimation of the population mean by successive use of an auxiliary variable in median ranked set sampling., *Mathematical Population Studies*, DOI:10.1080/08898480.2020.1816703.
437. Shahzad, U., Al-Noor, N. H., Hanif, M., Sajjad, I., 2020, An exponential family of median based estimators for mean estimation with simple random sampling scheme., *Communications in Statistics - Theory and Methods*, DOI:10.1080/03610926.2020.1725828.
438. Shahzad, U., Al-Noor, N. H., Hanif, M., Sajjad, I., Anas, M. M., 2020, Imputation based mean estimators in case of missing data utilizing robust regression and variance-covariance matrices., *Communications in Statistics- Simulation and Computation*, DOI:10.1080/03610918.2020.1740266.
439. Shahzad, U., Hanif, M., Sajjad, I., Anas, M. M., 2020, Quantile regression-ratio-type estimators for mean estimation under complete and partial auxiliary information., *Scientia Iranica*, DOI: 10.24200/SCI.2020.54423.3744.
440. Shoaib, M. Riaz A. M. ul Hassan, M. Yousaf, A. Rehman, S. U. Zafar, M A, Kamran M, Amir, RM. And Malik A.M. 2020. Sero prevalence and associated risk factors of mycoplasma gallisepticum, mycoplasma synoviae and salmonella pullorum/gallinarum in poultry. *Pakistan veterinary journal*. (IF 1.3)
441. Shumaila N, Farhana R C , D. A. Rizvi, M. Ismail (2020) Phylogenetic Analysis of Astigmatid Mites *Sarcoptes scabiei* and *Dermatophagoides farinae* using ITS-2 as a Genetic Marker. *Life & Science*, 1(2): 55-59.
442. Sial, A. U. R., M. Saqib , G. Muhammad and M. S. Sajid. 2020. Seroprevalence and Risk Factors of Equine Glanders in Selected Districts of Khyber Pakhtunkhwa (KPK). *Pakistan Veterinary Journal* ISSN: 0253-8318 (PRINT), 2074-7764 (ONLINE).
443. Siddique, A.B., Rahman, S.U., Ul haq, M. and Naveed, R., 2020. Occurrence, molecular identification and antibiotic resistance profiling of *Mycoplasma gallisepticum* and *Mycoplasma synoviae* from chronic respiratory disease cases in poultry birds and farm environment. *Slovenian Veterinary Research*, 57(2), pp.61-69. (IF = 0.545).
444. Siddiqui, B. N., Asghar, S. A. (2020). Farmers' perception regarding impact of climate change on wheat crop production in Layyah district-Pakistan. *International Journal of Agricultural Science, Research and Technology in Extension and Education Systems*, 10(3): 103-108.: <http://ijasrt.iau-shoushtar.ac.ir> (International) (IF = 0.765).
445. Simons, G.W.H., Bastiaanssen, W. G. M., Cheema, M. J. M., Ahmad, B. and Immerzeel, W.W., 2020. A novel method to quantify consumed fractions and non-consumptive use of irrigation water: Application to the Indus Basin Irrigation System of Pakistan. *Agricultural Water Management*, 236, p.106174. 4.01 April 2020
446. Sobia N, N. K., W. Shah, M. Sabir, W. Khan, Y. Bibi, M. Jahangir, I. U. Haq, S. A. A. Qayyum. Identification and Bioactivities of Two Endophytic Fungi *Fusarium fujikuroi* and *Aspergillus*

447. Song, X.; Y., Jingkai; Q. Hussain; L., Xinwei; Z., Jinjing; Cui, Dejie; Stable isotopes reveal the formation diversity of humic substances derived from different cotton straw-based materials; *Science of The Total Environment* 2020; Vol 740 Pages 140202.
448. Sultan, M. A., M. J. Asad *, R. T. Mehmood, M. Mahmood, S. Nazir, M. B. Shah. 2020. Purification and Characterization of Lipase Produced by Indigenously Isolated Bacteria. *Pure and Applied Biology* 9(4):2521–28. DOI:10.19045/bspab.2020.90268. Y Category 1-Sep-20
449. S. U. Rehman, K. S. Abbasi, A. Qayyum, M. Jahangir, A. Sohail, M. J. Tareen. 2020. Comparative analysis of citrus fruit for nutraceutical properties. *Food Science and Technology*, ISSN 0101-2061 (Print) ISSN 1678-457X (Online) DOI: <https://doi.org/10.1590/fst.26217>. Impact Factor (1.2)
450. S. U. Rehman, K. S. Abbasi, N. U. Haq, Q. Ahmad, N. U. Taran, S. Ullah, S.M. Asim and M. S. U. Awan. 2020. Comparative nutraceutical properties of seeds of eight citrus varieties grown in Rawalpindi region. *Pure Appl. Biol.*, 9(1): 1-9, <http://dx.doi.org/10.19045/bspab.2020.90001> (HEC recognized).
451. T. Kanwal, S. Altaf M. K. Javed. 2020. Environmental monitoring smart system with self-sustaining wireless sensor network using data validation algorithms, *Journal of Engineering Sciences*. Vol. 07 (1)
452. Tahir, A. H. M. Tariq, A. Mazhar and M. Shehzad 2020. *Spodoptera frugiperda* (Lepidoptera: Noctuidae), an invasive pest in agricultural crops and its management. *Plant Protection*. D10.33804/pp.004.03.3424
453. Tahira N, M. I. U. Haq, T. Mukhtar and M. A. Khan, Disease incidence and severity of common scab of potato cause by *Streptomyces scabies* in potato growing areas of Punjab. *Pak. J.Bot.* 2020 Title of Publication Impact Factor Publication Date/Month
454. Tariq M, S. N. Mirza, S. Gulzar and Hanif, M. (2020) Pakistan's Timberline forest ecosystem dynamics vis-à-vis changing climate across three province (KPK, AJK and GB) using GIS/RS techniques. *Revista de Chimie*, 71 (5): 86-98. (IF 1.30)
455. Tariq, A., Naz, F., Rauf, C. A., & Khan, M. A. (2020). Morpho-molecular characterization and pathogenicity of *Fusarium* species causing fruit rot of bell pepper. *MYCOPATH*, 16(2).
456. Tariq, A., Riaz, I., M. Amin, Ahmad, Z. et al. Land surface temperature relation with normalized satellite indices for the estimation of spatio-temporal trends in temperature among various land use land cover classes of an arid Potohar region using Landsat data. (IF 2.02)
457. Tariq K, M., T. Mukhtar, A. Munir, J. Hallmann, H. Heuer. 2020. Comprehensive report on the prevalence of root-knot nematodes in the Poonch division of Azad Jammu and Kashmir, Pakistan. *Journal of Phytopathology*, 168: 322–336. 1.097 Mar-2020
458. Ullah, I., A. Saleem, L. Ansari, A. N.Ahmad, N. Dar, N. M.Din, N. U. 2020. Growth and Survival of Multipurpose Species; Assessing Billion Tree Afforestation Project (BTAP), The Bonn Challenge Initiative. *Pakistan. J.Appl. Eco. Env. Res.*, 18 (2) 2057-2072.
459. Ullah, S., M. Adeel, M. Zain, M. Rizwan, M. K. Irshad, G. Jilani, A. Hameed, A. Khan, M. Arshad, A. Raza, M.A. Baluch, Y. Rui. 2020. Physiological and biochemical response of wheat (*Triticum aestivum*) to TiO₂ nanoparticles in phosphorous amended soil: A full life cycle study. *Journal of Environmental Management*. 263: 110365. (Impact factor 5.647)
460. Usman, M, Hameed, G., Saboor, A., 2020. Technological Spillovers, Manufacturing growth and transboundary pollution. *Journal of Applied Economics and Business Studies*, 4(2):71-90 X
June 2020

