

ANNUAL REPORT

2016



PIR MEHR ALI SHAH

ARID AGRICULTURE UNIVERSITY

RAWALPINDI

CONTENTS

VICE CHANCELLOR’S MESSAGE	02
EXECUTIVE SUMMARY	03
ABOUT THE UNIVERSITY	04
ACADEMIC ACTIVITIES	05
RESEARCH AND DEVELOPMENT	09
QUALITY ASSURANCE	17
FACULTY DEVELOPMENT	19
ACCESS	22
UNIVERSITIES BUILDING ECONOMIES	23
STRENGTHENING PHYSICAL INFRASTRUCTURE	33
STRENGTHENING TECHNOLOGICAL INFRASTRUCTURE	37
UNIVERSITIES BUILDING COMMUNITIES	46
SPORTS	51
UNIVERSITIES BUILDING LEADERSHIP	53
FINANCE	55
UNIVERSITY GOVERNANCE	59
DELEGATIONS AND VISITS	64
FACULTY PUBLICATIONS	66
SEMINARS, WORKSHOPS & CONFERENCES	89

VICE CHANCELLOR'S MESSAGE

Being an Agricultural Institution, our main objective is to impart education and training to produce high quality Agricultural Scientists. Therefore, we are committed with the philosophy that we advance our farmer community by sharing positive and proven ideas and experiences. Along with Agricultural Sciences, the university offers degree programs at all levels in basic and Natural Sciences, Social Sciences, Humanities, Management Sciences, Computer Sciences and Information Technology.



The University seeks to make a major contribution to the agricultural advancement across the country. Therefore, we are dedicated to the prosecution of research across all fields of study, believing in research culture with clear application and relevance.

With a dynamic and stimulating educational environment, our tradition is to accept challenges and to receive wisdom today, in order to achieve new things and new approaches for tomorrow. Embracing education in its widest context, we continually strive to remain at the forefront of knowledge.

We are committed to prepare our students to work, acquire skills and enhance their capabilities that equip them adequately to live in rapidly changing global environment.

PROF. DR. RAI NIAZ AHMAD

EXECUTIVE SUMMARY

During the year 2016, 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 112 Research Projects worth Rs. 409.120 million were sponsored by various funding agencies i.e. HEC, PSF, PARC, & UAF.

Faculty members attended fifty nine 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 South Korea, Germany, Saudia Arabia, China, Australia, Sweden, Malaysia, Bhutan, Italy, Afghanistan & Bangladesh.

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 eleven thousand students are quenching their thirst of education from this prestigious educational organization. Three hundred & sixty six 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. Memorandum 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 267 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 post graduate 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 and University Institute of Biochemistry & Biotechnology. 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 60% 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 Soil Science & SWC
Department of Food Technology
Department of Agri. Extension
FACULTY OF SCIENCES
Department of Zoology/Biology
Department of Botany
Department of Biochemistry
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 Veterinary Basic Sciences
Department of Pathobiology
Department of Clinical Studies
Department of Livestock Production and Management
Department of Poultry Sciences
FACULTY OF AGRICULTURAL ENGINEERING & TECHNOLOGY
UNIVERSITY INSTITUTE OF MANAGEMENT SCIENCES
UNIVERSITY INSTITUTE OF INFORMATION TECHNOLOGY
INSTITUTE OF FOOD & NUTRITIONAL SCIENCES
INSTITUTE OF GEO-INFORMATION & EARTH OBSERVATIONS
UNIVERSITY INSTITUTE OF BIOCHEMISTRY & BIOTECHNOLOGY

ACADEMIC PROGRAMS

UNDERGRADUATE PROGRAMS		
BSc (Hons) Agriculture	BS in Biochemistry	BS in Computer Science
BS in Economics	BS in Forestry	B.Ed
BBA (Bachelor of Business Administration)	BS in Information Technology	DVM (Doctor of Veterinary Medicine)
BSc (Hons) Agri. Engineering	B.Sc (Hons) Human Nutrition & Dietetics	BS (Microbiology)
	BS (Remote Sensing & GIS)	
POST GRADUATE PROGRAMS (M.Sc)		
Biochemistry	M.Ed	MBA (1-1/2 Years)
Botany	Anthropology	MBA (3-1/2 Years)
Zoology	Criminology	MBA (Agri. Business) 1-1/2 Years
Biology	Sociology	MBA (Agri. Business) 3-1/2 Years
Statistics	Economics	MDM
Mathematics	Wildlife Management	MCS
Education	Environmental Sciences	MIT
M.SC (HONS)		
Soil Science	Agronomy	Foot Technology
Entomology	Horticulture	Human Nutrition & Dietetics
Plant Pathology	Agri. Economics	Food Safety & Quality Mgt.
Plant Breeding & Genetics	Agri. Extension	Agri. Engineering
M.PHIL/MS		
Biochemistry	Statistics	Forestry & Range Mgt.
Biotechnology	Education	Wildlife Management
Botany	Anthropology	Environmental Sciences
Zoology	Sociology	Management Sciences
Biology	Economics	Computer Science
	Remote Sensing & GIS	
PHD		
Soil Science	Biotechnology	Environmental Sciences
Entomology	Botany	Management Sciences
Plant Pathology	Zoology	Computer Science
Plant Breeding & Genetics	Education	Food Technology
Agronomy	Sociology	Agri. Engineering
Horticulture	Economics	Remote Sensing & GIS
Agri. Economics	Forestry & Range Mgt.	Biochemistry
	Wildlife Management	

ACADEMIC ACHIEVEMENTS

The university offers eighty four 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 11085 which is increasing every year. This University has so far turned out 343 Ph.D., 17494 M.Phil, M.Sc. (Hons.)/ MS/ M.Sc. and, 8009 B.Sc.(Hons.)/D.V.M/ BS/BBA/B.Ed.

Establishment of Sub Campus of PMAS-AAUR at Attock

A Sub Campus of PMAS-Arid Agriculture University at Attock was established temporarily in Government College Attock in 2014 under the ADP funded project amounting to Rs. 188.260 million. The land measuring 893 kanals was acquired and possessed. Being the incessant activity, phase-II of the project amounting to Rs. 879.668 million has been approved by the PDWP in December 2016.



The Groundbreaking Ceremony of PMAS Arid Agriculture University Rawalpindi – Attock Campus were held in Attock on 5th December 2016. Federal Minister for Parliamentary Affairs, Sheikh Aftab Ahmad was Chief Guest at the Occasion.

Establishment of Faculty of Social Sciences

The Faculty of Social Sciences has been established after the approval of the Academic Council of the University. The Faculty of Social Science offers the personal and professional development opportunities, including degree programs in Sociology, Anthropology, Criminology, Economics and Education.

Establishment of Institute of Food & Nutritional Sciences

The department of Food Technology is upgraded to the status of the Institute with three Department namely, Food Technology, Food Safety and Human Nutrition & dietetics and also started the Bachelor and Masters Degree programs.

HONOURS AND AWARDS

Awards of the Faculty

Prof. Dr. Tariq Mahmood, Dr. Azeem Khalid, Associate Professor, Department of Environmental Sciences, Prof. Dr. Tariq Mukhtar, Department of Plant Pathology, Dr. Asif Ahmad, Associate Professor, Dr. Anwaar Ahmed, Associate Professor, Department of Food Technology and Dr. Ghulam Bilal, Assistant Professor, Department of Livestock Production & Management have been awarded “**Research Productivity Award**” from Ministry of Science and Technology, Pakistan Council for Science and Technology, Islamabad.

Best Research Paper Award has been awarded to Dr. Azeem Khalid, Department of Environmental Sciences by Ministry of Science and Technology, Pakistan.

Best Poster Award (First Prize) has been awarded to Dr. Azeem Khalid, Department of Environmental Sciences in 16th International congress of Soil Science.

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)

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 were operational during 2016.

- Inter-Comparison of CENTURY and DSSAT Model Simulations to Improve Soil Based Climate Change Resilience and Adaptability of Rainfed Crop Production Systems in Pakistan
- Enhancing Biological Nitrogen Fixation, Soil Water Holding Capacity and Agronomic Benefits Through Biochar Application in Dryland Area
- Evaluation of biochar from different sources to control heavy metal toxicity to soil Microorganisms and Plants
- Improving Yield Quality and Storage Life of Bell Pepper by Use of Food Grade Chemicals
- Improvement of Berry Quality and Post-Harvest Performance of Grapes cv. Parlette and King's Ruby by Using Food Grade Chemicals
- Somatic Hybridization for Citrus Improvement: A Way Towards a Low Input Sustainable Citrus Culture in Pakistan
- Effect of Time of Harvest on Olive Oil Yield and Quality
- Improvement of Host Disease Resistance in Tomato Through Genetic Transformation
- Surveillance and pathogen characterization of bacterial canker of stone fruits using biochemical and molecular methods and its bio-management
- Nematodes Infecting Temperate Fruits in Pakistan and their Management
- Surveillance and Characterization of Pathogens Infecting Loquat in Pakistan
- Development of Bio-Pesticides for the Control of Soil-Borne Diseases of Tomatoes and Chillies Caused by *Pythium* and *Phytophthora* spp.
- Mosquito Fauna of Pothwar Region: A Resource-Based Approach
- Ants- aphid's Mutualistic Association, Its Impact on Biological Parameters of Aphids and Predation of Coccinellids'

- Monitoring and Characterization of Insecticide Resistance in Spotted Boll Worm, *Earias Vitell* (Lepidoptera: Noctuidae) Against Different Insecticides
- Value Addition of Selected Stone Fruits by Osmotic Dehydration and Hot Air Drying
- Characterization of Nutraceutical Potential of Buckwheat and value Addition of Cereal Products
- Screening for the Selection of Exopolysaccharide-Producing Strains for Yoghurt Making
- Identification of Genetic Risk Factors for Metabolic Syndrome in a Pakistani Population of Local Origin
- Establishment of Tissue Culture and Genetic Transformation Protocol for Local Varieties of Lentil (*Lens Culinaris Medik*)
- Screening of Cellulose Degrading Extremophilic Enzymes From Indigenous Fungi and Study of Site-Directed Mutagenesis Strategies to Enhance Their Activity
- Nutritional quality assessment and comparison of commonly consumed rainfed arid cereal varieties of Pakistan for their effective marketing and commercialization
- Biological Control of Rats and Mice in Agricultural Areas of Pothwar Barn Owl (*Tyto Alba*)
- Evaluation for Antifreeze Proteins Extracted From Various Sources for Cryopreservation of Buffalo Spermatozoa
- Expression of pathogenesis - related (PR) proteins to acquire systemic resistance against fungal pathogens (*Alternaria* and *Fusarium*) of sesame
- Baseline Studies on Wildlife Diversity in Selected Protected Areas of Pakistan (Phase-II)
- Ecologically-based Rodent Management in Croplands of Pothwar Plateau, Pakistan
- Are Anurans Impacted by Urbanization? Anuran Monitoring and Conservation in a Human dominated Landscape
- Utilizing bacterial ACC-deaminase biotechnology to mitigate impact of water stress (drought) on cereal crops
- Biotreatment of Tannery Wastewater and Its Application for Biomass Production of Energy Crops
- Development of breed identification marker for Pakistani dairy cattle breeds
- Development of Genetic Evaluation Model for Dhanni Cattle as Potential Beef Cattle in Potohar Region of Punjab
- Collaborative Research for Genetic Conservation and Improvement of Pakistani Goats jointly funded by USAID and HEC
- Preparation and Application of Multi-Epitopes DNA Vaccines Against Newcastle Disease

- Development of Breeding Objective for Improved Milk Protein Quality of Dairy Animals
- Evaluation of Intravenous Hypersomotic Sodium Bicarbonate Solution as an Adjunct to Antibiotic Therapy on Acid-Base Status and Cardiovascular Function in Buffalo Calves with Induce and Spontaneous Neonatal Diarrhea Associate with Escherichia Coli;

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 No	Name of Funding Agency	Completed	On Going	Total No of Projects	Amount (Rs. in M)
1	Higher Education Commission	22	40	62	309.395
2	Pakistan Science Foundation	11	16	27	52.463
3	Pakistan Agriculture Research Council	10	1	11	25.432
4	Punjab Agricultural Research Board	0	2	2	7.747
5	Endowment Fund UAF	4	1	5	9.783
7	International Foundation for Science/WWF	0	5	5	4.300
	Total	47	65	112	409.120

PUBLICATIONS

The faculty published 267 Research Publications in National and International reputed journals in 2016. (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 2016, different departments of the University organized Fourty Four (44) International and National Workshops/Seminars/Conferences. The university faculty also participated and contributed research papers in Eighteen (18) International and Fourty One (41) National Workshops/Seminars/Conferences (Details are given at Annexure-II)



RESEARCH JOURNALS

Journal of Arid Agriculture and Biotechnology (JAAB)

On the direction of Worthy Vice Chancellor and the recommendation of the Academic Council of the University, a new research journal “Journal of Arid Agriculture and Biotechnology” has been launched. The aim of the journal is to publish latest research achievements and promote integration and cooperation in agriculture and allied sciences.



Quarterly Baran Magazine

The University has started publishing a quarterly baran magazine under the experienced management. This initiative has been taken by the worthy Vice Chancellor for the dissemination of modern agriculture technology and information among the farming community. This magazine will also fill the gap among the policy makers, scientific community and end beneficiaries. The magazine has been distributed among the extension workers, policy makers, agricultural related authorities and progressive farmers in all over Pakistan on compliment basis. It is hope that this magazine will work as ambassador of the University with respect to the technology transfer programs.



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.

Monthly Campus News

The Campus News is being published on monthly basis to inform the students and the faculty about the ongoing and forthcoming important activities of the University. This is being circulated among the University community.



Naveed-e-Baran

This magazine is an annual publication which carries creative contribution from students and is managed by an Editorial Board mainly comprised of students.

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

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

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

QUALITY ASSURANCE

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:-



- 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; and,
- Develop procedures for monitoring, evaluation, departmental review of different degree programs, students's 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

IMPACT OF QUALITY ASSURANCE

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 Quality Enhancement Cell 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.

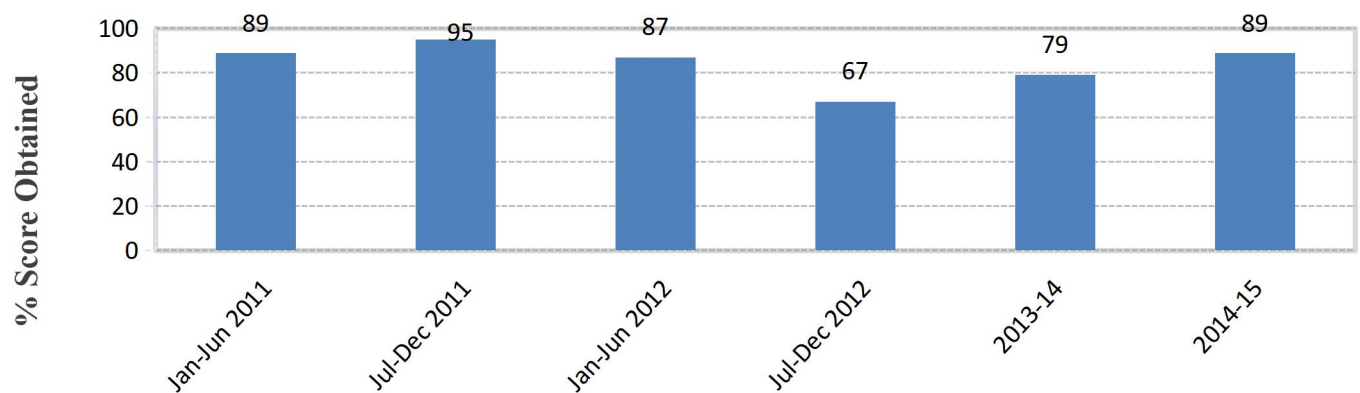
The QEC has automated feedback system for the evaluation of faculty and courses at the end of every semester. Significant improvements in the curriculum and the quality of teaching and research have been made through Self Assessment Program in place. The weaknesses are identified and corrective actions 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.

MEMBERSHIPS OF INTERNATIONAL ASSOCIATIONS/NETWORKS

- Asia Pacific Quality Network (APQN)
- TUFTS University/Talloeires Network UK
- Association of Quality Assurance Agencies of the Islamic World (IQA)

RANKING OF THE QEC

Based on the evaluation made by the HEC, scores obtained by the QEC-AAUR during the past five years are depicted below.



Quantitative Assessment of QEC-AAUR by the Higher Education Commission of Pakistan

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	6	27	15	14	62
2.	Faculty of Sciences	4	14	5	3	26
3.	Faculty of Social Sciences	12	8	5	2	27
4.	Faculty of Forestry, Range Management & Wildlife	5	8	1	3	17
5.	Faculty of Veterinary & Animal Sciences	17	10	6	2	35
6.	Faculty of Agricultural Engineering & Technology	6	3	1	1	11
7.	University Institute of Information Technology	11	8	0	0	19
8.	University Institute of Management Sciences	11	7	2	0	20
9.	University Institute of Biochemistry & Biotechnology	1	6	2	1	10
10.	Sub Campus Khushab	6	1	-	-	7
11.	Sub Campus Attock	8	2	1	-	11
Total						245

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:

POST DOCTORATE

S. #	Name of Faculty Member	Department	Name of Country
1.	Dr. Muhammad Fiaz, Assistant Professor	Livestock Production & Management	South Korea
2.	Dr. Mansur Abdullah, Associate Professor	Veterinary Basic Sciences	Germany
3.	Dr. Qaiser Hussain, Assistant Professor	Soil Science & SWC	Saudi Arabia

DOCTORATE

S. #	Name of Faculty Member	Department	Name of Country
1.	Mr. Zaib-ur-Rehman, Lecturer	Poultry Science	China
2.	Mr. Zeeshan Akbar, Lecturer	Veterinary Basic Sciences	Australia
3.	Mr. Nasir Mehmood Minhas, Assistant Professor	Computer Science	Sweden
4.	Ms. Sumaira Kayani, Lecturer	Education	China
5.	Mr. Nasir Mahmood, Lecturer	Economics	Germany

6.	Mr. Zia ur Rehman, Lecturer	UIMS	Malaysia
7.	Ms. Tehseen Ehsan, Lecturer	Education	Pakistan
8.	Mr. Osman Zulfiqar, Lecturer	UIMS	Pakistan

TRAINING COURSE/SHORT TERM TRAININGS

S. #	Name of Faculty Member	Department	Name of Course/Training	Name of Country
1.	Prof. Dr. M. Saleem Akhtar	Soil Science & SWC	Fellowship PIFI	China
2.	Ms. Nazia Rafiq, Lecturer	Sociology	Regional Training Workshop	Bhutan
3.	Prof. Dr. M. Inam-ul-Haq	Plant Pathology	Short Term Training	Italy
4.	Dr. Muhammad Ashfaq, Associate Professor	Plant Pathology	International Training Workshop	Afghanistan
5.	Dr. Zuhair Hasnain, Assistant Professor	Agronomy	Training on Organic Agro-Industry Development Leadership Course in Asia	Bangladesh

ACCESS

BASIC ENROLLMENT

There has been continuous increase in the student intake in various disciplines and the student enrollment increased from 6240 to 11085 in the last five years. The detail of which is given in below table:

S No	Name of Degree	2012	2013	2014	2015	2016
01	Graduates	3028	3715	4730	6009	6626
02	Post Graduates	2998	3437	3691	4073	4093
03	Doctoral	214	249	332	342	366
	Total	6240	7401	8753	10424	11085

GENDER-WISE DETAIL

SR. NO.	PROGRAM	MALE	FEMALE	TOTAL
1.	Bachelors	4774	1852	6626
2.	Masters	891	1532	2423
3.	M.Phil/MS (Hons)/MS	796	874	1670
4.	Ph.D	220	146	366
	TOTAL	6681	4404	11085

EMPLOYABILITY

In order to facilitate the graduates in job placement, Directorate of Financial Assistance & University Advancement consistently striving to develop linkages with the industry by providing the online recruiting tools either through its own resources and/or the private partners. A total of 13577 students have registered on Alumni Portal in which 2027 students have been registered in the Year 2016 who are regularly informed about various opportunities/job openings through electronic email. Students of the Agriculture Department found jobs in different fields of government, semi-government and private sectors.

FACULTY-STUDENT RATIO

The faculty-students ratio is Approximately 1 : 30.

UNIVERSITIES 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.

State of the Art Integrated Waste Management Station

PMAS-Arid Agriculture University

Rawalpindi has established a state of the art integrated Waste Management Station where modern treatment facility is based on the mechanical and biological treatment process of solid waste with proper segregation and recovery of the recyclables. This facility being not only the first one in the educational



institutes but also in the country, designed and executed by Professor Dr. Rai Niaz Ahmad, Vice Chancellor, PMAS-AAUR. The key features of this recently developed station are to transform decomposable waste in to compost for organic agriculture and bio-gas which can provide safe and healthy food to the community. Additionally, this solid waste if handled properly would maintain the natural balance of essential elements and thereby promote more harvest from nature. PMAS-AAUR and Rawalpindi Waste Management Company (RWMC) also signed MoU with an aim to clean environment and obtain energy from solid waste/biomass on the lines of developed model at PMAS-AAUR.

University Research Products Display Centre

University Research Product Display Centre (URPDC) is the visionary project initiated on June 17th 2015 by the Worthy Vice Chancellor Prof. Dr. Rai Niaz Ahmad. Later on it was given under the administrative control of Office of Research, Innovation & Commercialization (ORIC). The aim of the project is to facilitate and promote the research activities of the



University students and researchers in the field of Agriculture, Agri. Engineering, Livestock, Poultry, Food Technology and Business & Marketing. Along with the facilitation of research, URPDC is also handed over with the responsibility to train the

students with the entrepreneurial skills, in addition to sale and display the University research produce to the community at fair prices.

Presently a wide variety of baked items, processed fruit & vegetable products, poultry meat & eggs, fish meat, veal meat, milk and other University products are exclusively available for sale at URPDC.

Establishment of Nursery Training Project

A plant nursery comprising of various indigenous and exotics species was established at the main campus of the University. The main objective of establishing this facility is to strengthen the practical facilities of the undergraduate and postgraduate students.



Beside thus plants of various species will be sold at cheaper rates to the public in order to enhance their esthetic sense as well as to curb the menace of pollution.

Establishment of Clean Drinking Water Facility

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.

Establishment of Community Center

The purpose for establishment of community center is to showcase the farm fresh university products for the consumption of university employees, students and public. This will also act as source of revenue for the university as well as learning for the students.

Establishment of Ostrich Research Farm

Ostrich, a rare bird having extraordinary potential for conversion of food into meat, is being raised at the university as a model for the Pothwar farmers to adopt. Its meat is being sold at a very high price in International market and therefore, provides ample opportunity for the farmers of the region to improve their livelihood through raising Ostrich at their farms.



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.



Aquarium-cum-Aviary

The Arid varsity presents a novel combination of Aquarium-cum-Aviary as a model for integrated farming where the waste of birds on top will be used as feed for fish in pond at the bottom. The model is an effort towards



resource optimization at farm level for dissemination to the farming community of the area.

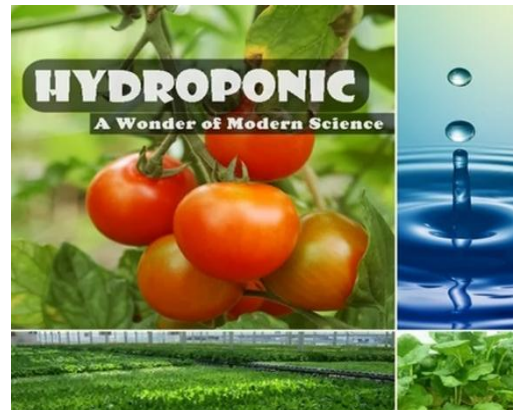
Seed Certification

Knowing the gap for the availability of quality inputs to the farming community, the university established a seed certification centre at the campus by using existing resources of highly qualified manpower and equipment available in the university labs. The centre will also serve as R&D facility to help existing seed certification bodies in the country in addition to provide certified quality seed to farming community of Pothwar and adjoining areas.



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 is also erecting 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” amounting to Rs. 77.571 million. So far three (03) Hydroponic Units have been fully completed and four (04) units are almost in completion stage.

PATENTS

The faculty of the University is doing exclusive research and succeeded in applying the patents for the outcomes of their research activities which 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 Punjnad-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	Indigenous hydroponic system By Prof. Dr. Rai Niaz Ahmad	Unit consists of greenhouse, cooling/heating system, drip irrigation, fertigation system, drainage and detectors for different controlled parameters	Production of quality vegetables like 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 is the regular feature of Students Resource Centre.

Students Resource Centre 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. Students Resource Centre also facilitates various entities offering scholarships independently in verification and performance appraisal of their scholars at University.

ACTIVITIES OF STUDENTS RESOURCE CENTRE

Different scholarships offered by SRC are as follows:

S. No.	Name of Scholarship	Scholarship Eligibility Criteria
1	Shahbaz Sharif Merit Scholarship	Offered for postgraduate students having any domicile
2	PEEF (Punjab Educational Endowment Fund)	Offered for undergraduate/postgraduate students having Punjab domicile
3	USAID Funded Merit & Need Based Scholarship Program	Offered for undergraduate/postgraduate agriculture/veterinary students

4	Vice Chancellor Talent Scholarship	Offered at subject/discipline level in each semester
5	HEC Need Based Scholarship	Offered for all degree programs
6	Pakistan Bait-ul-Mal Scholarship Program	Offered for the deserving students of university
7	Pakistan Scottish Scholarship Scheme	Offered for only female students
8	NTS Need Based Scholarship	Offered for needy students having a specific NTS score
9	Bestway Foundation Scholarship	Offered for needy students
10	Diya Pakistan Scholarship	Offered for needy students
11	Directorate of Agriculture Extension FATA Scholarship	Offered for students admitted on FATA domicile
12	Live Stock & Dairy Development Department, Quetta Scholarship	Offered for students having domicile of Baluchistan province
13	District Zakaat Committee Scholarship	Offered for very needy students
14	BISE Gujranwala, Scholarship	Offered for board employees
15	Directorate of Education Colleges, Gilgit-Baltistan Scholarship	Offered for students having domicile of Gilgit-Baltistan
16	Dr. Sadiq Foundation Scholarship	Offered for veterinary students
17	Gurmani Foundation Scholarship	Offered for students of southern Punjab

SUMMARY OF SCHOLARSHIPS:

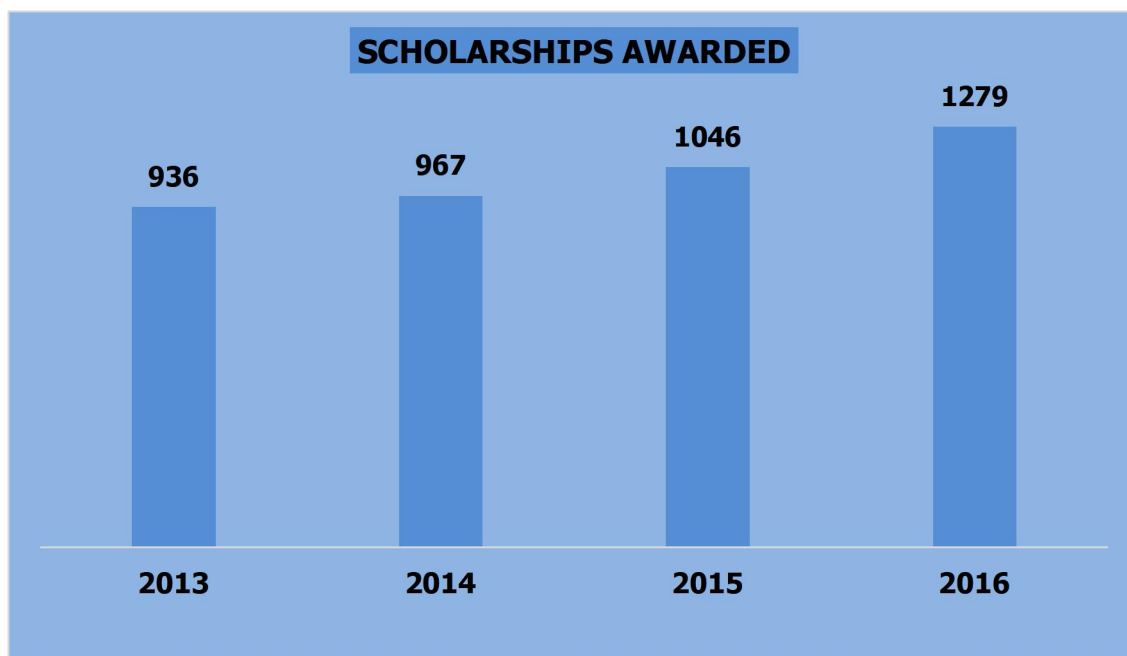
A total of 1279 scholarships have been awarded to the university students in 2016.

Following is the detail of scholarship programs during year 2016:

Scholarship Details for the Year 2016

S. No.	Name of Scholarship	Scholarships Awarded
1	PEEF (Punjab Educational Endowment Fund)	467
2	HEC Need Based Scholarship	245
3	USAID Funded Merit & Need Based Scholarship Program	62
4	Vice Chancellor Talent Scholarship	205
5	Pakistan Bait-ul-Mal Scholarship Program	100
6	Pakistan Scottish Scholarship Scheme	15
7	NTS Need Based Scholarship	3
8	Bestway Foundation Scholarship	2
9	Diya Pakistan Scholarship	5
10	Directorate of Agriculture Extension FATA Scholarship	9
11	Live Stock & Dairy Development Department, Quetta Scholarship	32
12	District Zakaat Committee Scholarship	3
13	BISE Gujranwala, Scholarship	1
14	Directorate of Education Colleges, Gilgit-Baltistan Scholarship	8
15	Shahbaz Sharif Merit Scholarship	106
16	Dr. Sadiq Foundation Scholarship	10
17	Gurmani Foundation Scholarship	6
Total		1279

GRAPHICAL COMPARISON OF SCHOLARSHIPS FROM 2013-2016



PRIME MINISTER'S LAPTOP SCHEME:-

Prime Minister's Laptop scheme has also been dealt by SRC. A total of 1886 laptops have been distributed to the talented students of various disciplines/departments of PMAS-AAUR in Year 2015-16, who were selected on merit.

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 two development projects have already been completed. Currently the University is implementing three such projects (Rs. 1708.483 million) while seven

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 and Government of the Punjab 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. 879.668 million have been fetched from Government of the Punjab for the project titled **“Establishment of Sub Campus of PMAS-Arid Agriculture University at Attock (Phase-II)”**.

Another project titled **“Testing Indigenous Hydroponic Greenhouses for Vegetable Growing at Various Locations in Punjab”** amounting to Rs. 77.571 million has also been approved by the Agriculture Department, Government of the Punjab, Lahore.



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 Rawalpindi at Attock	188.260
Total (Rs. in Million)	2369.792

ii) ONGOING

Development Projects (On-Going)	Cost (million Rs.)
Strengthening of Agricultural Engineering & Women Development Programs at PMAS-AAUR	751.244
Testing Indigenous Hydroponic Greenhouses for Vegetable Growing at Various Locations in Punjab	77.571
Establishment of Sub Campus of PMAS-Arid Agriculture University at Attock (Phase-II)	879.668
Total (Rs. in Million)	1708.483

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 many 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	Quantity	Make/Model	Main Specification
Gas Chromatograph	1	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	1	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, 0-5880Psi)
DNA Sequencer	1	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	1	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	1	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	1	Optima-100P. Beckman Coulter Switzerland	CE Mark Speeds to 100,000 Rpm g. Forces to 802,400g vacuum-encased, frequency controlled direct drive (induction)
Flame Photometer	1	Jenway-PFP-7	-
Deionizer	1	SG Hamburg	Microprocessor controlled purity monitor. Providing digital resistivity readings temperature to 25C
Precision Analytical Balance	2	(i) Jex 120 Japan (ii) BL-210S Sortorius Germany	(i) Capacity 120g readability 0.1 mg power (ii) Capacity 210g readability 0.1mg power 220VAC 50/60HZ
Aluminum Block Heater	1	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	2	(i) UE-600 Memmert Germany (ii) 100-800 Memmert Germany	Digital Microprocessor temperature range up to 300C ⁰ capacity -256 Ltr
Porometer	1	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	1	LCA-4 IRMECO England	Different measurements, non-dispersive infra-red gas analyzer Range 0.3000ppm frequency 80HZ Source Life 10,000 Hours
Confocal Microscope	1	TSI Sr. No. 291300105 Canada	Two laser (i) Red (635) (ii) Green (532), Two Micron-Optical, Resolution using one micron

STRENGTHENING TECHNOLOGICAL INFRASTRUCTURE

DIGITAL LIBRARY

HEC National Digital Library (DL) is a programme to provide researchers within public and private universities in Pakistan and non-profit research and development organizations with access to international scholarly literature based on electronic (online) delivery, providing access to high quality, peer-reviewed journals, databases, articles and e-Books across a wide range of disciplines. The e-books support programme allows researchers to access most of the important text and reference books electronically in a variety of subject areas. Around 75,000 number of electronic contents have been made available through the Digital Library Programme. The Faculty Members/Researchers/Scholars of the University are taking full advantage of the above mentioned facility in the form of e-library and access to the internet.

The new resources added in the last year and changes will appear on the website page soon. The new sources are as follows:

- Informs
- Duke University press
- IET library
- American Society of Agriculture and Biological Society
- Canadian Science publishing
- International Forestry Review
- University of Chicago Press
- Royal College of Physician
- World Bank Library

Their access of URLs is as follows and one may test on access and disperse the information for these resources to most of the scholars.