461. Vaseer, S. G., M. Rasheed, M. Ansar, A. Hassan, S. Hussain, T. Naseer, M. Asif, and Z. Husnain. 2020. Cobalt Application Improves the Growth and development of Mung bean. *Pak J Agri. Research*, 33(2): 303-310.
462. Verhoeven, P. and Qasim s. 2020. Capital structure as a mediating factors in the relationship of uncertainty, CSR, Stakeholder interest and financial performance. *Journal of Risk and Financial Management*. (ESCI & ABDC: B)
463. Wang Y. Wang S. Wu H. Liu X. Ma J. Khan MA. Riaz A. Wang L. Qiu H and Sun Y. (2020). Compartmentalized neuronal culture for viral transport research frontiers in Microbiology. (IF 4.3)
464. Wang,y., Xie,H., Liu,D., Wang,Y., Liu, C., Khan, M.A., Jiang, J., Zhang, W(2020): Effects of Different Sample Pulverisation Methods on the Extraction of Metabolites from the Fermented Cottonseed Meal Based on UPLC-Q- TOF-MS. *Current Microbiology* volume 77, pages2751-2757. doi.org/10.1007/s00284-020-02057-5, October 2020, IF 1.746
465. Waseem, M., A. Raza, H. Aisha, M. N. Awan, T. Ahmad, R. Nazir and T. Mahmood. 2020. Scale of illegal killing and trade associated with Indian pangolin (*Manis crassicaudata*) in Pakistan. *Pakistan Journal of Zoology*. 52(1): 69-77. Impact Factor: 0,790
466. Waseem, M., B. Khan, T. Mahmood, H. S. Hussain, R. Aziz, F. Akrim, T. Ahmad, R. Nazir and M. N. Awan. 2020. Occupancy, habitat suitability and habitat preference of endangered Indian pangolin (*Manis crassicaudata*) in Potohar Plateau and Azad Jammu and Kashmir, Pakistan. *Global Ecology and Conservation* 23 (2020) e01135. Impact Factor: 2.526
467. Waseem, M., T. Mahmood, A. Hussain, A. Hamid, F. Akrim, S. Andleeb and H. Fatima. 2020. Ecology and Human Conflicts of Asiatic Black Bear (*Ursus thibetanus*) in Mansehra District, Pakistan. *Pakistan Journal of Zoology*. 52(4): 1443 -1451. DOI: <http://dx.doi.org/10.17582/journal.pjz/2020.52> Impact Factor: 0,790
468. Wellalage, N. H; A. I. Hunjra and Locke S. M. 2020. Information communication technology and financial inclusion of innovative entrepreneurs. *Technological forecasting & social change*.
469. Yasir, M.W., S. Mahmood, N. Ilayas, S. Gulzar, A. Khalid. 2020. Optimization of Hexavalent Chromium (Cr(VI)) Reducing Strains for Accelerated Degradation of Biphenyl and 2-Chlorobiphenyl in Tannery Wastewater. *International Journal of Agriculture and Biology*. 23:603–612(IF=0.822)
470. Younas S., Ahmed M., Malik N.A. (2020) Forecasting of Rainfed Wheat Yield in Pothwar Using Landsat 8 Satellite Imagery and DSSAT. In: Ahmed M. (eds) *Systems Modeling*. Springer, Singapore.
471. Yousaf, A. A., Abbasi, K. S., Ahmad, A., Hassan, I., Sohail, A., Qayyum, A., & Akram, M. A. (2020). Physico-chemical and Nutraceutical Characterization of Selected Indigenous Guava (*Psidium guajava* L.) Cultivars. *Food Science and Technology*.
472. Yu Yang, B. M. Khan, X. Zhang, Y. Zhao, Kit-Leong Cheong and Y. Liu. Advances in separation and purification of bioactive polysaccharides through high-speed counter-current chromatography. *Journal of Chromatographic Science*, Vol. 58(10), pp. 992-1000, DOI: 10.1093/chromsci/bmaa063. 1.28 8-Sep-20
473. Yuan Y. L., Won-Kyung Yang, J. E. Han, D. Kwak, Tae-Hwan Kim, Evelyn Saba, Sung-Dae Kim, Young-Cheol Lee, Jong Sung Kim, Seung-Hyung Kim, and Man Hee Rhee. 2020. Hypericum ascyron L. extract reduces particulate matter induced airway inflammation in mice. *Phytotherapy Research*. 1–13 (IF = 3.092).
474. Z. Binish, Y. Bibi, K. Zahara, S. Nisa, A. Manaf, A. Qayyum and A. Sher. 2020. Protective Effect of *Kickxia ramosissima* (Wall.) Janchn Extracts Against Pathogenic Bacterial Strains and Free Radicals.