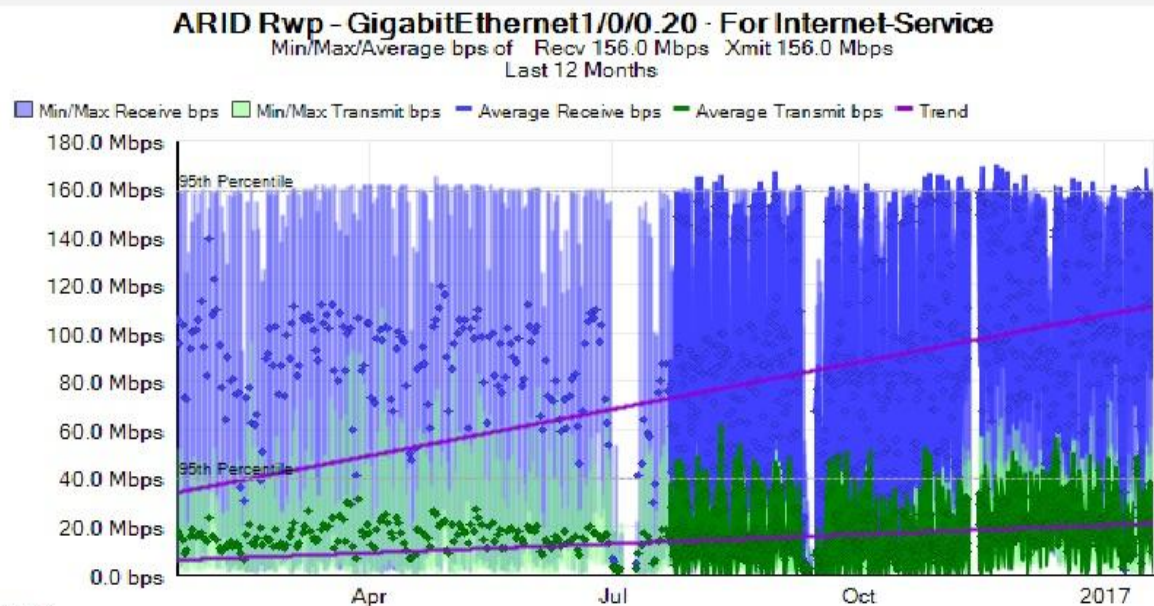
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<http://www.ingentaconnect.com/content/nrc>
www.dukejournals.org
<http://digital-library.theiet.org/>
<http://journals.informs.org/>
http://www.cfa-international.org/international_forestry_review.php
www.journals.uchicago.edu
<http://elibrary.worldbank.org/>

PERN2

Pakistan Education and Research Network, we are connected with HEC PERN2 with bandwidth of 156MB, 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

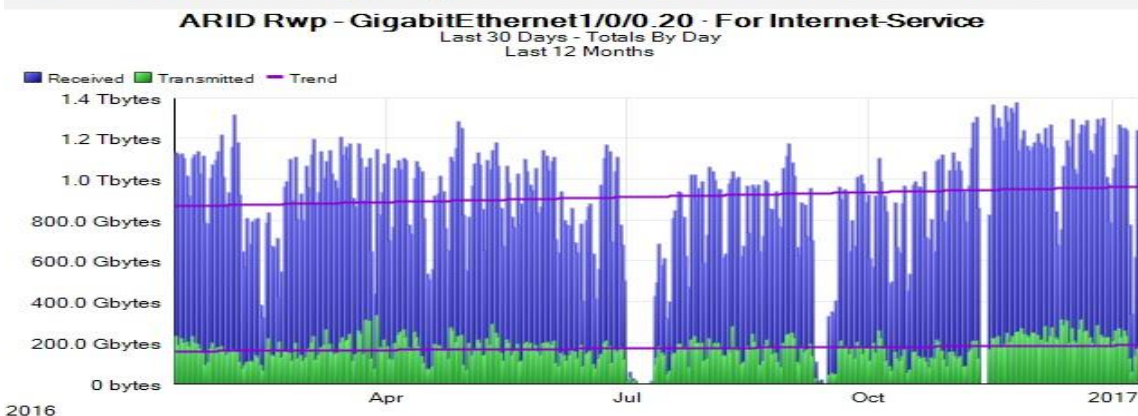
Custom Chart - ARID Rwp - GigabitEthernet1/0/0.20 - For Internet-Service



2016

95th Percentile: Average Receive bps is 158.5319 Mbps, Average Transmit bps is 39.7684 Mbps
SolarWinds Orion Core Services 2013.1

Custom Chart - ARID Rwp - GigabitEthernet1/0/0.20 - For Internet-Service

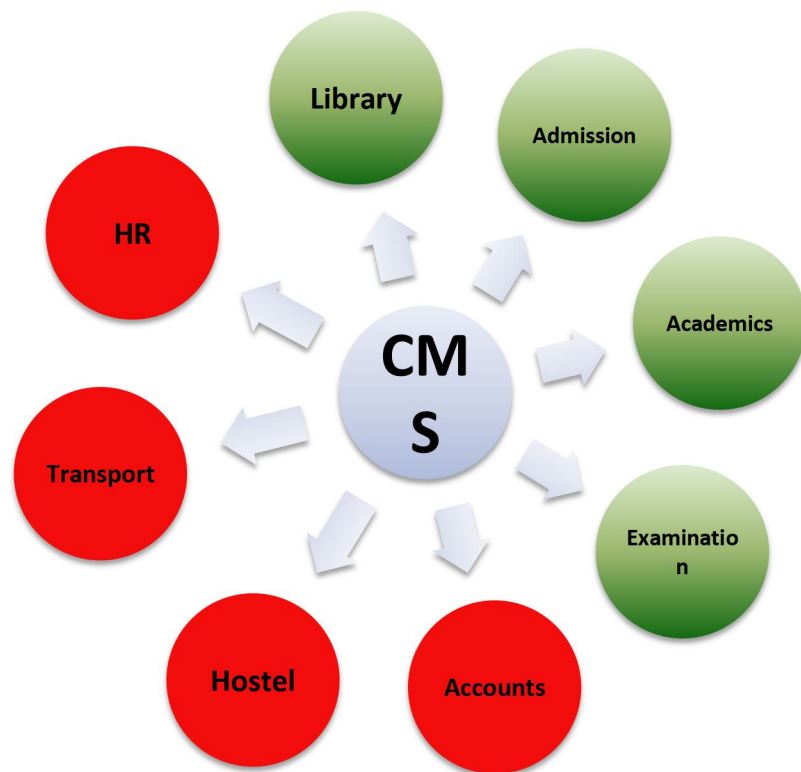


CAMPUS MANAGEMENT SYSTEM

INTRODUCTION

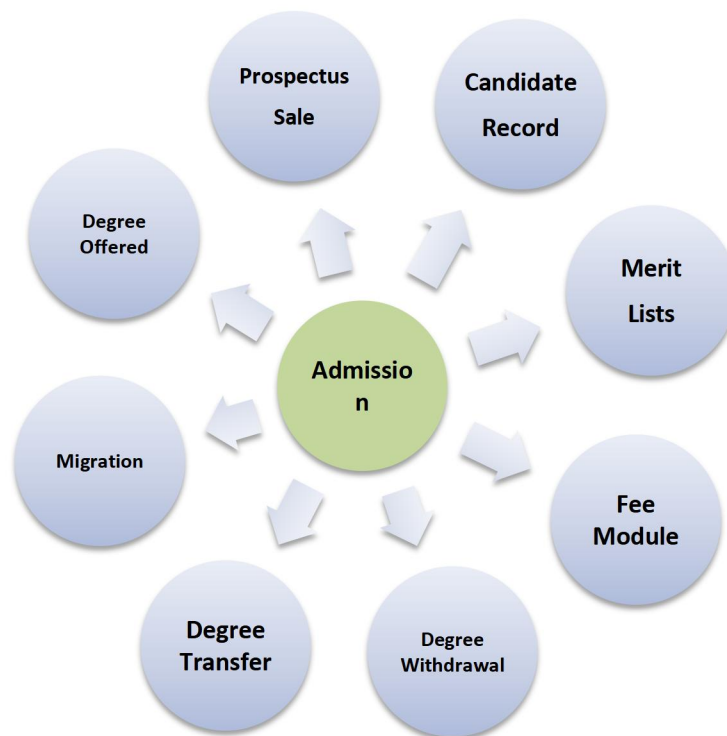
- Campus Management Solution is the most effective tool that has automated the management functionality of this university by streamlining some of the processes involved.
- It has reduced the manual handling of processes and thus helps in effective and accurate outcomes.
- CMS also helps in maintaining 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



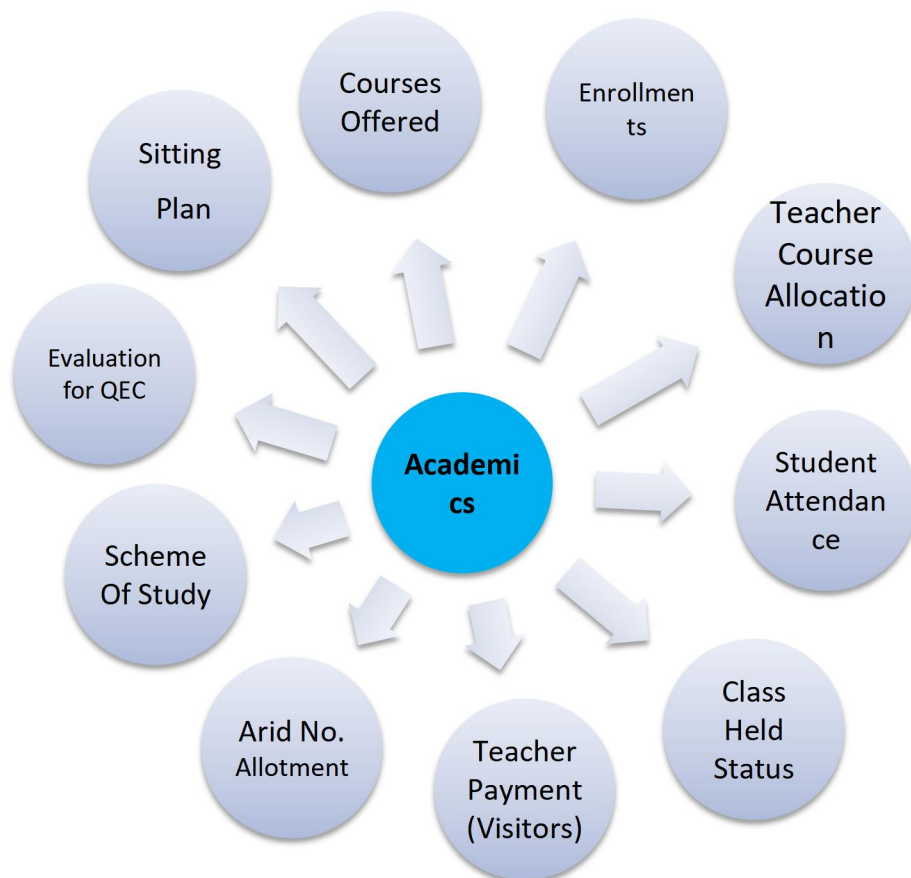
ADMISSION-A GLANCE

- 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



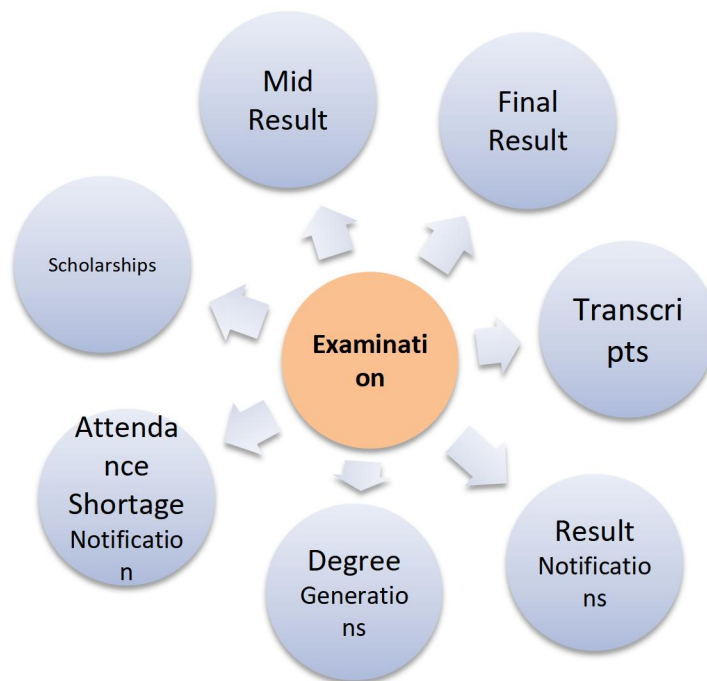
ACADEMICS-A GLANCE

- 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

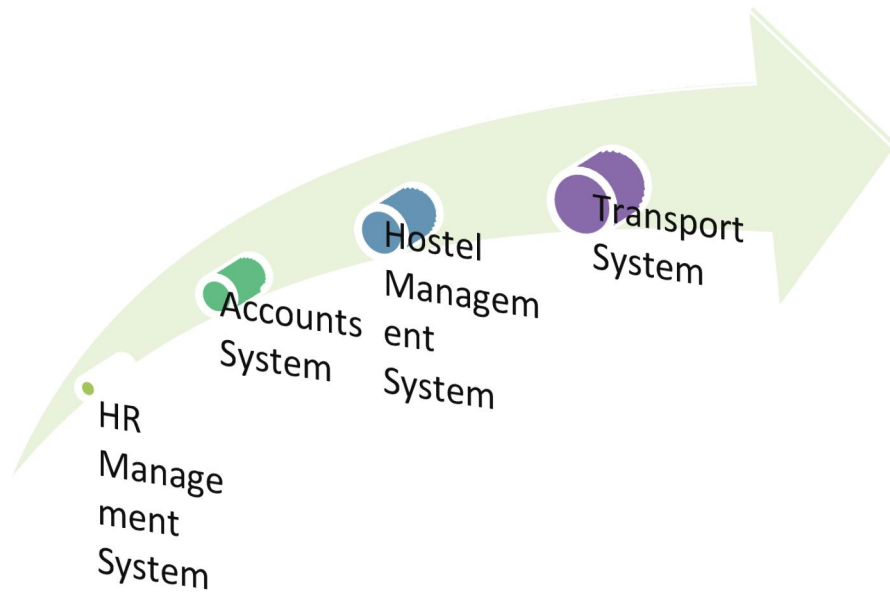


EXAMINATION-A GLANCE

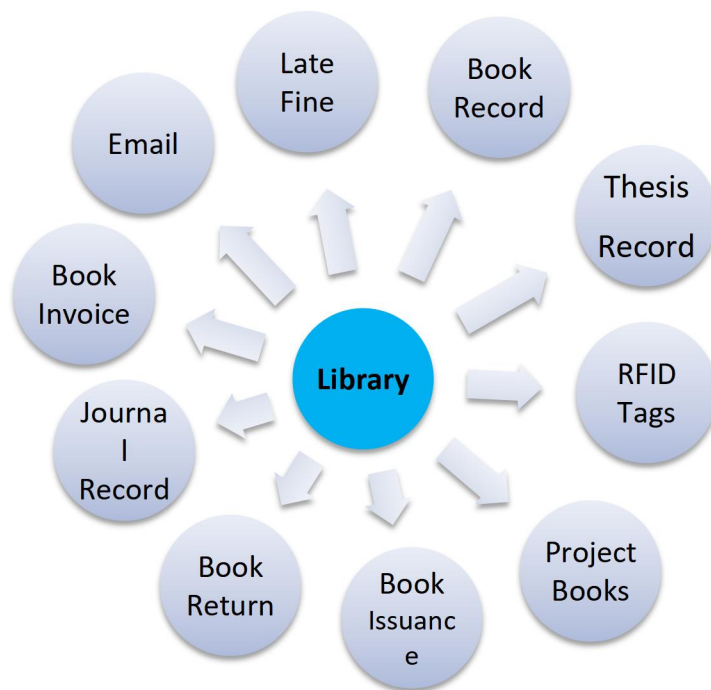
- Calculation of GPA, CGPA, Quality Points, Grades & All others Report Cards required to Controller Office and any other departments.
- Exam Attendance Sheet
- Award List
 - Mid Result
 - Final Result
- Transcripts
- Medal Lists
- Semester Result Notifications
- Final Result Notifications
- Provisional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

Job 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: This section provides all the information about latest admission programs which are offer by the university and provide a facility to apply online.

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.

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

Admin Panel -SRC: There is also a 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 handle 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.

DEVELOPMENT OF ONLINE ADMISSION

The web portal provides all the information about latest admission programs which are offer 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.

UNIVERSITIES 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.

The students, faculty and administration of PMAS-Arid Agriculture University Rawalpindi have always worked tirelessly to serve their countrymen and at the time of floods when a catastrophe has hit our motherland, the university once again standing united to help the people of these areas in dealing with the after affects of this devastating flood. The University also dispatched the relief goods to the flood affected areas.

ALUMNI AFFAIRS: OUTSTANDING ACHIEVEMENTS ETC.

The 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, Student Resource Centre has started compilation of Alumni database since 2006. Currently, database consists of over 13,577 registered graduates of different faculties and institutes of the University. Student Resource Centre is making consistent efforts to encourage graduates to join this forum for development of friendly and business relationships amongst Alumni having similar background and diversified professions.

Career Counseling is important and have vital role in student's professional life. University Administration of PMAS-Arid Agriculture University Rawalpindi established a specific Career Counseling Centre (Students Resource Centre) as per requirement of current era. Students Resource Centre regularly shares jobs (published in print & electronic media) with University Alumni and Final Semester Students. Punjab Higher Education Commission has very kindly allocated the funds for strengthening the Career Counseling Centre of PMAS-Arid Arid Agriculture University Rawalpindi. 435 job opportunities have been circulated to university alumni through email/online portal of university website and displayed on notice boards in university for the last semester students.

Followings are the details of the career counseling workshops and trainings organized for University Scholars and Alumni:

S. No.	Title of the Training / Workshop	Month
i.	Talent Grooming & Career Counseling Workshop for USAID Funded Merit & Need Based Scholarship Awardees	July – 2016
ii.	Poverty Alleviation Seminar for Pakistan Bait-ul-Mall Scholarship Awardees.	November–2016
iii.	Entrepreneurial Skills Development Training Workshop for PEEF Scholarship Awardees	December–2016
iv.	Prime Minister's Laptop Distribution Ceremony	December–2016

**MEETING OF INSTITUTIONAL SCHOLARSHIP AWARD COMMITTEE IN
PIR MEHR ALI SHAH – ARID AGRICULTURE UNIVERSITY RAWALPINDI**



USAID AWARDEES SUCCESSFULLY COMPLETED THEIR DEGREES



Talent Grooming & Career Counseling Workshop for USAID Funded Merit & Need Based Scholarship Awardees





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 were organized by Directorate of Sports:



INTERVARSITY VOLLEYBALL BOYS CHAMPIONSHIP 2015-16 ZONE “C” ORGANIZED AND PARTICIPATED BY PMAS-AAUR IN MARCH 2016

PMAS-AAUR Students team also participated in the following Intervarsity Sports Championship during the year.

- **INTER UNIVERSITY BASKET BALL CHAMPIONSHIP 2015-16 (ZONE “C”)** held at NUST, Islamabad.
- **INTER UNIVERSITY FOOT BALL CHAMPIONSHIP 2015-16 (ZONE “C”)** held at COMSATS, Islamabad.
- **ALL PAKISTAN INTER UNIVERSITY ATHLETICS CHAMPIONSHIP 2015-16** held at University of Peshawar, Peshawar.
- **ALL PAKISTAN INTER UNIVERSITY TUG OF WAR CHAMPIONSHIP 2015-16** held at University of Veterinary & Animal Sciences, Lahore.
- **ALL PAKISTAN INTER UNIVERSITY SQUASH CHAMPIONSHIP 2015-16** held at Government College University Lahore.
- **INTER UNIVERSITY TABLE TENNIS CHAMPIONSHIP 2015-16 (ZONE “C”)** held at University of Muzaffarabad, Muzaffarabad.
- **INTER UNIVERSITY BADMINTON CHAMPIONSHIP 2015-16 (ZONE “C”)** held at NUST, Islamabad.
- **INTER UNIVERSITY CRICKET CHAMPIONSHIP 2015-16 (ZONE “C”)** held at COMSATS, Islamabad.

- **INTER UNIVERSITY ROCK CLIMBING CHAMPIONSHIP 2015-16 (ZONE “C”)** held at International Islamic University, Islamabad.
- **ALL PAKISTAN INTER UNIVERSITY BOXING CHAMPIONSHIP 2015-16** held at FAST, Islamabad.
- **ALL PAKISTAN INTER UNIVERSITY GIRLS WUSHU CHAMPIONSHIP 2015-16** held at Islamia University Bahawalpur.
- **ALL PAKISTAN INTER UNIVERSITY GIRLS ARCHERY CHAMPIONSHIP 2015-16** held at Islamia University Bahawalpur.
- **ALL PAKISTAN INTER UNIVERSITY GIRLS TABLE TENNIS CHAMPIONSHIP 2015-16** held at Pakistan Sports Board, Islamabad.
- **INTER UNIVERSITY BOYS VOLLEYBALL CHAMPIONSHIP 2015-16 (FINAL ROUND)** held at University of the Punjab, Lahore.

The following Inter Faculty Sports Competitions were organized by Directorate of Sports during the year.

- **INTER FACULTY BADMINTON (BOYS) CHAMPIONSHIP 2015-16**
- **INTER FACULTY BADMINTON (GIRLS) CHAMPIONSHIP 2015-16**
- **INTER FACULTY VOLLEYBALL (BOYS) CHAMPIONSHIP 2015-16**
- **INTER FACULTY BASKETBALL (BOYS) CHAMPIONSHIP 2015-16**
- **INTER FACULTY TABLE TENNIS (BOYS) CHAMPIONSHIP 2015-16**
- **INTER FACULTY CRICKET (BOYS) CHAMPIONSHIP 2015-16**
- **INTER FACULTY FOOTBALL (BOYS) CHAMPIONSHIP 2015-16**
- **INTER FACULTY TUG OF WAR (BOYS) CHAMPIONSHIP 2015-16**
- **INTER FACULTY 100 METER RACE 2015-16**
- **INTER FACULTY BOYS HANDKERCHIEF GAME CHAMPIONSHIP 2015-16**
- **INTER FACULTY GIRLS 100 METER CHAMPIONSHIP 2015-16**
- **INTER FACULTY GIRLS LONG JUMP CHAMPIONSHIP 2015-16**
- **INTER FACULTY GIRLS HANDKERCHIEF CHAMPIONSHIP 2015-16**
- **INTER FACULTY GIRLS 400 METER CHAMPIONSHIP 2015-16**
- **INTER FACULTY GIRLS VOLLEYBALL CHAMPIONSHIP 2015-16**

UNIVERSITIES BUILDING LEADERSHIP

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

Venue & Date of Event	Name of Participants	Arid No.	Deptt.	Event	Position
Pakistan Day Celebrations 2016 Organized by Higher Education Department, Government of Punjab, Pakistan. (21/3/16)	Sibghatullah	15-Arid-2831	BS Economics	Urdu Debate	1 st
	Fawad Aslam	12-Arid-357	BS Agriculture	Quiz	1 st
	Haris Ali	12-Arid-359	B.Sc Agri.	Quiz	1 st
	Ali Raza Sherazi	15-Arid-5758	M.Sc Economics	Mushaira	1 st
	Zaid Abbasi	14-Arid-510	M.Sc PBG	Milli Naghma	1 st
	Sasha Gohar	13-Arid-619	B.Sc Agriculture	Painting Competition	2 nd
	Filza Fatma	13-Arid-3870	BS Agriculture Engineering	English Debate	3 rd
	Abdul Waheed	14-Arid-3668	BS.IT	Mushaira	3 rd
Mirpur University, Azad Jamu and Kashmir (27-28/3/16)	Areesh Fatmee	15-Arid-3130	HND	Cross Fire	1 st
	Amna Batool	15-arid-2831	HND	Cross Fire	
	Sibghatullah	15-Arid-2831	BS Economics	Mustival 16	2 nd
Air University (Air Nexus) Islamabad (23/4/16)	Mudasir Ali	15-Arid-5017	BSc AGRI	Urdu Essay Writing Competition	2 nd
	Muhammad Hassan	15-arid-3715	HND	Sketing	1st
Federal Urdu University of Science & Technology, Islamabad (20-21/5/16)	Nudrat Ali	14-arid-1242	MIT	Urdu Essay Writing Competition	1st
	Ali Raza Sherazi	15-Arid-5758	M.Sc Economics	Poetry Competition	1st
	Muhammad Ahmad	14-arid-1242	MIT	Web Designing	1st
	Muhammad Hassam	15-arid-3715	HND	Sketching	2 nd
HITECH Olympaid'16, HITECH University Taxila (12-14/5/16)	Bilal Ismat	13-arid-1284	BSIT	Documentary competition	1st
	Arid Drama team			Drama competition	1 st
	Abdul Rehman	12-arid-170	BSc AGRI	E. Gaming competition	2 nd
	M. Tariq	14-arid-1069	MSc PBG	Chess Competition	2 nd
	Zaid Abbass	14-arid-510	MSc PBG	Naat Competition	3 rd
	Sara Bano	14-arid-2750	BSc AGRI	Dumb Charades competition	3 rd

University of Agriculture Faisalabad (27/3/16)	Areesh Fatmee	15-Arid-3130	HND	Short Story Writing	1st
National Accountability Bureau (R) 1st Round (05/05/2016)	Sibghatullah	15-Arid-2831	BS Economics	Urdu Debate	2 nd
	Areesh Fatmee	15-Arid-3130	BS HND	English Debate	3 rd
National Accountability Bureau (R) 2nd Round (18/5/2016)	Areesh Fatmee	15-Arid-3130	BS HND	English Debate	1 st
	Sibghatullah	15-Arid-2831	BS Economics	Urdu Debate	3 rd
	Arid Team B			Drama	2 nd
Express Expo Pak-China Center Islamabad (11-12/5/16)	Bilal Ismat	13-arid-1284	BSIT	Documentary Competition	1 st
	Saqib Shehzad	13-ARID-1322	BSIT		
	Ghulam Hassan	14-arid-1805	MBA		
	Rizakazmi	14-arid-3875	BSIT	Battle of Bands Competition	2 nd
	Muneeb Riaz	15-arid-378	MSc		
	M. Sajjad	11-arid-446	MSc		
	Kashif Hussain	12-arid-189	BSc AGRI		
	Awais Ali	13-arid-3113	BSc AGRI		
	Anas Munir	13-ARID-3112	BSc		
	Muhammad Danish	12-ARID-2122	BSIT	Cultural Competition	2 nd
	Muhammad Ahsan	14-ARID-3635	BSCS		
	Sadeem Fayyaz	14-ARID-4142	BSIT		
	Asad	11-arid-433	MSc EXTENSION	Photography Competition	3 rd
	Filzafatima	13-Arid-3870	BSc AGRI	Selfie Competition	3 rd
	Huma Zaffar	15-arid-4966	BSc AGRI	Art Competition	3 rd
Independence Day Celebration Organized by Higher Education Department, Govt. of Punjab, Pakistan, at Fatima Jinnah Women University, Rawalpindi on 09/08/ 2016	Ali Raza Sherazi	15-Arid-5758	M.Sc Economics	Mushaira	1 st
	Sibghatuulah	15-Arid-2831	M.Phil Biology	Speech (Urdu)	1 st
	Muhammad Furqan	11-Arid-1896	M.Sc Economics	Milli Naghma	1 st
	Areesh Fatmee	15-Arid-3130	B.Sc (Hons)HND	Speech (English)	2 nd

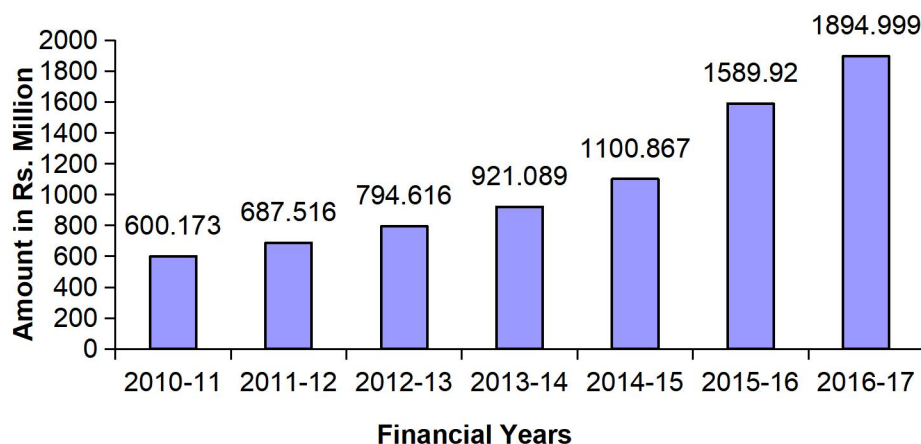
FINANCE

SUMMARY OF REVISED BUDGET ESTIMATES FOR THE YEAR 2016-2017

INCOME ESTIMATES				EXPENDITURE ESTIMATES			
Sources of Income	Revised Estimates 2015-16	Estimates 2016-17	Revised Estimates 2016-2017	Head of Accounts	Revised Estimates 2015-2016	Estimates 2016-2017	Revised Estimates 2016-17
Opening Balance	354247798	410000000	537048649	Pay and Allowances	689116612	764347513	756761642
Punjab Government	73984000	78423000	78423000	Purchase of Durable Goods	25000000	27200000	33200000
Federal Government	533344000	606153658	587418000	Research Projects	6500000	10500000	10500000
Supplementary Grant from Federal Government	20000000	20000000	20000000	Construction Work	273901270	272867403	329255701
Own Resources	274075139	284936517	290635247	Repair of Durable Goods	8500000	8500000	13000000
University Fee From UIMS	89967920	90867599	91776275	Commodities & Services	136500000	140150000	166050000
University Fee from UIIT	168414145	168750974	172125993	Transfer Payments	123515000	140320000	140320000
Income from Affiliated Institutes	25606505	25606505	44830997	Miscellaneous Expenditure	22300000	27244900	32416000
Khushab Campus	11301851	11655013	12673960	Contingent Paid Staff	29000000	29000000	31300000
Federal Government Grant for Tenure Track Faculty	10762560	10762560	15269813	Overtime/Evening sitting	9800000	9800000	9800000
Federal Government Grant for Need Base Scholarships	28217000	28217000	33501000	Reimbursement of Medical Charges	7000000	7500000	7500000
PMAS-AAUR Sub Campus Attock		6000000	11296370	Building Rent	4354580	2000000	2000000
				UIMS Department	58205627	58236283	61009668
				UIIT Department	74379268	72649294	74037914
				IT Network Data Centre	28084194	26266794	30065457
				UAAR Sub Campus Khushab	34875646	35224384	49494017
				UAAR Research Farm Chakwal	19862929	24285679	27047789
				Tenure Track System	10762560	10762560	15269813
				PMAS-AAUR Sub Campus Attock	0	2625000	17873416
				Institute of Hydroponic Agriculture	0	23080491	32950521
				PMAS-AAUR FM Radio	0	20000000	21623284
				Need Base Scholarships	28217000	28217000	33501000
Total	1589920918	1741372826	1894999304	Total	1589874686	1740777301	1894976222

FINANCIAL YEAR AT A GLANCE

SUMMARY OF BUDGET ESTIMATES



RECURRING BUDGET

Recurring Funding (Punjab Govt.) In Million Rs.						
2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
22.64	41.36	43.079	50.241	55.265	73.984	78.423
Recurring Funding (HEC) In Million Rs						
2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
237.668	298.117	364.251	414.441	464.379	533.344	606.153

TREND OF PER STUDENT SPENDING

For FY 2015-16 = Rs. 149400 per student on total expenditure basis
For FY 2016-17 = Projected as Rs. 164137 per student on total expenditure basis

SELF GENERATED INCOME

For FY 2015-16 = Rs. 569.366 million
For FY 2016-17 = Rs. 612.043 million

SUMMARY OF DEVELOPMENT BUDGET ESTIMATES (2016-17)

S. No.	Name of Project	Estimated Cost (Rs. In m)	Total Exp. Upto (30.06.15) Actual (Rs. In m)	Unspent Balance Carried Forward for (2015-16) (Rs. In m)	Releases during (2015-16) (Rs. In m)	Total Available Funds (2015-16) (5+6) (Rs. In m)	Exp. During (2015-16) (Rs. In m)	Total Exp. (4+8) (Rs. In m)	Unspent Balance Carried forward 2016-17 (7-8) (Rs. In m)	PSDP Allocation (2016-17) (Rs. In m)	Estimated Budget During (2016-17) (10+11) (Rs. In m)
1	2	3	4	5	6	7	8	9	10	11	12
i.	Establishment of Sub Campus of PMAS-AAUR at Attock	188.260	0.000	0.000	154.116	154.116	137.594	137.594	16.500	34.114	50.614
ii.	Strengthening of Agricultural Engineering & Women Development Programs at PMAS-AAUR	751.244	0.000	0.000	10.000	10.000	0.175	0.175	9.825	120.000	129.825
	Grand Total	939.504	0.000	0.000	164.116	164.116	137.769	137.769	26.325	154.114	180.439

AUDIT REPORT



DIRECTOR GENERAL AUDIT PUNJAB

6th Floor, AG Punjab Complex
Phone No: 042-99210147 Fax No: 042-99210166

1. SIGNATURE BLOCK

SEEN AND DISCUSSED CERTIFICATE

Except that contained in the forgoing paragraphs, the maintenance of accounts was found satisfactory.

Audit				
Name	Designation	Authority	Signature	Date
Mr. Muhammad Rizwan Talib	Audit Officer	AIR Issuance Authority		
Mr. Muhammad Naveed	Senior Auditor			

Entity				
Name	Designation	Organizational Role	Signature	Date
Syeda Irum Umer	Treasurer	DDO		
Raja Arsal Mirdi	Dy Treasurer	DDO (Financial Power up to Rs. 25,000)		
Abdul Walid	Dy Treasurer	DDO (Financial Power up to Rs. 25,000)		

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, five (05) 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 2016, six (06) meetings of Academic Council were 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 2016, Advanced Studies & Research Board was met for two times; the board afforded 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.	Principals of Affiliated Colleges/Directors of affiliated Institutes	Members
e.	Three University Professors, other than Deans, to be appointed by the Syndicate	Members
f.	Three University teachers to be appointed by the Academic Council	Members
g.	Five experts from other sister Institutions to be nominated by the Syndicate	Members
h.	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 2016, 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 2016, three (03) 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.	EDO Works Rawalpindi.	Member
e.	DCO Rawalpindi or His representative (for purchase of Land)	Member
f.	Deans FC&FS	Member
g.	Dean FA&ET	Member
h.	Principal Officer Student Affairs	Member
i.	Principal Officer Estate Care & Security	Member
j.	The Registrar	Member
k.	The Treasurer	Member
l.	The Resident Auditor	Member
m.	Project Director Works	Member
n.	Director Planning & Development	Member/Secretary

DELEGATIONS AND VISITS

- Ambassador of the Republic of Korea Dr. Song Jong-Hwan visited the University on March 18, 2016. He recommended that Pakistan has to adopt the Saemaul Undong (New Village Movement) which was the first step towards prosperity for Korea. Ambassador said Saemaul Undong is a community-based rural development program on improving the basic living conditions and environment whereas later projects concentrated on building rural infrastructure and increasing income.
- Mr. Muhammad Mahmood, the Secretary, Agriculture Department, Government of the Punjab visited the PMAS-AAUR Indigenous Hydroponic System at Rawat on May 23, 2016. While visiting, he suggested to spread the 21st century agriculture to farmer level. He also appreciated consistent hard work of university to indigenous this very expensive technology to the adoptable level of our farming community. His emphasis was on water concern to save Pakistan agriculture was appreciated by the vice chancellor and promised to give full co-operation from university. The Secretary Agriculture also had a meeting with DDO, and EDOs of Water Management of Rawalpindi region. He along with Vice Chancellor of PMAS-AAUR shared different options to improve water production as well as water storage by rain water harvesting in Potohar and pre-mountain areas.
- Raja Javed Ikhlas, Member National Assembly (MNA) visited the University Research Farm, Koont on June 06, 2016. He said that a sub-campus of PMAS-Arid Agriculture University Rawalpindi will be established in Mandra and different degree programs will be started with special emphasis on agriculture of the area to uplift of the farming community. On the occasion, University's Vice Chancellor Prof. Dr. Rai Niaz Ahmad, Deans, Directors, faculty members and a large number of students were also present.
- Mian Riaz Hussain Pirzada, Federal Minister for Inter Provincial Coordination visited the Indigenous Hydroponic System of PMAS-Arid Agriculture University Rawalpindi on June 21, 2016. He said that now a days food security is one of the major challenges and emphasized that Pakistan needs to adopt new technologies to ensure food security for the public at large. PMAS-AAUR Vice Chancellor Prof. Dr. Rai Niaz Ahmad, a large number of faculty members, students, farmers and researchers were also present on the occasion.
- The Italian delegation headed by Mr. Domenico Bruzzone, Director Technical Office of AICS in Pakistan visited the University on August 11, 2016. PMAS-Arid Agriculture University Rawalpindi and Italian Agency for Development Cooperation (AICS) have

agreed to initiate collaborative research projects in the field of agriculture, particularly for promotion of Olive cultivation in the country. On the Occasion, the Secretary, Agriculture Department, Government of the Punjab, Mr. Muhammad Mahmood, PMAS-AAUR Director External Linkages, Dr. Atta-ul-Mohsin, Registrar, Prof. Dr. Sarwat Naz Mirza and BARI Director, Muhammad Tariq were also present. The visiting delegation while exchanging views with PMAS-AAUR academic leadership applauded its numerous steps to develop the institutional relations with leading institutions and corporate entities. Both parties also shared views for joint efforts that are important for potential expansion of future collaborations.