475. Zafar, U., Arshad, M., Cheema, M.J.M. and Ahmad, R., 2020. Sensor based drip irrigation to enhance crop yield and water productivity in semi-arid climatic region of Pakistan. *Pakistan Journal of Agricultural Sciences*, 57(5).0.663 September 2020
476. Zahid, A., Ali, S., Ahmed, M. and Iqbal, N. 2020. Improvement of Soil Health through Residue Management and Conservation Tillage in Rice-Wheat Cropping System of Punjab, Pakistan. *Agronomy*, 10(12), 1844. <https://doi.org/10.3390/agronomy10121844> 2.603 24 November 2020
477. Zaman, M., B. A. Rakha, H. Bao, K. Vitekere, and G. Jiang. Effect of Habitat factors and predator density on the spatial abundance of Cape Hare (*Lepus Capensis*) in the Karakorum Range. *Applied Ecology and Environmental Research*. 18 (2): 2921 -2934. Impact Factor: 0,712
478. Zaman, M., B. A. Rakha, K. Wrensford, M. Zhu, L. Fan, G. Jiang. Occurrence of Conspecific in the Neighboring Space Influence on Flight Initiation Distance in Cape Hare *Lepus capensis* under Human Stimuli. *Open Journal of Ecology*, 10: 380-395.
479. Zamir, S., Sarwar, U., Bhuttah, T. M., Zhang, Y., Fazal, K. & Siddiqui, B. N. (2020). The Influence of Internet Usage on the Academic Achievements of the Students in Pakistani Universities. *European Online Journal of Natural and Social Sciences*, 9(1), 164-175. www.european-science.com (International).
480. Zeeshan, M., Sultana, A. (2020). Reintegration of Returnee Migrants: A Case Study of Neo-Citizenry in Potohar. *Global Social Science Review* , 5 (1), 73-83.
481. Zeeshan, M., Sultana, A. (2020). Return Migration to Pakistan during COVID-19 Pandemic: Unmaking the Challenges. *Pakistan Perspectives*, 25(1).
482. Zeeshan, M., Chaudhry, A. G., Khan, S. E. 2020. Pandemic Preparedness and Techno Stress among Faculty of DAIs in Covid-19. *Sir Syed Journal of Education & Social Research*, 3(2): 383-396.
483. Zeeshan, M., Chaudhry, A. G., Khan, S. E. 2020. Unmaking the Anthropology of Mourning in a Psycho Analytical Perspective. *Global Regional Review*, V (I), 100-107.
484. Zeeshan, M., Sultana, A. Anzak, S. (2020). Covid-19 Pandemic: Implications of Health Emergency on Migration and Repatriation in Pakistan. *Global Regional Review* , 5 (2), 20-29.
485. Zeeshan, M., Sultana, A. Chaudhry, A. G. 2020. Aastanas of Magicians: A Ray of Hope for the Marginalised Community of Rawalpindi. *Global Sociological Review*, V (III), 1-10.
486. Zhou Y., M. Tariq, S. He, U. Abdullah, J. Zhang, and S. M. Baig, 2020. Whole exome sequencing identified mutations causing hearing loss in five consanguineous Pakistan families. *BMC Medical Genetics*. 21(151). 1.585 Jul-20
487. Zia R, Saud Altaf, Saleem Iqbal, An efficient light weight key agreement and authentication scheme for WBAN. *IEEE access* vol. 8
488. Zohaib A., J. Zhang, M. Saqib, M. A. Athar, M. H. Hussain, J. Chen, A.U.R. Sial, M. H. Tayyab, M. Batool, S. Khan, Y. Luo, C. Waruhiu, Z. Taj, Z. Hayder, R. Ahmed, A. B. Siddique, X. Yang, M. A. Qureshi, I. U. Ujjan, A. Lail, I. Khan, S. U. Rahman, T. Zhang, F. Deng, Z. Shi, and S. Shen. Serologic Evidence of Severe Fever with Thrombocytopenia Syndrome Virus and Related Viruses in Pakistan. *Emerg Infect Dis*. 2020 Jul; 26(7): 1513–1516.
489. Zohaib, A., M. Saqib, M. A. Athar, M. H. Hussain, A.U.R Sial, M. H. Tayyab, M. Batool, H. Sadia, Z. Taj, U. Tahir, M. Y. Jakhrani, J. Tayyab, M. A. Kakar, M. F. Shahid, T. Yaqub, J. Zhang, Q. Wu, F. Deng, V. M. Corman, S. Shen, I. Khan, and Z. Shi. Crimean-Congo Hemorrhagic Fever Virus in Humans and Livestock, Pakistan, 2015–2017. *Emerg Infect Dis*. 2020 Apr; 26(4): 773–777.

- 490.** Zul N, S., M. A. Aziz, I. Bodlah, R. M. Rana, H. A. Ghramh, and K. A. Khan. 2020. Efficacy assessment of soft and hard acaricides against Varroa destructor mite infesting honey bee (*Apis mellifera*) colonies, through sugar roll method." Saudi Journal of Biological Sciences. 27(1): 53-59. (Impact Factor=2.870)
- 491.** Zureigat Q. Tayachi T. Mehmood R. 2020. Impact of non interest income and revenue concentration on bank risk in south Asia. Banks and Bank systems. (Scopus Q3 & ABDC: C)

SEMINARS, WORKSHOPS & CONFERENCES

SEMINARS/ WEBINARS, WORKSHOPS & CONFERENCES HELD AT UNIVERSITY

S. #	DATE	TITLE
1.	01.01.2020	Seminar on Stock market
2.	03.01.2020	Seminar regarding Erasmus Scholarship Program
3.	08.01.2020	Consultative Workshop on “Current Economic Status of Beekeeping in Pakistan”
4.	15.01.2020	Session by Dr. Aila khan on marketing research in Austrilan Universities
5.	16.01.2020	Digital technologies for managing agriculture and water resources
6.	17.01.2020	Foundation first for your bright career
7.	20.01.2020	Business in digital age
8.	23.01.2020	IP NAT PAT and Port forwarding
9.	20.01.2020 To 24.01.2020	The role of isotopic and related techniques in measuring greenhouse gas emission from agriculture and identifying their sources
10.	28.01.2020	purpose of life
11.	28.01.2020	One Day Project Exhibition of M.Phil
12.	31.01.2020	Role of Academia in plants occurrence data mobilization through virtual herbaria
13.	03.01.2020	Conserving Wetlands Biodiversity: Examples from the field and captivity, World Wetlands Day
14.	03.01.2020	Seminar on World wetlands day
15.	11.02.2020 To 13.02.2020	International Congress of Soil Science ”Wise soil management ensures better environment and livelihood”

16.	20.02.2020	Seminar on Quiqqa
17.	23.02.2020	Seminar on stress, anger management and depression at workplace
18.	03.02.2020	Delay and Plagiarism in Thesis Work
19.	06.03.2020 To 07.03.2020	Training Workshop on Outcome Based Education System
20.	03.03.2020	Orientation Seminar on USAID PEEP Mustaqbil Matching grants program for youth in Agriculture
21.	05.03.2020	Technical test and talk
22.	09.03.2020	Reproductive Management in Camel
23.	04. 03.2020	Role of Academia in Plants occurrence data mobilization through virtual herbaria
24.	11. 03.2020	Data science for everyone
25.	11. 03.2020	Wildlife as a reservoir of zoonotic novel corona virus (Covid-19)
26.	12. 03.2020	Freelancing session
27.	12. 03.2020	Develop your self mastery
28.	23. 03.2020	Workshop on Unity game development
29.	10.05.2020	Tensor flow coding session
30.	22. 05.2020	The flutter Dev-QA
31.	03.06.2020	Virtual Seminar on the theme “Nature for life solutions”
32.	05. 06.2020	World Environment Day 2020, Virtual Seminar on “Biodiversity for sustaining life”
33.	30. 06.2020	Building your Dev portfolio and how recruiter review