- Mr. Sikandar Hayat Khan Bosan, Federal Minister, National Food Security & Research visited the University on October 25, 2016 and inaugurated the “Kissan Mela” held at PMAS- Arid Agriculture University Rawalpindi. The Mela was organized by PMAS-AAUR in collaboration with Lok Sanjh Foundation, featured several programs including establishment of different stalls, youth session, tableau by students and a conference on Defending Agricultural & Cultural Diversity. He said farmers are the backbone of the country and uplift of the agriculture sector could help strengthen the country’s economy. Federal Minister also visited different stalls of the Mela and inaugurated Bio Mass to Bio Energy Unit and Basketball & Long tennis Court in University premises. On the occasion, PMAS-AAUR, Vice Chancellor Prof. Dr. Rai Niaz Ahmad, Senator Najma Hameed and other dignitaries, faculty members, students and farmers were also present there.
- Malik Abrar Ahmad, Member National Assembly (MNA) visited Bio Energy Unit of PMAS-Arid Agriculture University Rawalpindi (PMAS-AAUR) on October 25, 2016. While visiting Malik Abrar Ahmad said that energy plays an important role in socio-economic progress of a country and Biomass to Bio Energy Unit of PMAS-AAUR would help the country become self-sufficient in the energy sector. He appreciated the efforts of PMAS-AAUR on establishment of this unit and hoped that it should be promoted by creating public awareness. He said that the present government has made a comprehensive development package to resolve the energy crisis being faced by the country and the energy crisis would be resolved till 2018.
- A delegation of students from Punjab University (Food Technology Department) visited the Department of Food Technology of PMAS-AAUR on November 2016.

FACULTY PUBLICATIONS

1. Aamir, S. S., M. M. Q. Baig, T. Ahmad, A. Ghafoor, I. A. Hafiz, N. A. Abbasi, I. Ali and M. Yaseen. 2016. Molecular and morphological characterization of rose mutants produced via in vitro mutagenesis. *The Philippine Agricultural Scientist*. 99(1):25-33. (IF= 0.256)
2. Abbas, M. F., F. Naz, A. Tariq, A. Mumtaz, G. Irshad and C. A. Rauf. 2016. First report of *Curvularia lunata* causing leaf spots on Loquat from Pakistan. *Journal of Plant pathology*. Impact factor (1.494)
3. Abbas, M. S., M. Akmal and A. Khan. 2016. Effectiveness of zinc and gypsum application against cadmium toxicity and accumulation in wheat (*Triticum aestivum* L.). *International Conference on Asia- Pacific Dialogue on Water, Energy and Food Security for Poverty Alleviation in Dryland Regions*. November 23-25, 2016, Rawalpindi, Pakistan
4. Abbas, N., F. Azeem, M. Imran, Z. Ahmad, Z. Maqbool and M. Abid. 2016. Characterization of a salt resistant bacterial strain *Proteus* sp. NA6 capable of decolorizing reactive dyes in the presence of multi-metal stress. *World Journal of Microbiology and Biotechnology*. 32(11), 181.
5. Abbas, T., G. Nabi, M. W. Boota, F. Hussain, M. I. Azam , H. Jin and M. Faisal. 2016. Uncertainty analysis of runoff and sedimentation in a forested watershed using sequential uncertainty fitting method. *Sciences in Cold and Arid Regions*. 8(4): 0297–0310.
6. Abbas, Z., B. Javaid, N. Majeed and S. M. S. Naqvi. 2016. Association of molecular markers with polyphenol oxidase activity in selected wheat genotypes. *Pakistan J. Bot*. 48(2): 689-692 (IF = 0.658)
7. Abdullah, A., M. Qasim, M. Shafiq, m. Ijaz, S. Parveen, S. Murtaza, Q. Javed, S. A. Malik, S. H. Tarar, S. Mahmood, A. Sami, S. M. S. Naqvi and M. Z. Hyder. 2016. Molecular diagnosis and phylogenetic analysis of human papillomavirus type-16 from suspected patients in Pakistan. *Infect. Agents Cancer*. 11(1): 1-7 (IF = 1.718)
8. Ahmad S., M. Nadeem, G. Abbas, Z. Fatima, R. J. Z. Khan, M. Ahmed, A. Ahmad, G. Rasul and M. A. Khan. 2016. Quantification of the effects of climate warming and crop management on sugarcane phenology. *Climate Research*. 71,47-61. doi: 10.3354/cr01419. (I.F=2.684).
9. Ahmad, I., M. J. Jaskani, M. Nafees, I. Ashraf and R. Qureshi. 2016. Control of media browning in micropropagation of Guava (*Psidium guajava* L.). *Pak. J. Bot.*, 48(2): 713-716. (Impact Factor: 0.822).
10. Ahmad, M., F. U. Hassan, G. Qadir and F. A. Shaheen. 2016. Response of proline accumulation in bread wheat (*Triticum aestivum* L.) under rainfed conditions. *Journal of Agricultural Meteorology*. Accepted. (IF-0.36).

11. Ahmad, M., K. Mehmood, M. Naeem and S. J. Butt. 2016. Diversity of sunflower insect pollinators and their foraging behavior under field conditions. 13th Asian Apicultural Association Conference, April 24-26, 2016, Jeddah, Kingdom of Saudi Arabia, p. 36.
12. Ahmed, A., M. Gulfraz, M. J. Asad, R. Qureshi, S. Bibi and S. I. Shah. 2016. Hypoglycemic and hypocholesterolemic activity of leaves of few medicinal plants against streptozotocin induced hyperglycemia. *Pakistan Journal of Pharmaceutical Sciences*. 29(6): 2065-2070 (IF = 0.682).
13. Ahmed, H., M. T. Siddique, F. Hussain, A. Hayat, M. J. Atif and N. Saleem. 2016. GIS Based Mapping of Copper, Manganese and Boron Availability in Apple Orchards of Murree, Pakistan. *Science, Technology and Development* 35: 160-170
14. Ahmed, M., C. O. Stockle, R. Nelson, S. Higgins and F. A. Shaheen. 2016. Ensembles modeling approach to study climate change impacts on wheat. Proceedings of “The 10th IMT-GT UNINET Conference 2016, Bioscience: The Element of Life” held on December 1-2, 2016 at Prince of Songkla University, Hat Yai, Songkla, Thailand. 91p..
15. Ahmed, M., M. N. Akram, M. Asim, M. Aslam, F. U. Hassan, S. Higgins, C. O. Stöckle, G. Hoogenboom. 2016. Calibration and validation of APSIM-Wheat and CERES-Wheat for spring wheat under rainfed conditions: Models evaluation and application. *Computers and Electronics in Agriculture* 123, 384-401. (I.F=2.99).
16. Ahmed, M., U. Qadeer, Z. I. Ahmed and F. U. Hassan. 2016. Improvement of wheat (*Triticum aestivum*) drought tolerance by seed priming with silicon. *Archives of Agronomy & Soil Science*. DOI:10.1080/03650340.2015.1048235. (I.F=1.118)
17. Ahmed, R., M. I. Haq, M. Ashfaq and Z. Akram. 2016. Pathogenesis and molecular confirmation of *Pseudomonas Syringae* PV *Syrinage* isolates from peach and plum in Pakistan. *Intl.J.BioSc.*,8(5):22-28. (I.F.0.553)
18. Ahmed, T., K. Javed, K. Hussain, A. K. Kassi and H. Javed. 2016. Physico-morphic factors imparting resistance in different Brinjal cultivars against sucking insect pest of Brinjal. *J. Ent. Zool. Stud.* 4(6): 490-495. (Non IF).
19. Ahmed, Z., Z. H. Shah, H. M. Rehman, K. Shahzad, I. Daur, A. Elfeel, M. U. Hassan, A. K. Elsafori, S. H. Yang and G. Chung. 2016. Genomics: A Hallmark to Monitor Molecular and Biochemical Processes Leading Toward a Better Perceptive of Seed Aging and ex-situ Conservation. *Curr Issues Mol Biol*. 2016 Nov 1;22:89-112 (IF=3.78)
20. Ahsan, M., S. Iqbal, F. S. Fateh, A. Riaz, A. Sattar and M. Waqas. 2016. Dispersal of vegetative mango malformation disease. *American Res. Thoughts*. 2 (3):3398-3407
21. Ain, Q., S. I. Malik and M. I. U. Haq. 2016. A comparison of the effects of soil water deficit on root and shoot traits of maize genotypes. *Soil and Environ.*, 35(2): 216-223.
22. Ajmal, M., A. Akram, A. Ara, S. Akhund, B. G. Nayyar and W. Seerat. 2016. Stem histopathology of sesame seedlings infected with *Alternaria alternate* . *Microscopy Research*. 4, 11-19. 33. (Impact factor 0.81)

23. Akhtar, M., F. U. Hassan, M. Ahmed, R. Hayat and C.O. Stöckle. 2016. Is rainwater harvesting an option for designing sustainable cropping patterns for rainfed agriculture? *Land Degrad. Develop.* 27: 630–640. (IF=8.145).
24. Akhter, A., A. I. Hunjra and G. S. K. Niazi. 2016. Extremely Difficult Goals of the Leaders Lead to Abusive Supervision: The Mediating Effect of Hindrance Stress. Paper is presented in “3rd International Conference on Contemporary Issues in Business Management (ICIBM, 2016) held in Pearl Continental Hotel Lahore on February 22 & 23, 2016.
25. Akram, A., I. Shaheen, S. Akhund, B. G. Nayyar and W. Seerat. 2016. In vitro antifungal activity of *Pongamia pinnata* against collar rot pathogen (*Sclerotium rolfsii*) of Chickpea. *Pure and Applied Biology*. 5(3): 520-528.
26. Akrim, F., T. Mahmood, M. S. Awan, S. Q. Butt, D. Shewar, M. A. Asadi, and I. Zangi. 2016. Habitat preference and Roosting behavior of the Red Junglefowl *Gallus gallus* (Aves: Galliformes: Phasianidae) in Deva Vatala National Park, Azad Jammu & Kashmir, Pakistan. 2016. *Journal of Threatened Taxa* 8(9): 9138-9143
27. Alam, S. Z., A. I. Hunjra, S. Aman, A. Bashir, Z. Huma and M. O. U. Lodhi. 2016. Impact of Investment Deposits & Risk Taking on Capital Decisions in Islamic Banks of Islamic Financial Services Board Member Countries. *International Journal of Economics and Empirical Research*, Vol.4 (10), p, 450-464: October 2016, ISSN: 2310-5232.
28. Ali, H., N. Naz, M. Abbas and A. M. Khan. 2016. Quantitative analysis of Quercetin in vegetables pulps and peels. *Journal of Agriculture research*. 54(1):75-83.
29. Ali, R., H. Javed and A. Gulzar. 2016. Comparative development, survival and Fecundity of *Helicoverpa armigera* (Humbner) (Lepidoptera: Noctuidae) on different chickpea cultivars. *Pakistan J. Zool.*, Vol. 48 (1): 249-255. (IF, 0.478).
30. Ali, R., M. Shoaib, M. Usman, S. Aziz, M. Ilyas, M. J. Asad, M. Zafar, M. M. Zafar and S. Nazir. 2016. Screening and Frequency of HBV, HCV and HIV in Intravenous and Non-Intravenous Drug Users in Different Areas of Pakistan. *World Journal of Zoology*. 11 (1): 06-13.
31. Ali. S., M. A. Malik, M. Ansar and R. Qureshi. 2016. Economic evaluation for integrated use of glyphosate herbicide and tillage combinations applied before sowing of rainfed wheat (*Triticum aestivum* L.). *Pak. J. Bot.*, 48(1): 331-337. (IF= 0.658)
32. Ali. S., M. A. Malik, M. Ansar, G. Qadir and R. Qureshi, 2016. Seed bank density and weed flora dynamics of *Convolvulus arvensis* as affected by different tillage systems in rainfed Wheat (*Triticum aestivum*). *Int. J. Agric. Biol.*18(2): 231-237. (IF= 0.758)
33. Ali. S., M. A. Malik, N. Tahir and M. Azam Khan, 2016. Growth and yield of rain-fed wheat as affected by different tillage systems integrated with glyphosate herbicide. *Pak. J. Bot.* 48(6): 2267-2275. (IF= 0.658)
34. Alvi, S. A., A. Baig and K. Sattar. 2016. Frequency-domain backoff mechanism for OFDM-based wireless LANs. *Arabian Journal for Science and Engineering*. 1-4 (IF = 0.7).

35. Amjad, M. S., M. Arshad, H. M. Sadaf, D. Shahwar, F. Akrimand and A. Arshad. 2016. Floristic composition, biological spectrum and conservation status of the vegetation in Nikyal valley Azad Jammu and Kashmir. Asian pacific journal of Tropical Diseases (Elsevier)., 6(1)63-69
36. Anjum, M. S., M. A. Sandhu, Z. Rehman and A. Safdar 2016. Metabolic and reproductive hormone disparity of laying hens kept in heat stress under various het combating systems. Turkish J Vet. Anim.Sci. (Accepted) (IF = 0.246)
37. Anjum, M., A. Khalid, T. Mahmood and I. Aziz. 2016. Anaerobic co-digestion of catering waste with partially pretreated lignocellulosic crop residues. Journal of Cleaner Production Vol.117:56-63. Doi: 10.1016/j.jclepro.2015.11.061.
38. Anwar, M., S. Ali, M. Rais and T. Mahmood. 2016. Breeding ecology of red jungle fowl (*Gallus gallus*) in Deva Vatala National Park, Azad Jammu and Kashmir, Pakistan. Journal of Applied Agriculture and Biotechnology. 1(1): 59–65.
39. Arshadullah, M., N. Hussain, H. Schmeisky and M. Rasheed.2016. Enhancing Soil Fertility through Intercropping, Inoculation and Fertilizer. Pak.J. Sci. Ind. Res., 59(1): 1-5
40. Arshid, M., M. Akmal, R. Hayat and S. Mahmood. 2016. Use of biochar along with PGPR for improving nutrient use efficiency in wheat (*Triticum aestivum* L.). International Conference on Asia- Pacific Dialogue on Water, Energy and Food Security for Poverty Alleviation in Dryland Regions. November 23-25, 2016, Rawalpindi, Pakistan
41. Ashraf, N., M. Anwar, I. Hussain, S. N. Mirza, M. C. Latham, A. David and M. Latham. 2016. Habitat use of Himalayan grey goral in relation to livestock grazing in Machiara National Park, Pakistan. Mammalia, 80(1): 59-70.
42. Ashraf, N., M. Anwar, M. K. Oli, W. E. Pine, M. Sarwar, I. Hussain and M. S. Awan. 2016. Seasonal variation in the diet of the grey goral (*Naemorhedus goral*) in Machiara National Park (MNP), Azad Jammu and Kashmir, Pakistan. DOI 10.1515/mammalia-2015-0075.
43. Azad, K., G. Shabbir, M. A. Khan, T. Mahmood, Z. H. Shah, F. Alghabari and I. Daur. 2016. Combining Ability Analysis and Gene Action Studies of Different Quantitative traits in Sunflower by Linex Tester. Crop Res. 51(2):1-4.
44. Azeem, M., R. Hayat, Q. Hussain, M. Ahmed, M. Imran, D. E. Crowley. 2016. Effect of biochar amendment on soil microbial biomass, abundance and enzyme activity in the mash bean field. Journal of Biodiversity and Environmental Sciences 8: 1-13.
45. Aziz, M. A., M. Irfan, I. Bodlah and M. Fahim. 2016. Effect of different brassica vegetables on biology and demographic parameters of *Brevicoryne brassicae* (Homoptera: Aphididae) under laboratory conditions. Asian J Agri Biol, 4(1): 17-24. Accepted.
46. Baig, I., S. Ahmed and M. Zeeshan. 2016. Myths and superstitions related to eclipses. The explorer Islamabad. 2(10): 250-254