34.	12.07.2020	How to secure yourself from cyber attack
35.	23.08.2020	Pie and AI (Deep learning.AI)
36.	15.09.2020	Reinvent yourself: to maximize your potential
37.	16. 09.2020	One day Awareness Session on PMAS AAUR Research Grant Program
38.	17. 09.2020	Seminar on Dengue Control and Prevention
39.	21. 09.2020 to 25. 09.2020	Enhancing Veterinary diagnostics and research laboratories capabilities in Pakistan
40.	01.10.2020	Training workshop for Food handlers on food safety & hygiene practices
41.	02. 10.2020	Microsoft Teams
42.	14. 10r.2020	Scientific Writing: A Guide to Getting Published in High Impact Journals
43.	08. 10.2020	Seminar on Global Trends for Food Professionals
44.	16. 10.2020	Celebration of World Food Day
45.	22.10.2020	Research Publication in social science: Importance of quality and Ethics
46.	27. 10.2020	National Seminar on Status of Forestry In Pakistan
47.	27. 10.2020	seminar Status of Forestry in Pakistan
48.	28. 10.2020	Seminar on Pink Ribbon Day
49.	09.11.2020	Opportunities in the climate change for sustainable and drought resistance Agriculture
50.	10.11.2020 To 12.11. 2020	Training of Teachers of newly Appointed Faculty at PMAS-AAUR
51.	11. 11.2020	Moral philosophy of Education

52.	12. 11.2020	Recent trends in plants diversity to industry for food, medicines and industry
53.	13.11.2020	Awareness Session of University Research Endowment Fund initiatives for Faculty
54.	18. 11.2020	Policy Dialogue on public perception and criminal justice in Pakistan
55.	19. 11.2020	Data warehouse and Business intelligence
56.	23. 11.2020	Basic training workshop on Microsoft office
57.	23. 11.2020	Sensitization session with students on social resilience in digitalizing world
58.	1.12.2020 To 3.12.2020	Advanced post harvest technologies for horticultural crops
59.	14. 12.2020	Seminar on How to Write a scientific review
60.	15.12-2020 To 9. 12.2020	Hands-on Training Workshop on Variable Rate Spraying Technology Development (Phase-I)
WEBINARS		
61.	22.01.2020	Climate change mitigation and adaption
62.	17.02.2020	Surplus Labor: Challenges to decent work agenda
63.	26.02.2020 To 28.02.2020	International Horticulture Conference, Pakistan 2020
64.	27.02.2020	Special Workshop on a clean and Green Pakistan Initiative
65.	02.03h.2020	Role of Education in Promoting Climate Crises Awareness
66.	10.03.2020	One Day International Seminar on Role of plants diversity in Entrepreneurship & herbarium development
67.	13.03.2020	One Day International Seminar on Bio diversity, Ecosystem and functional traits
68.	03.01.2020	Orientation to invest in stock exchange

69.	09.01.2020	Book Review: In the line of fire
70.	12.01.2020	Webinar on personal excellence
71.	10.03.2020	Role of Plant Diversity in Entrepreneurship and Herbarium Development
72.	26-04-2020	Webinar on “Women are secret weapon fighting against COVID-19 climate change and farming systems
73.	03.06.2020	Nature for Life Solutions
74.	5.06.2020	Biodiversity for Sustaining Life
75.	07.06.2020	Webinar on freelancing
76.	17.06.2020	One Day Webinar on “Cultural Heritage And Human Resilience in Desert Environment”
77.	21.07.2020	Grain Storage, Silos management & IoT
78.	21.07.2020	Policy Dialogue on “Climate Resilient Agriculture”
79.	24.07.2020	International Webinar on Precision Agriculture Technologies- Sustainable Solution for Enhancing Productivity
80.	19.08.2020	Policy Dialogue on the Development of a Robust and Resilient Dairy Sector in Post COVID-19
81.	26.08.2020	One Day Webinar on Sustainable rice production for boosting rice export
82.	11.09.2020	One Day International Webinar on “New normal in Gender and Rural Transformation”
83.	21.09.2020	Policy Dialogue on “Soil Degradation, Climate Change and National Food Security”
84.	28.09.2020	International webinar on “Catalyzing women’s entrepreneurship: A driver for sustainable development”
85.	09.10.2020	International Seminar on Environmental issues posed by pestiferous aquatic midges: A global perspective
86.	29.10.2020	Validation workshop of District Climate Risk Profiling Rajanpur

87.	31.10.2020	Validation workshop of District Climate Risk Profiling Jhang
88.	09.10.2020	Environmental Issues Posed by Pestiferous Aquatic Midges: A Global Perspective
89.	17.10.2020	Citrus Genetic Improvement: Seedlessness and Greening Disease
90.	31.10.2020	Webinar on Internal Audit
91.	04.11.2020	Seed production in changes climate; challenges and opportunities
92.	04.11.2020	Policy Dialogue on “Seed production in changing climate: challenges and opportunities”
93.	11.11.2020	Selection of Postgraduate Project
94.	21.11.2020	Webinar on Commercial Banking
95.	23.11.2020	Industry biotechnology Liaisons: from Agricultural Waste to commercial Products
96.	02.12.2020	A Randomized clinical trial of saffron and chamomile herbal Tea as an adjuvant treatment of depression
97.	10.12.2020	Human disease modeling: Overview and Principles
98.	11.12.2020	Raising awareness among youth & highlight mountain agenda at national level on “Mountain Biodiversity”
99.	11.12.2020	Systematic literature review
100.	18.12.2020	The Role of Sensors in Digital Agriculture and How to Develop Applicable Systems at the Growers Level
101.	14.12.2020	International Webinar on WASH(Water, sanitation and Hygiene) and Covid 19
102.	18.12.2020	Webinar on “The Role of Sensors in Digital Agriculture and How to Develop Applicable Systems at the Growers Level”.
103.	26.12.2020	Orientation to partnership act
104.	29.12.2020	Webinar on “Climate Change and Water Availability for Agriculture”

WORKSHOPS, SEMINARS AND CONFERENCES ATTENDED BY THE FACULTY

INTERNATIONAL

1. Dr. Mukhtar Ahmed, Assistant Professor, Department of Agronomy attended 2nd International Crop Modelling Symposium (ICROP2020) from February 03, 2020 to February 05, 2020 Montpellier, France at Swedish University of Agricultural Sciences.
2. Dr. Saadia Masood, Assistant Professor, Department of Mathematics & Statistics attended seminar on Safety at Workplace on February 20, 2020 at Liaison Office of Asian Productivity Organization, Tokyo, Japan.