47. Baig, M. M. Q., T. Ahmad, I. A. Hafiz, N. A. Abbasi and M. J. Tareen. 2016. In vitro improvement of characters in *Rosa* spp. through colchicine. *Journal of Animal and Plant sciences*. 26(6). Accepted (IF= 0.422)
48. Bakri, H and A. I. Hunjra. 2016. Impact of Access to Higher Education and Teachers' Support on Self-Perceived Employability and Psychological Well-Being of Graduating Students. Paper is presented in "4th International Conference on "Education in Pakistan: Connecting Research & Practice across Contexts", held in University of Education Lahore on March 24 & 25, 2016.
49. Balouch, S., M. Rais, I. Hussain and A. Akram. 2016. Squamate diversity in different croplands of District Chakwal, Punjab. *Journal of King Saud University – Science*. 28: 255-260.
50. Bashir K., S. Ali, S. S. Ijaz and I. Ahmad. 2016. Effect of organic amendments on distribution, stability and carbon concentration of soil aggregates. *Pakistan Journal of Agricultural Sciences*, 53(4):955-961 (IF. 0.422)
51. Batool, A. 2016. Communicational gap effecting adolescence's sexual and reproductive. *The explorer Islamabad*. 2 (3): 71-74.
52. Batool, I., M. J. Asad, M. S. Ahmad, R. T. Mahmood, H. Gul, L. Nisar, I. U. Haq, I. Bodlah and M. Gulfraz. 2016. Ethanol production from agricultural residues by simultaneous saccharification and fermentation process (SSF) by using termites and *Saccharomyces cerevisiae*. *Advances in Environmental Biology*. 10(7):107-115.
53. Bibi, R., A. Ditta, A. Husain, S. Noureen, A. Khalid and I. Aziz. 2016. Production of algal biomass using different dilutions of textile effluent wastewater. *SciLett* 6: 2016027-SL (Online First).
54. Bibi, R., M. Rais, M. Saeed, A. Akram, T. Mahmood and M. Anwar. 2016. Impacts of ammonium nitrate on survival of tadpoles of the common skittering frog (*Euphyctis cyanophlyctis*). *Basic and Applied Herpetology*. 30: 39-46.
55. Bibi, Y., A. Qayyum, S. Nisa, A. Waheed and M. F. Chaudhary. 2016. Isolation studies from stem extract of *Pistacia integerrima* Stew. ex Brand. *Journal of the Chilean Chemical Society*. Ms No. 4120 (Accepted) In Press (impact factor 0.429)
56. Bibi, Y., J. Naeem, K. Zahara, M. Arshad and A. Qayyum. 2016. In vitro antimicrobial assessment of selected plant extracts from pakistan. *Iranian Journal of Science and Technology (Sciences)* In Press (Abstract Available on line). (impact factor 0.403)
57. Bilal, G., and M. Moaeen-ud-Din. 2016. Do buffaloes have better milk fat profile than cows? Where does the evidence stand in 2016. *Journal of Dairy Science*. 99(E-Suppl. 1): 0834. (IF = 2.408)
58. Bilal, G., M. Moaeen-ud-Din and A. Zurwan. 2016. Growth Potential of Dhanni cattle under rainfed conditions of Punjab, Pakistan. *Journal of Dairy Science*. 99(E-Suppl. 1): 0274. (IF = 2.408)

59. Bilal, G., R. I. Cue, and J. F. Hayes. 2016. Genetic and phenotypic associations of type traits and body condition score with dry matter intake, milk yield and number of breedings in first lactation Canadian Holstein Cows. *Canadian Journal of Animal Science* 96(3): 434-447. (IF = 0.680).
60. Binish, Z., Y. Bibi, M. Ishaque, A. Sher and A. Qayyum. 2016. In vitro Antioxidant and Antimicrobial Activity of *Kickxia Ramosissima* (Wall.) Janchn Extracts. *Brazilian Archives of Biology and Technology* (BABT-2016-0583) In Press (0.546 impact factor)
61. Blouch, A., R. Mahmood, K. Rafique, F. A. Shaheen, M. Munir, A. Qayyum and R. Ali. 2016. Comparative analysis of physicochemical properties of honey from ecological zones and branded honey of Pakistan. *Journal of Biodiversity and Environmental Sciences*, 9(4): 40-49.
62. Bodlah, I., H. Ali, M. Akram, M. Naeem, A. U. Mohsin and M. A. Aziz. 2016. First record of three species of genus *Polistes* (Vespidae: Hymenoptera) from district Layyah (Punjab), Pakistan. *Asian J. Agri. Biol*, 4(2): 33-37.
63. Bodlah, I., M. A. Bodla, M. Naeem, S. Khaliq and A. Aihetasham. 2016. First Record of *Anisopteromalus calandrae* (Howard, 1881) (Homoptera: Chalcidoidea: Pteromalidae) as a Potential Biocontrol agent of Stored grain Beans from Rawalpindi and Islamabad. *Asian J. Agri Biol*. 4(3): 73-76. (Non IF).
64. Bodlah, I., M. Amjad, M. A. Bodlah and A. Qayyum. 2016. First record of two genera of Anthophorini and one genus of Melectini (Apinae: Apidae: Hymenoptera) from Pothwar Punjab, Pakistan. 2016. *Journal of Entomology and Zoology Studies* 4(4): 1031-1035.
65. Bodlah, I., M. Amjad, M. A. Bodlah and M. Saeed. 2016. Record of sweet bees, genus *Nomia* Latreille, 1804 (Halictuidae: Apoidea) from Pothwar tract, Pakistan. *Journal of Entomology and Zoology Studies* 4(3): 178-182.
66. Breeze, C. E., D. S. Paul, J. V. Dongen, L. M. Butcher, J. C. Ambrose, J. E. Barrett, R. Lowe, V. K. Rakyan, V. Iotchkova, M. Frontini, K. Downes, W. H. Ouwehand, J. Laperle, P. E. Jacques, G. Bourque, A. K. Bergmann, R. Siebert, E. Vellenga, S. Saeed, F. Matarese, J. H. A. Martens, H. G. Stunnenberg, A. E. Teschendorff, J. Herrero, E. Birney, I. Dunham and S. Beck. eFORGE: a tool for identifying cell type-specific signal in epigenomic data. *Cell Report*. 17: 2137-2150 (IF = 7.87)
67. Butt, H., T. Mukhtar and M. Batool. 2016. *Spilocaea pyracanthae* causing leaf scab on loquat in Pakistan. *Bragantia*. 75(1):76-78. (IF=0.486)
68. Chaudhry, M. T., A. Mohsin, F. A. Shaheen, M. Arshad and A. Zia. 2016. Dragonflies (Odonata: Anisoptera) of Pakistan. *Pakistan J. Zool.*, 48(6): 1957-1962. (IF-0.478).
69. Danish, I., R. Ahmad, M.Y. Mirza, T. Mahmood, M.A. Khan and M.S. Iqbal. 2016. Correlation and path analysis for yield and yield components in linseed (*Linum usitatissimum* L.). *J.Agric.Res.* 54(2):153-159.
70. Ehsan, M., I. Ahmed, R. Hayat, M. Iqbal, N. Bibi, and N. Khalid. 2016. Molecular Identification and Characterization of Phosphate Solubilizing *Pseudomonas* sp. Isolated

from Rhizosphere of Mash Bean (*Vigna Mungo* L.) for Growth Promotion in Wheat. *J. Agr. Sci. Tech.* 18: 775-788.

71. Faried, H. N., C. M. Ayyub, M. Amjad, R. Ahmed, F. M. Wattoo, M. Butt, M. Bashir, M. R. Shaheen, and M. A. Waqas. 2016. Salicylic acid confers salt tolerance in potato plants by improving water relations, gaseous exchange, antioxidant activities and osmoregulation. *Journal of the Science of Food and Agriculture*. IF: 2.07
72. Fatima, Z. 2016. Familial care and social protection as combined phenomenon towards productive aging: research study of youth as care givers in a society. *The explorer Islamabad*. 2 (1): 7-11.
73. Fiaz, M., F. Rani, M. Saqlain, A. Mahmood, P. A. Shaiq, S. M. S. Naqvi, R. A. Qazi and G. K. Raja. 2016. Identification of population specific risk phenotypes contributing towards development of metabolic syndrome. *Pak. J. Zool.* 48(4): 949-955 (IF = 0.478)
74. Ghani, R. A., N. A. Khattak, M. Saqlain, M. J. Asad, A. Khanum, S. M. S. Naqvi and G. K. Raja. 2016. Comparison of the common immunogenic protein components of *Pasteurella multocida* serotypes B: 2 and B: 3, 4. *Kafkas Univ. Vet. Fak. Derg.* 22(4): 485-491 (IF = 0.418)
75. Gul, N. 2016. Women empowerment: endorsement of right to career development among tribal masid women. *The explorer Islamabad*. 2 (2): 53-58.
76. Hafiz, I. A., S. Ishaq, T. Ahmad, N. A. Abbasi and I. A. Malik. 2016. Development of an effective and economical protocol for the micro-propagation of olive. 2nd International Conference on Horticultural Sciences, Institute of Horticultural Sciences, University of Agriculture Faisalabad, Pakistan, February 18-20. 2016: 60 pp.
77. Haq, M. I., F. Naqvi, M. I. Tahir, H. Mujeeb-ur-Rehman, R. Ahmed and Z. Ali. 2016. Serodiagnosis of *Xanthomonas campestris* pv. *sesami* causing bacterial leaf blight disease in sesame. *Pak. J. Agri. Sci.* 53 (3), 535-539.
78. Haq, U. W., S. Ali, M. F. Malik and Z. Akram. 2016. Genetic variability among quality traits in cotton varieties. *Merit Res. J. Agric. Sci. Soil Sci.*, 4(9):86-89. (I.F.0.613).
79. Hassan A., S. S. Ijaz, R. Lal, S. Ali, Q. Hussain, M. Ansar, M. S. Baloch. 2016. Depth distribution of soil organic carbon fractions in relation to tillage and cropping sequences in some dry lands of Punjab, Pakistan. *Land Degradation and Development* 27(4): 1175-1185 (IF, 8.145)
80. Hassan, A., S. S. Ijaz, R. Lal, D. Barker, S. Ali, M. Ansar, S. Jiang. 2016. Tillage effect on partial budget analysis of cropping intensification under dryland farming in Punjab, Pakistan. *Achieves of Agronomy and Soil Science*. 62(2): 151-162 (IF: 1.118)
81. Hassan, M., Z. Akram, S. Ali, G. M. Ali, Y. Zafar, Z. H. Shah and F. Alghabari. 2016. Whisker-mediated transformation of peanut with chitinase gene enhances resistance to leaf spot disease. *Crop Breed. Appl. Biotech.* 16: 108-114. (IF=0.946)

82. Hassan, S., M. I. Haque, F. Naz, M. I. Tahir and Z. Ali. 2016. In vitro investigations on host specificity of *Ralstonia solanacearum* among Solanaceous crops and its biological control in tomato. *Pak. J. Bot.*, 48(3): 1279-1287. [IF=0.84]
83. Hunjra, A. I. and Z. U. Rehman. 2016. Factors Affecting Investment Decision Mediated By Risk Aversion: A Case of Pakistani Investors. *International Journal of Economics and Empirical Research*, Vol.4 (04), p, 169-181: April 2016, ISSN: 2310-5232.
84. Hunjra, A. I., F. Faisal, M. Shoaib and Q. Abbas. 2016. Impact of Uncertainty on Firm Level Investment: Evidence from Pakistan Textile Sector. *International Journal of Economics and Empirical Research*, Vol.4 (03), p, 124-132: March 2016, ISSN: 2310-5232.
85. Hunjra, A. I., H. Naeem, A. Noor and A. Saleem. 2016. Does Corporate Governance Play Role in Firms' Performance? A Comparative Study of Pakistan, India and Bangladesh. *International Journal of Economics and Empirical Research*, Vol.4 (09), p, 450-464: September 2016, ISSN: 2310-5232.
86. Hunjra, A. I., S. A. Qureshi and L. Riaz. 2016. Psychological Factors and Investment Decision Making: A Confirmatory Factor Analysis. *Journal of Contemporary Management Sciences*, 2(1), 65-83. December 2016, ISSN: 2410-406X.
87. Hussain, F and G. Nabi. 2016. Empirical Formulae Evaluation for Hydraulic Conductivity Determination Based on Grain Size Analysis. *Pyrex Journal of Research in Environmental Studies*. 3(3). 026-032.
88. Hussain, M. A., T. Mukhtar and M. Z. Kayani. 2016. Reproduction of *Meloidogyne incognita* on resistant and susceptible okra cultivars. *Pakistan Journal of Agricultural Sciences*. 53(2):371-375. (IF=0.597)
89. Hussain, R. 2016. Catch-22 of modern slavery in Pakistan. *The explorer Islamabad*. 2 (4): 92-98.
90. Hussain, R. and T. Mahmood. 2016. Comparative Ecology of two Sympatric mongoose species (*Herpestes javanicus* and *H. edwardsii*) in Pothwar Plateau, Pakistan. 2016. *Pakistan Journal of Zoology*. 0.47848(6): 1931-1943. (IF=0.478)
91. Idrees, S., R. Qureshi, Y Bibi, A. Ishfaq, N. Khalid, A. Iftikhar, A. Shabir, I. Riaz, Saboon and N. Ahmad. 2016. Ethnobotanical and biological activities of *Leptadenia pyrotechnica* (Forssk.) Decne.: A REVIEW. *African J Traditional Complementary & Alternative Medicine*. 13(4):88-96. (Impact factor 0.55)
92. Ilyas, M., S. M. S. Naqvi and T. Mahmood. 2016. In-silico analysis of transcriptional factor binding sites in the promoter of germin-like protein genes in rice. *Arch. Biol. Sci.* 68(4): 863-876 (IF = 0.367)
93. Imran, L. 2016. Breast fibro adenomas in female: an anthropo-medical approach. *The explorer Islamabad*. 2 (2): 43-46.
94. Imran, M., M. Arshad, D.E. Crowley, F. Negam, A. Khalid, B. Shaharoon, S. Hussain, S.M. Nadeem and D.E. Crowley. 2016. Yeast extract promotes decolorization of azo dyes

by stimulating azoreductase activity in *Shewanella* sp. strain IFN4. *Ecot. and Env.Safety*124: 42–49.

95. Imran, M., Z. Anwar, M. Irshad, M. J. Asad and H. Ashfaq. 2016. Cellulase Production from Species of Fungi and Bacteria from agricultural wastes and its utilization in Industry; a Review. 2016. *Advances in Enzyme Research*. 4:44-55.
96. Imtiaz, Z., S. Afsheen, S. A. Zia, F. A. Shaheen, A. R. Bhatti, R. U. Khan and M. Ilyas. 2016. Grassland Carabids Beetle Fauna of District Gujrawala, Punjab-Pakistan. *Pakistan Journal of Agricultural Research*. Accepted.
97. Iqbal, H., M. Shoaib, M. Usman, S. Aziz, M. A. Yousaf, M. J. Asad, N. I. Raja, M. M. Zafar and S. Nazir. 2016. In vitro Study: Suppression of LDL Oxidation Using Green Leafy Vegetable Leaves. *American-Eurasian Journal of Agricultural & Environmental Sciences*. 16 (2): 380-384.
98. Iqbal, M. M., G. Murtaza, T. Naz, N. K. Niazi, M. Shakar, F. M. Wattoo, O. Farooq, M. Ali, H. Rehman, I. Afzal, S. M. Mehdi and A. Mahmood. 2016. Effects of lead (Pb) Salts on Growth, Chlorophyll Contents and Tissue Concentration of Rice Genotypes. DOI: 10.17957/IJAB/15.0243.
99. Iqbal, R., N. Ikram, M. Shoaib, M. J. Asad, R. T. Mahmood, A. Rehman, A. Shafi, N. Noor and F. Naseer. 2016. Phenotypic confirmatory disc diffusion test (PCDDT), double disc synergy test (DDST), e-test as diagnostic tool for detection of extended spectrum beta lactamase (ES β I) producing uropathogens. *Pakistan Journal of Pharmaceutical Science*. In print listed for publication vide Serial No. 5451 (IF = 0.581)
100. Iqbal, S. 2016. Perception of parents about early childhood education. *The explorer Islamabad*. 2 (2):47-49.
101. Iqbal, S., A. H. Abdullah, M. Murtadha, K. N. Qureshi and K. Hussain. 2016. Adaptive interface reconfiguration in low-rate Mesh WPANs. *Journal of Computational and Theoretical Nanoscience*. 13(8): 4703-4710 (IF: 1.5).
102. Iqbal, J., N. Mukhtar, Z. Rehman, S. Khan, T. Ahmad, M. Anjum and R. H. Pasha. 2016. Effects of egg weight on the egg quality, chick quality and broiler performance at the later stages of production (60 weeks) of broiler breeders. *Journal of Applied Poultry Research*. 44(1) :54-64. (IF = 0.460).
103. Iqbal, A. Qayyum, S. U. Khan, S. A. Khan, A. Mehmood, Y. Bibi, A. Sher, H. Khan, and M. A. Jenks. 2016. Sunflower (*Helianthus annuus*) hybrids evaluation for oil quality and yield attributes under spring planting conditions of Haripur, Pakistan. *Planta Daninha, Viçosa-MG*, v. 34, n. , p. , 2016 In Press (on line available) impactor factor 0.395
104. Irfan, M., M. Ismail, M. A. Beg, A. Shabbir, A. R. Kayani and G. K. Raja. 2016. Association of the MTHFR C677T (rs1801133) polymorphism with idiopathic male infertility in a local Pakistani population. *Balkan Journal of Medical Genetics*. 19(1): 151-62 (IF = 0.404)