NATIONAL

1. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended International Conference on Dengue Control and Prevention held from January 09, 2020 to January 10, 2020 at Perl Continental Hotel Lahore, Pakistan.
2. Dr. Badar Naseem Siddiqui, Associate Professor, Dr. Muhammad Ali, Lecturer and Mr. Waqar – ul- Hassan Tareen, Assistant Professor, Department of Agricultural Extension attended seminar on Digital technologies for managing agriculture and water resources on January 16, 2020 at PMAS-AAUR.
3. Dr. Shahzada Sohail Ijaz, Associate Professor, Institute of soil Science and Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended workshop on the role of isotopic and related techniques in measuring greenhouse gas emissions from Agriculture and identifying their sources” from January 20, 2020 to January 24, 2020 at Main Seminar Room, PMAS-AAUR.
4. Dr. Umer Habib, Lecturer, Department of Horticulture attended Pakistan Horticulture Expo 2020 from January 22, 2020 to January 23, 2020 at Expo Center Lahore.
5. Dr. Saima Mustafa, Assistant Professor, Department of Mathematics & Statistics attended online seminar on Workplace at National Productivity Organization on February 20, 2020.
6. Dr. Muhammad Azam Khan, Associate Professor/ Chairman, Dr. Imran Hassan, Assistant Professor, and Dr. Umer Habib, Lecturer, Department of Horticulture attended International Horticulture Conference, Pakistan 2020 from February 26, 2020 to February 28, 2020 at Punjab University, Lahore.
7. Prof. Dr. Azeem Khalid, Chairman and Dr. Shahid Mahmood, Assistant Professor, Department of Environmental Sciences, Dr. Ghulam Abbas Shah, Assistant Professor, Department of Agronomy, Dr. Qaiser Hussain, and Dr. Shahzada Sohail Ijaz, Associate Professors, Institute of Soil Science attended International Congress of Soil Science ”Wise soil management ensures better environment and livelihood” from February 11, 2020 to February 13, 2020 at Sindh Agriculture University Tandojam.

8. Dr. Saima Mustafa, Assistant Professor, Department of Mathematics & Statistics attended seminar on International day of Women on Science February 11, 2020 at COMSATS Institute of Information Technology Islamabad.
9. Dr. Saadia Masood, Assistant Professor, Department of Mathematics & Statistics attended seminar on An Equal World in an Enabled World on February 09, 2020 at ICIMOD, PMAS-UAAR.
10. Dr. Muhammad Arshad Dahar, Assistant Professor, Department of Education attended 5th International Conference on Research and Practices in Education, “Relevance and Quality in Education”, at Allama Iqbal Open University, from February 18, 2020 to February 19, 2020.
11. Dr. Muhammad Ali, Lecturer, Department of Agricultural Extension attended Conference of Social Work (ICSW-2020) from March 03, 2020 to March 05, 2020 at University of Peshawar, Pakistan.
12. Dr. Mansur Abdullah, Associate Professor, Department of Veterinary Biomedical Sciences attended online seminar on COVID-19 and its Spread in Community on March 04, 2020.
13. Dr. Farid Asif Shaheen, Assistant Professor, Department of Entomology attended Role of academia in plant occurrence data mobilization through virtual herbaria on March 04, 2020 at PMAS-AAUR.
14. Dr. Farid Asif Shaheen, Assistant Professor, Department of Entomology attended Thought Leaders’ Summit 2020 from March 05, 2020 to March 06, 2020 at Marriott Hotel, Islamabad.
15. Ms. Shagufta Hamid Ali, Lecturer, Department of Anthropology attended seminar on Role of Education in promoting Climate Crises Awareness on March 02, 2020 at Women Development Studies Centre, PMAS-AAUR.
16. Dr. Farid Asif Shaheen, Assistant Professor, Department of Entomology attended the British Council Networking Dinner (for Global Development Workshops 2020 on March 11, 2020 at Marriott Hotel, Islamabad.
17. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended ISNTD Connect Webinar: Global open-source collaboration in vectors and vector-borne diseases on March 31, 2020 Hosted by Marianne Comparet, Frederik Seelig.
18. Dr. Qaisara Parveen, Associate Professor, Dr. M. Imran Yousuf Associate Professor/chairman and Dr. Muhammad Arshad Dahar, Assistant Professor, Department of Education attended Seminar On “An Equal World is an Enabled World, International Women Day, 2020” on MARCH 09, 2020 at PMAS-Arid Agriculture University, Rawalpindi.
19. Dr. Farid Asif Shaheen, Assistant Professor, Department of Entomology and Dr. Umer Habib, Lecturer, Department of Horticulture attended seminar on Role of Plant diversity in entrepreneurship and herbarium development on March 10, 2020 at PMAS-AAUR.

20. Dr. Irfan Aziz, Assistant Professor, Department of Agronomy attended International Seminar on "Biodiversity, Ecosystem and Functional Trait" on March 13, 2020 at PMAS Arid Agriculture University, Rawalpindi.
21. Dr. Farid Asif Shaheen, Assistant Professor, Department of Entomology attended Education Expo 2020 on April 16, 2020 at Serena Hotel, Islamabad.
22. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended Introductory Webinar: Satellite Remote Sensing for Agricultural Applications (Session A) on April 22, 2020 hosted by NASA Applied Remote Sensing Training (ARSET) program, USA.
23. Dr. Saima Mustafa, Assistant Professor, Department of Mathematics & Statistics attended online seminar on Emerald publishing on April 22, 2020.
24. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended online Keystone Symposia's ePanel on the Arthropod-Vertebrate Interface in Vector-Borne Diseases. EPanel Date: ePanel on April 9, 2020.
25. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended Introductory Webinar: Using the UN Biodiversity Lab to Support National Conservation and Sustainable Development Goals. NASA Applied Remote Sensing Training (ARSET) program, USA on April 07, 2020 hosted by NASA Applied Remote Sensing Training (ARSET) program, USA.
26. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended ISNTD Connect Webinar: Molecular surveillance of Neglected Tropical Diseases in the time of corona on April 02, 2020 Hosted by Marianne Comparet, Pr. Jean-Claude Dujardin ITM.
27. Dr. Ghulam Abbas Shah, Assistant Professor, Department of Agronomy attended Online workshop on "Techniques for publishing in highly selective journals" on May 14, 2020.
28. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended ISNTD Connect webinar on "Lessons from dengue control in Pakistan" on May 12, 2020 Hosted by International Society for Neglected Tropical Diseases, ISNTD.
29. Dr. Irfan Aziz, Assistant Professor, Department of Agronomy attended a seminar titled "Nature for Life Solutions" on June 03, 2020 online at PMAS Arid Agriculture University, Rawalpindi.
30. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended ISNTD Connect webinar on "Dengue Day, from regional action to global cooperation" on June 15 2020.
31. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended Webinar on "The mosquito gut: The gate to malaria parasite growth and transmission on June 19, 2020 hosted by Imperial College Network of Excellence in Malaria, Imperial College London, UK.
32. Dr. Kashif Ishaq, Lecturer and Dr. Syeda Maryam Hussain, Assistant Professor Department of Livestock Production & Management attended online International Symposium on "Camel as the Animal of Future" on June 22, 2020 at Department of Molecular Biology, Virtual University of Pakistan, Lahore.