105. Irshad. G., M. Nawabzada, F. Naz, S. Ghuffar and F.Asalam. 2016. Study Of Morphological Characteristics Of Bortryis Causing Gray Mold Of Lentil. Pakistan Journal Phytopathology.(Accepted)
106. Islam, Z., A. A. Bahtii, M. M. Ahmed, M. Sher, Y. Sakenia, G. Akbar, A.G. Mangrio, and M. Umair. 2016. Application and Distribution of Irrigation Water under Various Sizes of Center Pivot Sprinkler Systems. Pakistan Journal of Agricultural Research, Accepted on Oct. 19, 2016.
107. Israr, D., G. Mustafa, K. S. Khan, M. Shahzad, N. Ahmad and S. Masood. 2016. Interactive effects of phosphorus and pseudomonas putida on chickpea (*Cicer arietinum* L.) growth, nutrients uptake, antioxidant enzymes and organic acids exudation. Plant Physiology and Biochemistry 108: 304-312. (Impact Factor 2014: 2.756)
108. Jabeen, S. 2016. Cultural factors associated with obesity among the school-going children of Islamabad. The explorer Islamabad. 2 (3): 75-78.
109. Jafri, L., S. Saleem, T. P. Kondrytuk, I. U. Haq, N. Ullah, J. M. Pezzuto and B. Mirza. 2016. *Hedera nepalensis* K. Koch: a novel source of natural cancer chemopreventive and anticancerous compounds. Phytotherapy Research. 30(3): 447-453 (IF = 2.66)
110. Javed, H., N. M. Minhas, A. Abbas, F. M. Riaz. 2016. Model Based Testing for Web Applications: A Literature Survey Presented. JSW, 11(4), 347-361.
111. Javed, K., M. A. Rashid, A. Munawar, K. Hussain and H. Javed. 2016. Varietal and physico-morphic resistance against *Amrasca biguttula biguttula* (Homoptera: Cicadellidae). J. Ent. Zool. Stud. 4(5): 313-317. (Non IF).
112. Javed, K., M. Munir, M. Tariq and H. Javed. 2016. Field evaluation of different insecticides against green peach aphid, *Myzus persicae* (Sulzer). J. Ent. Zool. Stud. 4(6): 657-662.
113. Kashif, I., M. Younas, M. Riaz and M. Ali. 2016. Growth performance and carcass traits of various classes of Beetal kids under high input feeding system. Pakistan Journal of Agriculture Science 53(1): 277-282. (IF = 1.049)
114. Kashif, N., A. H. Abdullah, O. Kaiwartya, F. Ullah, S. Iqbal and A. Altameem. 2016. Weighted link quality and forward progress coupled with modified RTS/CTS for beaconless packet forwarding protocol (B-PFP) in VANETs. Telecommunication Systems. 63(1): 1-16 (IF = 0.822)
115. Kashif, N., A. H. Abdullah, S. Iqbal and Z. Muhammad. 2016. Improving quality of service through road side back-bone network in VANET. Journal Teknologi. 78(2): 7-14.
116. Kassi, A. K., A. U. Mohsin, H. Javed, S. Iqbal, M. R. Aslam and M. S. U. Rehman, 2016. Feeding potential and life table of lady bird beetle (*Coccinella septempunctata* L.) grub on crape myrtle aphid (*Tinocallis kahawaluokalani*) under laboratory conditions. J. Ent. Zool. Stud. 4(5): 1003-1006. (Non IF).
117. Kausar, F., A. Khalid, T. Mahmood and N. Ilyas. 2016. Efficacy of Bacterial Strains Isolated from Textile Wastewater for Degradation of Azo Dye Associated Aromatic

Amines. International Journal of Agriculture and Biology. DOI: 10.17957/IJAB/15.0230 (IF: 0.758)

118. Kayani, H. N and M. Ahmad. 2016. Cross resistance pattern for emamectin benzoate and synthetic pyrethroids in diamondback moth, *Plutella xylostella* (L.) (Lepidoptera: Plutellidae). Asian J Agri. Biol., 4(3): 65-72. (Non IF).
119. Khalil, S. and M. Anwar. 2016. Habitat preference of Grey Francolin (*francolinus pondicerianus*) in Salt Range, Punjab. J. Anim. Plant Sci., 26(3): 842-849.
120. Khalil, S., M. Anwar and I. Hussain. 2016. Breeding Biology of Grey Francolin (*Francolinus pondicerianus*) in Salt Range, Pakistan. Pak. J. Zool. 48(1): 115-123.
121. Khalil, S., M. Anwar, T. Hussain, M. Rafay, I. Ashraf, M. Abdullah, M. Safeer and A. Rasool. 2016. Food composition of the Grey Partridge (*Francolinus Pondicerinaus*) in Salt Range, Punjab, Pakistan. PRODOCES. 11(1): 13–20.
122. Khaliq, S., M. A. Aziz, I. Bodlah, A. Mohsin, M. Ahmad. 2016. First record of *Brachymeria excarinata* Gahan, 1925 (Hymenoptera: Chalcididae) as hyperparasitoid of *Cotesia Plutellae* (Hymenoptera: Braconidae) from Pakistan. J. Entomol. Zool. Stud. 5(1).
123. Khan, A., M. H. Mushtaq, M. Ahmad, A. Hussain, A. Khan, A. Khan and H. Nabi. 2016. Incidence of Repeat Breeding In Varying Breeds of Buffaloes and Cattle in Different Climatic Conditions in Khyber Pakhtunkhwa (Pakistan). Buffalo bulletin journal. (ISSN: 0125-6726).
124. Khan, A., M. H. Mushtaq, M. Ahmad, Z. Fatima and A. Khan. 2016. Seasonal Trends in Seroprevalence of FMD in Bovines under Different Environmental Conditions in Rural KPK, Pakistan (16-104).
125. Khan, A., M. S. Abbas and M. Akmal. 2016. Integration of biochar and fertilizer for evaluation of organic matter buildup and nutrient status of soil. International Conference on Asia- Pacific Dialogue on Water, Energy and Food Security for Poverty Alleviation in Dryland Regions. November 23-25, 2016, Rawalpindi, Pakistan
126. Khan, F. 2016. Purification of soul in kalash community before and after death. The explorer Islamabad. 2 (2): 59-62.
127. Khan, K.S., R. Mack, X. Castillo, M. Kaiser and R. G. Joergensen. 2016. Fungal and bacterial residues and their relationships to the C/N/P/S ratio of soil organic matter and microbial biomass. Geoderma 271: 115-123. (Impact Factor 2014: 2.762)
128. Khan, T. N., Z. Akram, S. U. K. Ajmal, S. M. S. Naqvi and A. M. Kazi. 2016. Glu-A3 and Glu-B3 alleles for LMW protein in local wheat identification f Glu-a3 and Glu-b3 alleles for LMW protein subunits in some wheat genotypes of Pakistan. Pakistan Journal of Agri. Sci. 53(3): 495-500 (IF = 0.597)
129. Khola, R., C. A. Rauf, F. Naz and G. Shabbir. 2016. DNA Sequence analysis, morphology and pathogenicity of *Fusarium oxysporum* f. sp. *Lentis* isolates inciting lentil wilt in Pakistan. International Journal of Biosciences., 7 (6) 74-91. <http://dx.doi.org/10.12692/ijb/7.6.74-91> [IF= 0.553]

130. Khosa, S. A., K. S. Khan, M. Akmal, Z. I. Ahmed and K. M. Qureshi. 2016. Phosphorus availability, enzyme activity and microbial biomass in soil amended with three organic sources. 16th International Congress of Soil Science. March 15-17, 2016, Rawalpindi, Pakistan
131. Kiani, R. A., M. Anwar, U. Waheed, M. J. Asad, S. Abbasi, and H. A. Zaheer. 2016. Epidemiology of Transfusion Transmitted Infection among Patients with- Thalassaemia Major in Pakistan. Journal of Blood Transfusion. Volume 2016, Article ID 8135649, 5 page.
132. Kulsoom, A., T. Sultan, M. Z. Kiani, S. Ahmad, T. Tabassam, M. Hassan. 2016. Effect of Rhizobium and Phosphate Solubilizing Bacteria at different levels of Phosphorus applied on Nodulation, Growth and Yield of Peas. Int. J.Biosci. 8(5): 112-121.
133. Liaqat, U. S., M. J. Asad, R. T. Mahmood, M. Gulfraz and S. Nadeem. 2016. Production and Purification of α -amylase by *Aspergillus sydowii* through liquid state and solid state fermentation. Journal of Biochemistry, Biotechnology and Biomaterials. 1(1):36-42.
134. Mahmood, A., M. Jamy, M. Saqlain, P. A. Shaiq, S. M. S. Naqvi and G. K. Raja. 2016. Association of β -lactoglobulin protein isoforms with milk constituents in goat breeds. J. Anim. Plant. Sci. 26(3): 862-867 (IF = 0.422)
135. Mahmood, M., A. Raza, M. A. Anwar, M. Qayyum, N. Zaman, A. Khanum and M. A. Beg. 2016. Analysis of complete and partial genome sequences of hepatitis B virus and determination of its genotypes and sub-genotypes from Pakistan. Pakistan Journal of Zoology. 48(3): 747-753 (IF = 0.404)
136. Mahmood, R. T., M. J. Asad, M. Asgher, M. Gulfraz, D. Ahmed and N. Zaman. 2016. Isolation of Indigenous Brown Rot Fungi from Rotten Wood from selected areas of Pakistan. Journal of Advances in Biology and Biotechnology. 10(4): 1-8.
137. Mahmood, S., A. Khalid, M. Arshad, T. Mahmood and D.E. Crowley. 2016. Detoxification of azo dyes by bacterial oxidoreductase enzymes. Critical Reviews in Biotechnology 15: 1-13.
138. Mahmood, S., S. I. Malik and M. Hussain. 2016. Heterosis and combining ability estimates for ear traits and grain yield in maize hybrids. Asian J. Agri. Biol., 4(4): 97-104.
139. Mahmood, T. and A. Adil. 2016. Diet composition of small Indian mongoose (*Herpestes javanicus*) varies seasonally in its native range. 2016. Animal Biology 0.617 Accepted: AB-D-16-00037R3. (IF= 0.617)
140. Mahmood, T., I. Q. Qadosi, H. Fatima, F. Akrim and M. Rais. 2016. Metal concentrations in common skittering frog (*Euphlyctis cyanophlyctis*) inhabiting Korang River, Islamabad, Pakistan. 2016. Basic and Applied Herpetology 30: 25-38.
141. Majeed, N., I. Hussain, Z. Abbas, U. Iqbal, T. Sultana and S.M.S. Naqvi. 2016. Heterologous expression of osRGLP1 gene induces resistance against fusarium infection in transgenic potato. Pak J Phytopath. 14;28(1):45-55.

142. Malik, S. I., A. Abdullah and S. Azam. 2016. Cloning of tomato SUMO1 and development of a CaMV 35S based gene construct for plant transformation. *Int. J. Biosci.*, 9(5): 86-96. (0.55)
143. Mansoor, M., Amanullah, M. Sher, Z. Islam, A. A. Khan and M. Umair. 2016. New High Yielding Mungbean (*Vigna Radiata* (L.) Wilczek) Variety "Inqalab Mung" For The Agro-Climatic Conditions Of KPK. *Pakistan Journal of Agricultural Research*, Accepted on Oct. 31, 2016.
144. Mansoor, M., N. Latif, Z. Islam, M. Sher, Amanullah, and M. Umair. 2016. Impact Assessment of Soil Amendments on Soil Capping Mungbean Production Using Central Pivot Irrigation System in Clayey Soils. *Pakistan Journal of Agricultural Research*. 29(2). 135-140.
145. Maqbool, Z., M. Akmal, A. N. Chaudhary and A. Akram. 2016. Effect of mixed application of biochar and compost on soil microbial activity and plant growth. *International Conference on Asia- Pacific Dialogue on Water, Energy and Food Security for Poverty Alleviation in Dryland Regions*. November 23-25, 2016, Rawalpindi, Pakistan
146. Maqbool, Z., S. Hussain, M. Imran, F. Mahmood, T. Shahzad, Z. Ahmed, Z. F. Azeem and S. Muzammil. 2016. Perspectives of using fungi as bioresource for bioremediation of pesticides in the environment: a critical review. *Environmental Science and Pollution Research*, 1-22.
147. Maqbool, Z., S. Hussain, T. Ahmad, M. Imran, A. Khalid and F. Martin-Lurent. 2016. Use of RSM modeling for optimizing decolorization of simulated textile wastewater by *Pseudomonas aeruginosa* strain ZM130 capable of simultaneous removal of reactive dyes and hexavalent chromium. *Environmental Science and Pollution Research* DOI 10.1007/s11356-016-6275-3.
148. Mashwani, Z. R., M. A. Khan, T. Khan and A. Nadhman. 2016. Application of Plant terpenoids in the synthesis of colloidal silver nanoparticles. *Advances in Colloid and Interface Science*. 132-141. <http://dx.doi.org/10.1016/j.cis.2016.04.008> (Impact Factor:7.78)
149. Masood, S., A. Khan, Sirajuddin, Q. Z. Xue, M. T. Javed, K. S. Khan, A. Bano and F. S. Shen. 2016. *Bacillus pumilus* enhances the tolerance in rice plants to combined stresses of NaCl and high boron due to limited uptake of Na⁺. *Environmental and Experimental Botany*, 124: 120-129. (Impact Factor 2014: 3.359)
150. Mazhar, R., N. Ilyas, M. Saeed, F. Bibi and N. Batool. 2016. Biocontrol and Salinity Tolerance Potential of *Azospirillum lipoferum* and its Inoculation Effect in Wheat Crop. *International Journal of Agriculture and Biology*. 18:494-500 (IF: 0.758)
151. Mehmood, A., M. Naeem, I. Bodlah and Ata-ul-Mohsin. 2016. Systematics of *Anopheles* and *Armigerus* (Culicidae:Diptera) Mosquitoes in the Pothwar region, Punjab, Pakistan. *International Journal of Mosquito Research* 3(5): 05-10.

152. Mehmood, S. A., M. S. Khan, A. Zia, F. A. Shaheen. 2016. Morphological evaluation of Gomphidae dragonflies of Hazara region Pakistan through principle component analysis. *Journal of Entomology and Zoology Studies*, 4(3): 183-188.
153. Memon, J., J. Kashif, N. Hussain, M. Yaqoob, A. Ali, R. Buriro, J. Soomro, M. F. Hassan, B. Sahito and F. Hongjie. 2016. Serotypes, genotypes, virulence factors and antimicrobial resistance genes of *Escherichia coli* isolated in bovine clinical mastitis from Eastern China. *Pakistan Veterinary Journal*. 36(4): 493-498.
154. Moaeen-ud-Din, M., G. Bilal, J. M. Reecy, M. S. Khan and S. Razzaq. 2016. Morphometric measurements and body weight affected by breed, age, and sex in the Sindh goat breed populations of Pakistan. *Journal of Dairy Science*. 99(E-Suppl. 1): 1720. (IF = 2.408)
155. Mubashir, H., N. I. Raja, M. Iqbal, A. Iftikhar, H. M. Sadaf, S. Sabir, M. A. Sultan and M. Nasim. 2016. Plantlets Regeneration via Somatic Embryogenesis from the Nucellus Tissues of Kinnow Mandarin (*Citrus reticulata* L.). *American Journal of Plant Sciences*. 7(6):798-805
156. Muhammad, I., S. Asif, N. Ilyas, N. I. Raja, M. Hussain, S. Shabir and A. Rauf. 2016. Effect of Plant Derived Smoke on Germination and Post Germination Expression of Wheat (*Triticum aestivum* L.). *American Journal of Plant Sciences*. 7(6):806-813
157. Mujtaba, A., T. Masud, A. Ahmad, S. M. S. Naqvi, M. A. Qazalbash and R. E. Levin. 2016. Effect of solvents on extraction yield, total flavonoids, total phenolic contents, DPPH scavenging activity and antibacterial potential of three apricot cultivars. *Transylvanian Rev.* 24(10) (IF = 0.03)
158. Muni, F., S. Hayashi, J. Batle, S. M. S. Naqvi and T. Mahmood. 2016. Germin-like protein 2 gene promoter from rice is responsive to fungal infectivity in transgenic potato plants. *Funct Integr Genomics*. 16(1): 19-27 (IF = 2.479)
159. Munir, M., R. Qureshi, M. Munazir and M.K. Leghari. 2016. Systematics of *Chroococcus* from Pakistan. *Pak. J. Bot.*, 48(1): 255-268 (IF: 0.822).
160. Mushtaq, S. 2016. The impact of telecommunication on the household economy after earthquake. *The explorer Islamabad*. 2 (1): 1-3.
161. Naeem, M. K., M. Ahmad, M. K. N. Shah, M. Kamran and M. S. Iqbal. 2016. Character association and path analysis of osmotic adjustment, growth and physiological traits in wheat. *JAPS*, 26 (3): 680-685. (IF= 0.422)
162. Nasreen, Z. 2016. Explore causes and effect of age bound diseases on life of aged people. *The explorer Islamabad*. 2 (1): 12-16
163. Nayyar, B. G., A. Akram, S. Akhund, W. Seerat and S. Sadia. 2016. Proteomics applied to plant defense mechanism: Role of pathogenesis-related proteins in disease defense. *Nature and Science*, 14 (3)21-33. (Impact factor: 0.565)

164. Naz, F., M. F. Abbas, C.A. Rauf, A. Tariq, A. Mumtaz, G. Irshad, I. Hassan and F. A. Shaheen. 2016. First report of *Colletotrichum gloeosporioides* causing anthracnose on Loquat in Pakistan. Plant Disease. Accepted.
165. Nazir, K., M. Mushtaq, M. Naeem and M. F. Nasir. 2016. A Note on Diversity of Termites in Taxila, Rawalpindi, Pakistan. Pak. Journal of Zoology. 48(4) 1213-1215. (IF, 0.478).
166. Nisa, E., M. Ahmad and N. Perveen. 2016. Lethal and sublethal effects of spirotetramet and flubendamide against leaf worm, *Spodoptera litura* under laboratory conditions. The 8th international conference on biological sciences in collaboration with 21st International Conference of Egyptian German society of Zoology, University of Tanta, Egypt (12 -13, November 2016), 39-40pp.
167. Parveen, N., M. Ahmad and M. Aslam. 2016. Effect of various nitrogen doses on aphid (*Macrosiphum mesecanthi* tak.) population on wheat (*Triticum aestivum*) The 8th international conference on biological sciences in collaboration with 21st International Conference of Egyptian German society of Zoology, University of Tanta, Egypt (12 -13, November 2016), 38-39pp.
168. Pasha, R. H., S. Taj, M. Irum, Z. Anjum, M. K. Khan and I. A. Khan, M.F. Qamar. 2016. Seasonal Morphological changes in the gonads of *Schizothorax Plagiostomus*. Biologia Journal, 62 (2): (Accepted)
169. Piepho, H.P., M. F. Nazir and M. K. N. Shah. 2016. Design and analysis of a trial to select for stress tolerance. Communications in Biometry and Crop Science 11(1):1–9
170. Qureshi, H., M. Arshad, A. Akram, N. I. Raja, S. Fatima and M. S. Amjad. 2016. Ethnopharmacological and phytochemical account of paradise tree (*Melia azedarach* L.: Meliaceae). Pure Appl. Biol., 5(1): 5-14.
171. Qureshi, H., M. Arshad, W. Seerat, F. Kabir and S. Fatima. 2016. Bioprospecting plants for natural antioxidants: An overview. J. Coastal Life Med., 4(10): 824-832.
172. Qureshi, R., S. A. Ghazanfar, H. Obied, V. Vasileva and M. A. Tariq. 2016. Ethnobotany: A Living Science for Alleviating Human Suffering. Evidence-Based Complementary and Alternative Medicine, Volume 2016, Article ID 9641692, 3 pages. <http://dx.doi.org/10.1155/2016/9641692>. (Impact Factor: 1.9122)
173. Rafiq, A., M. Akmal, K. S. Khan and R. M. A. Asghar. 2016. Effect of different kinds of biochar on Pb immobilization in contaminated soil. 16th International Congress of Soil Science. March 15-17, 2016, Rawalpindi, Pakistan
174. Rafique, K., C. A. Rauf, F. Naz and G. Shabbir. 2016. Management of vascular wilt of lentil through host plant resistance, biological control agents and chemicals. Pak. J. Bot., 48(5): 2085-2092. (Impact Factor 0.658)
175. Rahoo, A. M., T. Mukhtar, S. I. Abro, S. R. Gowen and B. A. Bughio. 2016. Effect of temperature on emergence of *Steinernema feltiae* from infected *Galleria mellonella* cadavers under moist and dry conditions. Pakistan Journal of Nematology. 34(2):171-176.