33. Dr. Kashif Ishaq, Lecturer, Department of Livestock Production & Management attended International Camelid Symposium as Invited Speaker from June 22, 2020 to June 26, 2020 at LUAWMS, Uthal, Baluchistan-Pakistan.
34. Dr. Farid Asif Shaheen, Assistant Professor, Department of Entomology attended webinar on Pakistan's Food Security Challenge-Threats from Pests & Diseases on June 25, 2020 hosted by UK-Pakistan Science and Innovation Global Network (UPSIGN).
35. Dr. Farid Asif Shaheen, Assistant Professor, Department of Entomology attended The untold story: impact of Covid-19 on BAME students on June 26, 2020 hosted by UK-Pakistan Science and Innovation Global Network (UPSIGN).
36. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended Webinar on "The development of gene drive technologies to suppress populations of the African malaria" on Wednesday July 01, 2020 hosted by Imperial College London/University of Oxford/Johns Hopkins University.
37. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended Virtual event on Nature-based Solutions Digital Dialogues 2020 from July 7, 2020 to July 09, 2020 Hosted by University of Oxford, UK.
38. Dr. Farid Asif Shaheen, Assistant Professor, Department of Entomology attended online seminar on Food and the Climate & Ecological Emergency on July 09, 2020.
39. Dr. Farid Asif Shaheen, Assistant Professor, Department of Entomology attended Online Fruit Fly Chemical Ecology –roundtable discussions from July 27, 2020 to August 03, 2020.
40. Dr. Irfan Aziz, Assistant Professor, Department of Agronomy attended An e-conference on "Promoting Applied Sciences in Pakistan" from July 20, 2020 to July 21, 2020 organized by Higher Education Commission of Pakistan.
41. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended Online Workshop on "The impact of COVID-19 on global vector control efforts" on July 22, 2020 at The Global Vector Hub (GVH) and The Global Health Network, UK.
42. Prof. Dr. Ata ul Mohsin, Department of Entomology attended Precision Agriculture and sustainable solutions on July 30, 2010 at PMAS-Arid Agriculture university Rawalpindi.
43. Dr. Arshad M. Malik, Assistant Professor, Department of Economics attended online GIST U.S. - Pakistan Startup Training from July 16, 2020 to August 14, 2020.
44. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended Online conference on "ISNTD Bites 2020: Vector control for public health: from local to global cooperation in vector-borne diseases" on July 30, 2020 hosted by International Society for Neglected Tropical Diseases, ISNTD.

45. Dr. M. Imran Yousuf, Associate Professor/ Chairman and Dr. Nazia Parveen, Assistant Professor, Department of Education attended International Online Conference on “Educational Sciences and Research” on AUGUST 06, 2020.
46. Dr. Muhammad Tariq, Assistant Professor, Department of Entomology attended Workshop on “Pak China Workshop on Use of New Technology in Locust Control” on August 20, 2020 at PASTIC National Centre, Quaid-e-Azam University Campus, Islamabad.
47. Dr. Arshad M. Malik, Assistant Professor, Department of Economics attended 1st part of online round-table discussion series on “education” The Education Paradigm in Pakistan: What is it, What Should it be? on AUGUST 19, 2020.
48. Dr. Arshad M. Malik, Assistant Professor, Department of Economics attended 2nd part of online round-table discussion series on “education” Role of Government in Education on AUGUST 20, 2020.
49. Dr. M. Fiaz, Assistant Professor, Department of Livestock Production & Management attended online webinar on Policy Dialogue on the Development of a Robust and Resilient Dairy Sector in Post COVID-19 on August 19, 2020 at PMAS AAUR.
50. Dr. Arshad M. Malik, Assistant Professor, Department of Economics attended 3rd part of online round-table discussion series on “education” Public Private Partnerships in Education on AUGUST 21, 2020.
51. Dr. Arshad M. Malik, Assistant Professor, Department of Economics attended 4th part of online round-table discussion series on “education” Is Technology the Panacea and are we using it? on AUGUST 22, 2020.
52. Dr. Arshad M. Malik, Assistant Professor, Department of Economics attended 5th part of online round-table discussion series on education: the way forward on AUGUST 23, 2020.
53. Dr. Gulnaz Hameed, Assistant Professor, Department of Economics attended seminar on new normal in Gender and rural Transformation on September 11, 2020 at PMAS-AAUR.
54. Dr. Touqeer Ahmad, Associate Professor, Department of Horticulture attended webinar on Value Addition for Sustainable Grapes & Olive Production on September 09, 2020 organized by CAS-D, PMAS-AAUR
55. Dr. Touqeer Ahmad, Associate Professor, Department of Horticulture attended online ERASMUS International Credit Mobility KA 107 Exchange Program on September 16, 2020
56. Dr. Touqeer Ahmad, Associate Professor, Department of Horticulture attended webinar on Biotechnology In Crop Improvement for Sustainable Agriculture Development in Pakistan on September 10, 2020 hosted by CAS-D, PMAS-AAUR.
57. Ms. Shagufta Hamid Ali, Lecturer, Department of Anthropology and Dr. Gulnaz Hameed, Assistant Professor, Department of Economics attended One day training on Research Grant Program on September 16, 2020 at PMAS-AAUR.

58. Dr. Muhammad Tariq, Dr. Farid Asif Shaheen, Assistant Professors, Department of Entomology, Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management , Dr. Irfan Aziz, Assistant Professor, Department of Agronomy and Dr. Muhammad Abdul Rahman, Lecturer, Department of Economics attended seminar on “Dengue Prevention and Control” on September 17, 2020 at PMAS Arid Agriculture University, Rawalpindi.
59. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management attended online seminar on Grains storage, silos management and IoT on September 17, 2020.
60. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management attended online seminar on Maternal embryonic communication: The role of WNT signalling in pre-implantation period on September 18, 2020 hosted by University of Florida.
61. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management attended online seminar on Progesterone based puberty induction and fertility in beef heifers on September 17, 2020, hosted by University of Florida.
62. Dr. Saima Mustafa, Assistant Professor, Department of Mathematics & Statistics attended online seminar on Mastering Administrative Skills at National Productivity Organization on September 17, 2020.
63. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management attended online workshop on Bio-risk Management from September 21, 2020 to September 25, 2020 at PMAS-UAAR.
64. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management attended online seminar on JSTOR training on September 24, 2020 organized by Higher Education Commission, Pakistan.
65. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management attended online seminar on “Deliver peak performance in Milk and Dairy Analysis”, on September 25, 2020 hosted by Foss - Analytics Beyond Measure, Denmark.
66. Prof. Dr. Ata ul Mohsin, Department of Entomology attended Annual Review and Planning meeting/workshop of ACIAR Pulses Project from September 16, 2020 to September 17, 2020 at NARC, Islamabad.
67. Dr. Gulnaz Hameed, Assistant Professor, Department of Economics attended One day International webinar on “Catalyzing Women’s Entrepreneurships: A driver for Sustainable development on September 28, 2020 at PMAS-AAUR.
68. Dr. Muhammad Ali, Lecturer, Department of Agricultural Extension attended Conference: Preparing Advisers for the Digital Era from October 05, 2020 to October 08, 2020 at Latvia.

69. Dr. Farid Asif Shaheen, Assistant Professor, Department of Entomology attended Global Trends for Food Professionals on October 8, 2020 at Institute of Food and Nutritional Sciences, PMAS-AAUR.
70. Dr. Mukhtar Ahmed, Assistant Professor, Department of Agronomy attended AGMIP8 Virtual workshop Food Systems, Shocks and Actions from October 13, 2020 to October 15, 2020 at Swedish University of Agricultural Sciences.
71. Dr. Muhammad Farooq Iqbal, Assistant Professor, Department of Livestock Production & Management attended online Training workshop on “Biorisk Management” from October 12, 2020 to October 16, 2020.
72. Dr. Muhammad Ali, Lecturer, Department of Agricultural Extension attended seminar on Demonstrating Impact: How to monitor and evaluate gender-responsive Climate and Disaster Risk Finance and Insurance (CDRFI) on October 14, 2020 at FARM-D, InsuResilience Global Partnership.
73. Dr. Usman Ali Abbasi, Assistant Professor, Department of Horticulture attended seminar on Grow Nourish Sustain Together on October 16, 2020 at PMAS-AAUR Auditorium.
74. Dr. Usman Ali Abbasi, Assistant Professor, Department of Horticulture attended webinar on citrus genetic improvement: seedlessness and greening disease on October 17, 2020 at PMAS-AAUR.
75. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management and Ms. Shagufta Hamid Ali, Lecturer, Department of Anthropology attended online training of faculty orientation training for PMAS Arid Agriculture University from October 19, 2020 to October 23, 2020.
76. Ms. Shagufta Hamid Ali, Lecturer, Department of Anthropology attended online workshop on Advanced Training: How to Utilize ProQuest Ebooks Collection in Teaching and Research on October 20, 2020.
77. Dr. Hafiz M. Waheed, Assistant Professor, Department of Animal Breeding & Genetics attended virtual training on bio-risk management at amr lab, FV&AS from October 12, 2020 to October 16, 2020 at PMAS-Arid Agriculture University, Rawalpindi.
78. Dr. Arshad Mehmood Malik, Assistant Professor, Department of Economics attended online seminar on what is Smart about Smart Cities? On October 14, 2020.
79. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management attended online seminar on Know the bacteria and somatic cell count of incoming raw milk on October 15, 2020 hosted by FOSS - Analytics Beyond Measure, Denmark
80. Dr. Irfan Aziz, Assistant Professor, Department of Agronomy attended “World Food Day” on October 16, 2020 at PMAS Arid Agriculture University, Rawalpindi.

81. Dr. Muhammad Abdul Rahman, Lecturer, Department of Economics attended Seminar on World Food Day on October 16, 2020 at PMAS-AAUR
82. Dr. Mukhtar Ahmed, Assistant Professor, Department of Agronomy attended online 28th General Meeting of European Grassland Federation from October 19, 2020 to October 21, 2020 hosted by Swedish University of Agricultural Sciences.
83. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management and Ms. Anika Batool, Lecturer, Department of Environmental Sciences attended seminar on how to utilize ProQuest Journals, Dissertations, and Varied Content Types in teaching and research On October 19, 2020 at Higher Education Commission, Islamabad.
84. Ms. Anika Batool, Lecturer, Department of Environmental Sciences attended How to utilize ProQuest EBooks Collection in Teaching and Research on October 20, 2020 at ProQuest & Higher Education Commission, Islamabad.
85. Dr. Gulnaz Hameed, Assistant Professor, Dr. Muhammad Abdul Rahman, Lecturer, Department of Economics, Ms. Shagufta Hamid Ali, Lecturer, Department of Anthropology and Dr. Irfan Aziz, Assistant Professor, Department of Agronomy attended Awareness Session on “Research publication in Social Sciences: Importance of Quality and Ethics” on October 22, 2020 at PMAS-AAUR.
86. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management attended online seminar on Nanotechnology and its advances on October 25, 2020 organized by Society of Pharmaceuticals sciences and Research.
87. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management attended online seminar on How to manage your references on October 26, 2020 organized by ProQuest and Higher Education Commission.
88. Dr. Safdar Hussain, Assistant Professor, Department of Economics, Ms. Aneeqa Batool, Lecturer, Department of Environmental Sciences and Dr. Syeda Maryam Hussain , Assistant Professor, Department of Livestock Production & Management attended online seminar on 5 Tips for Getting Published: Maximize Your Chances to Get Your Paper Accepted in Academic Journals on October 27, 2020.
89. Prof. Dr. Azeem Khalid, Chairman and Ms. Anika Batool, Lecturer, Department of Environmental Sciences attended seminar on Status of Forestry in Pakistan on October 27, 2020 at PMAS-AAUR.
90. Dr. Muhammad Ansar, Associate Professor/ Chairman, and Dr. Irfan Aziz, Assistant Professor, Department of Agronomy attended seminars on the scope of soil and water conservation in Pothwar and the public sector measures and strategies to improve its agriculture on November 03, 2020 at PMAS Arid Agriculture University, Rawalpindi.
91. Dr. Touqeer Ahmad, Associate Professor, Department of Horticulture attended webinar on Vegetable Seed Production and Supply Chain on November 03, 2020 hosted by Pakistan Academy of Science.

92. Dr. Irfan Aziz, Assistant Professor, Department of Agronomy attended International webinar of Policy Dialogue on “Seed Production in Changing Climate: Challenges and Opportunities” on November 04, 2020 at PMAS Arid Agriculture University, Rawalpindi.
93. Dr. Muhammad Ansar, Associate Professor/ Chairman, Department of Agronomy, Dr. Shahid Mahmood, Assistant Professor, and Ms. Anika Batool, Lecturer, Department of Environmental Sciences attended International webinar of Policy Dialogue on “Seed Production in Changing Climate: Challenges and Opportunities” on November 04, 2020 at PMAS Arid Agriculture University, Rawalpindi.
94. Dr. Kashif Ishaq, Lecturer, Department of Livestock Production & Management and Dr. Gulnaz Hameed, Saima Asad, Assistant Professors, Department of Economics attended Gender Inclusive Training on “Opportunities in the Climate change for Sustainable and Drought Resistant Agriculture” on November 09, 2020 at PMAS-AAUR.
95. Dr. Imran Bodlah, Assistant Professor, Department of Entomology attended webinar on Mapping the future with GIS on November 19, 2020 hosted by JSS Academy of Higher Education & Research Mysore, Karnataka, India.
96. Dr. Mukhtar Ahmed, Assistant Professor, Department of Agronomy attended ASA-CSSA-SSSA International annual Virtual meeting, Translating Visionary Science to Practice from November 09, 2020 to November 13, 2020 at Baeyer.
97. Dr. Gulnaz Hameed, Assistant Professor, Department of Economics attended Seminar on “Mindful Parenting: Educational Strategies for Autistic Children” on November 12, 2020 at PMAS-AAUR
98. Dr. Usman Ali Abbasi, Assistant Professor, Department of Horticulture attended webinar on Selection of Postgraduate Project on November 11, 2020.
99. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management attended online seminar on Discover ProQuest Business premium collection on November 17, 2020 organized by ProQuest and Higher Education Commission.
100. Dr. Syeda Maryam Hussain, Assistant Professor, Department of Livestock Production & Management and Dr. Muhammad Arshad Dahar, Assistant Professor, Department of Education attended Second 03-Days teacher training workshop for newly appointed teachers from November 10, 2020 to November 12, 2020 at PMAS-Arid Agriculture University, Rawalpindi.
101. Dr. Muhammad Abdul Rahman, Lecturer, Department of Economics attended training of teachers of newly appointed faculty of PMAS-AAUR from November 10, 2020 to November 12, 2020 at PMAS-AAUR.
102. Dr. Safdar Hussain, Assistant Professor, Department of Economics attended workshop on Water Resources of Pakistan Availability Requirements on November 16, 2020 to November 20, 2020 at PARD, Rahat Abad, Peshawar, KPK.

103. Dr. Gulnaz Hameed, Assistant Professor, Department of Economics attended “Policy Dialogue on Public Perception and Criminal Justice in Pakistan” on November 18, 2020 at PMAS-AAUR.
104. Dr. Touqeer Ahmad, Associate Professor, Department of Horticulture attended webinar on Industrial Biotechnology Liaisons from Agricultural Waste to Commercial Products on November 23, 2020 hosted by CAS-D, PMAS-AAUR.
105. Dr. Muhammad Ali, Lecturer, Department of Agricultural Extension attended international virtual conference on ICT for Agriculture on November 18, 2020.
106. Dr. Muhammad Abdul Rahman, Lecturer, Department of Economics attended Policy Dialogue on Public Perception and Criminal Justice in Pakistan on November 18, 2020 at PMAS-AAUR.
107. Dr. Touqeer Ahmad, Associate Professor, Department of Horticulture attended Webinar on the Potential of CRISPR/Cas technology for improving agricultural productivity on November 27, 2020 hosted by Pakistan Academy Of Science.
108. Prof. Dr. Nadeem Akhtar Abbasi, Department of Horticulture attended online International Workshop on Advanced Postharvest Technologies on Horticultural Crops from December 01, 2020 To December 03, 2020.
109. Dr. Muzammil Anjum, Assistant Professor, Department of Environmental Sciences attended online seminar on Developing resilience against Smog pollution on December 05, 2020.
110. Ms. Aniqa Batool, Lecturer, Department of Environmental Sciences attended ProQuest’s Introduction to Publishing in Academic Journals-Part1 on December 08, 2020 at ProQuest & Higher Education Commission, Islamabad.
111. Dr. Touqeer Ahmad, Associate Professor, Department of Horticulture attended seminar on Human Disease Modeling: Overview and Principles on December 10, 2020 at UIBB, PMAS-AAUR.
112. Dr. Irfan Aziz, Assistant Professor, Department of Agronomy attended a webinar on International Mountain Day, Raising awareness among youth & highlight mountain agenda at national level on “Mountain Biodiversity” on December 11, 2020 at PMAS Arid Agriculture University, Rawalpindi.
113. Dr. M. Moaen-ud-Din, Associate Professor, Department of Animal Breeding & Genetics attended online consultative Session on: Outlook for Genome Editing in crops and livestock improvement and animal health on December 4, 2020.
114. Dr. Shahid Mahmood, Assistant Professor and Ms. Aniqa Batool, Lecturer, Department of Environmental Sciences attended International Mountain day on December 11, 2020 at PMAS-AAUR

115. Dr. Usman Ali Abbasi, Assistant Professor, Department of Horticulture attended webinar on How to Write a Scientific Review on December 14, 2020.
116. Dr. Gulnaz Hameed, Assistant Professor, Department of Economics attended Webinar on WASH (Water, Sanitation and Hygiene) and Covid-19 on December 14, 2020 at PMAS-AAUR.
117. Dr. Majid Ali, Assistant Professor, Department of Economics attended 7th International online conference on Business Management on December 19, 2020.
118. Ms. Aniga Batool, Lecturer, Department of Environmental Sciences attended ProQuest's Introduction to Publishing in Academic Journals-Part2 on December 15, 2020 at ProQuest & Higher Education Commission, Islamabad.
119. Dr. Muhammad Abdul Rahman, Lecturer, Department of Economics attended Three days 23rd Conference of Sustainable Development Conference (SDC) on theme of "Sustainable Development in the times of COVID-19" from December 14, 2020 to December 17, 2020 at SDPI Islamabad
120. Dr. Shahzada Sohail Ijaz, Associate Professor, Institute of Soil Science, Dr. Farid Asif Shaheen, Assistant Professor, Department of Entomology and Dr. Shahid Mehmood, Assistant Professor, Department of Environmental Sciences attended online seminar of Artificial Intelligence for Precision Agriculture on December 17, 2020.
121. Prof. Dr. Azeem Khalid, Chairman and Dr. Shahid Mahmood, Assistant Professor, Department of Environmental Science attended Hands on training workshop on variable rate spraying technology development (phase 1) from December 15, 2020 to December 19, 2020 at PMAS-AAUR.
122. Dr. Shahid Mahmood, Assistant Professor, Department of Environmental Science attended seminar on the role of sensors in digital agriculture and how to develop applicable systems at the growers level on December 18, 2020 at PMAS-AAUR.
123. Dr. Muhammad Abdul Rahman, Lecturer, Department of Economics attended Workshop on Grant Proposal Writing on December 21, 2020 at PMAS-AAUR
124. Dr. M. Asif Aziz, Assistant Professor, Department of Entomology attended Signing MOU and Launching of National Apiculture Programme on December 21, 2020 at Prime Minister Office, Islamabad.
125. Dr. Gulnaz Hameed, Assistant Professor, Department of Economics attended PIDE Grand National Dialog (GND) on "Talk about the Kind of Reforms Pakistan needs for political activity and economic Growth" on December 26, 2020 at PIDE Islamabad.
126. Dr. Mansur Abdullah, Associate Professor, Department of Veterinary Biomedical Sciences attended seminar on Animal Biotechnology: Challenges & Opportunities on December 30, 2020 at University Institute of Biochemistry & Biotechnology, PMAS-AAUR.

COMPOSED & DESIGNED BY:

MUHAMMAD MUBEEN (ORIC)

COMPILED BY:

DR. ASIM GULZAR
Additional Director (ORIC)

FINALIZED BY:

MR. SHAHID ALI KHAN
Director (P&D)/Additional Director (ORIC)