176. Rahoo, A. M., T. Mukhtar, S. R. Gowen, B. Pembroke and M. A. Rahu. 2016. Emergence of *Steinernema feltiae* from infected *Galleria mellonella* cadavers in moist and dry conditions. *Pakistan Journal of Nematology* 34(1):81-86.
177. Rai, S. B., A. Khalid, S. Mahmood, S. Qadeer and I. Aziz. 2016. Reduction in Phytotoxicity of Chromium Using ACC-deaminase Containing Bacteria. *Soil and Environment* 35(1):xxx 2016.
178. Raja, M. U., M. W. Ali and F. A. Shaheen. 2016. Different pathogenicity assays to evaluate virulence of *Pseudomonas syringae* pv. *pisi* on commercial pea (*Pisum sativum* L.) varieties. *Asian J. Agri. Biol.*, 4(3): 55-59.
179. Rakha, B. A., M. S. Ansari, I. Hussain, M. Anwar, S. Akhter and E. Blesbois. 2016. Comparison of extenders for liquid storage of Indian red jungle fowl (*Gallus gallus murghi*) spermatozoa. *Avian Biology Research*. 9:240-246 (IF=0.928).
180. Rakha, B. A., M. S. Ansari, S. Akhter, I. Hussain and E. Blesbois. 2016. Cryopreservation of Indian red jungle fowl (*Gallus gallus murghi*) semen. *Animal Reproduction Science*. 174: 45-55. (IF=1.377)
181. Rashid, M. A., M. Naeem, M. Tariq, M. A. Khan, F. A. Shaheen. 2016. Population and infestation assessment of red pumpkin beetle (*Aulacophora foveicollis* Lucas) and management using botanicals. *Journal of Entomology and Zoology Studies*, 4(4): 1072-1075. (Non IF).
182. Rashid, M. M. U., M. K. Khattak, K. Abdullah and M. Tariq. 2016. Effects of botanical oil on preference and prey consumption of *Chrysoperla carnea*, *Cryptolaemus montrouzieri*. *Philippine Agricultural Scientist* 99(1):99-104. (IF- 0.256).
183. Rauf, M. 2016. Achievement motivation and career decision making among youth. *The explorer Islamabad*. 2 (2):50-52.
184. Raza, M. A., M. Akmal, K. S. Khan and I. Aziz. 2016. Effect of different kinds of biochar on soil biochemical properties and plant growth in salt affected soil. 16th International Congress of Soil Science. March 15-17, 2016, Rawalpindi, Pakistan
185. Rehman, S.U., M. Bilal, R. M. Rana, M. N. Tahir, M. K. N. Shah, H. Ayalew, G. Yan. 2016. Cell membrane stability and chlorophyll content variation in wheat (*Triticum aestivum*) genotypes under conditions of heat and drought. *Crop and Pasture Science* 67: 712–718. (IF: 1.488)
186. Riaz, H., M. Ashfaq, T. Mukhtar, M. K. N. Shah and S. I. Malik. 2016. Incidence and distribution of begomoviruses from pothwar region of Pakistan. *Journal of Biodiversity and Environmental Sciences*. 9(5):11-16.
187. Rizwan, M., M. T. Siddique, H. Ahmed, M. Iqbal and T. Ziad. 2016. Spatial variability of selected physico-chemical properties and macronutrients in the shale and sandstone derived soils. *Soil and Environment* 35: 12-21

188. Saba, B., T. Mahmood, B. Zaman, A. Khalid and S. J. Khan. 2016. Treatment of high strength wastewater in sequencing batch bioreactors (SBBRS) using suspended and attached growth configuration. *Int. J. Agri. and App. Sci.* (Accepted)
189. Saba, N., O. Yusuf, S. Rehman, S. Munir, M. S. Ahmad, A. Mansoor and G. K. Raja. 2016. An angiotensin I converting enzyme insertion/deletion polymorphism is associated with Pakistani asthmatic cases and controls. *Journal of Biosciences*. 41(3): 439-444 (IF = 1.419)
190. Sabir, M. M and T. Ali. 2016. Optimal PID controller design through swarm intelligence algorithms for sun tracking system. *Applied Mathematics and Computation*. 274: 690-699 (IF = 1.34)
191. Sabir, S., A. Akram, N. I. Raja, Z. R. Mashwani, Sohail, H. M. Sadaf, M. Hussain, I. Riaz, N. Ahmad and E. Ahmed. 2016. A probe into the medicinal potential of *Viola canescens* – A threatened medicinal plant from Himalaya. *Journal of Coastal Life Medicine*. 4(7): 575-579
192. Sabir, S., M. Arshad, M. Hussain, H. M. Sadaf, Sohail, M. Imran, F. Yasmeen, Saboon and S. K. Chaudhari. 2016. A probe into biochemical potential of *Aconitum violanceum*: A medicinal plant from Himalaya. *Asian Pacific Journal of Tropical Disease*, (Elsevier)., 6(6): 502-504.
193. Saboon., Y. Bibi, M. Arshad, S. Sabir, M. S. Amjad, E. Ahmad and S. K. Chaudhari. 2016. Pharmacology and biochemistry of *Polygonatum verticillatum*: A review. *Journal of Coastal Life Medicine*, 4(5): 406-415.
194. Sadaf, H. M., Y. Bibi, I. Riaz, Saboon, M. A. Sultan, F. Bibi, M. Bibi, M. Hussain and S. Sabir. 2016. Pharmacological aptitude and profiling of active constituent from *Otostegia limbata*-Comprehensive review. *Asian Pac J Trop Dis*. 6(11): 918-924
195. Sadiq, S., A. Saboor, A.Q. Mohsin and A. Khalid. 2016. Ricardian analysis of climate change-agriculture linkages in Pakistan. *J. Integ. Agri.* (Accepted).
196. Saeed, M., N. Ilyas, R. Mazhar, F. Bibi and N. Batool. 2016. Drought Mitigation Potential of *Azospirillum* Inoculation in Canola (*Brassica napus*). *Journal of Applied Botany and Food Quality*. <http://dx.doi.org/10.5073/JABFQ.2016.089.035> (IF: 1.085)
197. Saeed, T., I. Hassan. N. A. Abassi. G. Jilani. 2016. Antioxidative activities and qualitative changes in gladiolus cut flower in response to salicylic acid application. *Scientia Hort.* Vol. 210:236-241. (IF1.375)
198. Saeeda, H., F. Arif, and N. M. Minhas. 2016. Usability Software Engineering Testing Experimentation for Android-Based Web Applications: Usability Engineering Testing for. In *Modern Software Engineering Methodologies for Mobile and Cloud Environments* (pp. 176-194). IGI Global.
199. Sajjad, F and A. G. Chaudhry. 2016. Effect of local demonstration centers on rawal watershed management under changing land use in villages of arukas and gora gali. *Science International (Lahore) – ISI Indexed*. 28(2): 2043-2046

200. Sakhawat, T. 2016. To study psychological effects on mental health of older people due to disabilities. *The explorer Islamabad*. 2 (3): 79-83.
201. Saleem, A. R., T. Mahmood, N. Bangash, A. Batool, Waqar-un-Nisa and A. Khalid. 2016. Characterization of effective rhizobacteria isolated from velvet bean (*Mucunapruriens*) to enhance plant growth. *Pak J. Botany*. 48 (4), 1697-1702.
202. Saleem, H. 2016. Social neglect and ageing population: a pilot study on violence against senior citizens. *The explorer Islamabad*. 2(1): 17-22
203. Saleem, R., Z. I. Ahmed, M. A. Anees, A. Majeed, A. Ali and H. Shah. 2016. Relative impact of integrated use of poultry manure, NPK, and biofertilizers on yields of three cropping systems and studies on performance of systems for productivity, sustainability and economic viability of the systems. *Academia Journal of Biotechnology* 4(4): 153-163. 4(4): 153-163. (IF = 0.327).
204. Samad, A., K. Javed, M. A. Rashid, M. A. Khan, A. Khalid, S. Sattar, N. Rafique and H. Javed. 2016. Fungicidal activity of honey originating from phytogeographic regions against *Aspergillus Niger* and *Penicillium chrysogenum*. *J. Ent. Zool. Stud*. 4(6): 339-342. (Non IF).
205. Sammi, S., T. Masud, A. Ahmad, S. M. S. Naqvi, A. Ahmad and A. Mujtaba. 2016. Potassium permanganate effects on postharvest conservation of turning tomato (Var. Rio Grande) fruits. *Transylvanian Rev*. 24(8). (IF = 0.03)
206. Saqlain, S. M., A. Nawaz, I. Khan and M.U. Ashraf. 2016. Text Clusters Labeling using WordNet and Term Frequency-Inverse Document Frequency. *Proceedings of the Pakistan Academy of Sciences* Vol. 53(3):281-29.
207. Sarwar, M., I. Hussain, M. Anwar and S. N. Mirza. 2016. Baseline data on anthropogenic practices in the agro-ecosystem of Pothwar Plateau, Pakistan. *J. Anim. Plant Sci.*, 26(3): 850-857.
208. Sattar, A., A. Riaz, S. Gondal, N. Mehmood and S. Haider. 2016. Survey of chilli anthracnose; potential threat to chilli crops, a focus on Punjab, Pakistan. *Pak. Jour. Phytopath*. 28 (1): 81-86.
209. Sattar, A., C. Arslan, C. Ji, K. Chen, A. Nasir, H. Fang, and M. Umair. 2016. Optimizing the physical parameters for bio-hydrogen production from food waste co-digested with mixed consortia of clostridium. *Journal of Renewable and Sustainable Energy*. 8(1). 013107. (IF =0.904)
210. Sattar, A., C. Arslan, C. Ji, S. Sattar, M. Umair, and M. Z. Bakht. 2016. Quantification of temperature effect on batch production of bio-hydrogen from rice crop wastes in an anaerobic bio reactor. *International Journal of Hydrogen Energy*. 41(26). 11050–11061. (IF =3.205)
211. Sattar, A., M. Naeem, E. U. Haq, A. U. Mohsin and A. Hussain. 2016. Evaluation of Non-toxic visible Dyes as Markers for *Microtermes obesi* and *Odontotermes lokanandi* (Blattodea: Termitidae). *Pak. J. of Zoology*. 48(3) 723-728. (IF, 0.478)

212. Sattar, K and A. Ignjatovic. 2016. Simultaneous escape routing using network flow optimization. *Malaysian Journal of Computer Science*. 29(2). (IF = 0.4)
213. Seerat, W., A. Akram, R. Qureshi, J. Asad, S. Akhund and B. G. Nayyar. 2016. The potential of some spice extracts for controlling *Aspergillus* species. *Int.J.Biosci.*8(5), 96-104.
214. Shabir, S and Z. Batool. 2016. Human resource management and gender behaviors: change in employees' family life. *The explorer Islamabad*. 2 (3): 84-91.
215. Shah, A.M., S. Ali, G. Zada, M.S. Jan, M. Azam, A.Y. Khan, M. Ali and I. Ramzan. 2016. Weed population dynamics associated with wheat productivity under different sowing techniques & herbicides: An overview. *Agric. Biol. J. N. Am.*, 7(5): 200-206. (IF= 0.00)
216. Shah, G. M., G. A. Shah, J. C. J. Groot, and E. A. Lantinga. 2016. Maize nitrogen recovery and dry matter production as affected by application of solid cattle manure subjected to various storage conditions. *Journal of Soil Science and Plant Nutrition* 16(3): (Impact Factor = 1.600).
217. Shah, G. M., G. A. Shah, J. C. J. Groot, O. Oenema, A. S. Raza, and E. A. Lantinga. 2016. Effect of storage conditions on losses and crop utilization of nitrogen from solid cattle manure. *Journal of Agricultural Sciences, Cambridge* 154(01): 58-71 (Impact Factor = 1.103).
218. Shah, S. A. A., R. K. Shahzad, S. S. A. Bukhari, N. M. Minhas, and M. Humayun. 2016. A Review of Class Based Test Case Generation Techniques. *JSW*, 11(5), 464-480.
219. Shahab, A., Q. Shihua, A. Rashid, F. U. Hasan and M. T. Sohail. 2016. Evaluation of Water Quality for Drinking and Agricultural Suitability in the Lower Indus Plain in Sindh Province, Pakistan. *Polish Journal of Environmental Studies*, 25(6): 2563-2574.
220. Shaheen, F. A., N. Crickmore, M. Ahmed, M. Husain, K. Mehmood and M. U. Raja. 2016. Suitability of Entomopathogenic *Beauveria bassiana* and Enhanced Diatomaceous Earth (DEBBM) to Control Rice Weevil, *Sitophilus oryzae* L. (Coleoptera: Curculionidae). Proceedings of "The 10th IMT-GT UNINET Conference 2016, Bioscience: The Element of Life" held on December 1-2, 2016 at Prince of Songkla University, Hat Yai, Songkla, Thailand. 24p.
221. Shaheen, F. A., I. Naseem, A. Zia, M. A. Rafi, S. Aslam and A. R. Bhatti. 2016. Pathogenicity of entomopathogenic bacteria to pulse beetle *Callosobruchus chinensis* L. (Bruchidae: Coleoptera) in chickpea grains. *Pak. J. Entomol.*, 31(1): 25-38. (Non IF).
222. Shaheen, F. A., K. A. Khan and M. Husain. 2016. Honey bees (*Apis mellifera* L.) foraging activities increase fruit setting and production of apples (*Malus domestica*). Proceedings of 13th Asian Apicultural Association Conference held on 24-26 April, 2016 in Jeddah, Saudi Arabia. 236p.
223. Shaheen, F. A., K. A. Khan, M. Husain and R. Mahmood. 2016. Honey bees (*Apis mellifera* L.) foraging activities increase fruit setting and production of apples (*Malus domestica*). *Pakistan Journal of Agricultural Research*. Accepted.

224. Shaheen, F. A., N. Crickmore and M. Husain. 2016. Comparative aptness of plant products with chemical-based standard grain protectant against *Callosobruchus chinensis* L. attacking chickpea grains in storage. *International Journal of Agriculture, Forestry and Plantation*, Volume 2 (February): 61-71. Malaysia. (Non IF).
225. Shaheen, F. A., N. Crickmore, M. Ahmed, M. Husain, K. Mehmood and M. U. Raja. 2016. Suitability of Entomopathogenic *Beauveria bassiana* and Enhanced Diatomaceous Earth (DEBBM) to Control Rice Weevil, *Sitophilus oryzae* L. (Coleoptera: Curculionidae). Proceedings of "The 10th IMT-GT UNINET Conference 2016, Bioscience: The Element of Life" held on December 1-2, 2016 at Prince of Songkla University, Hat Yai, Songkla, Thailand. 24p.
226. Shaheen, F. A., N. Crickmore, M. U. Raja, M. Husain and K. Mehmood. 2016. Entomopathogenicity of *Beauveria bassiana* and aptness of enhanced diatomaceous earth (DEBBM) to control red flour beetle, *Tribolium castaneum* (Tenebrionidae: Coleoptera). Proceedings of the international conference "Asia-Pacific Policy Dialogue on Water, Energy and Food Security for Poverty Alleviation in Dry-land Regions" held on November 23-25, 2016 at Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi and jointly organized by the University and UNESCO. 84-85p. (Non IF).
227. Shaheen, F. A., S. Parveen, A. Zia, M. Husain, M. Ilyas and G. Qadir. 2016. Predatory Aptness of Ants against Red Flour Beetle, *Tribolium castaneum* (Tenebrionidae: Coleoptera) in Wheat Flour. *Pakistan Journal of Agricultural Research*, 29 (2): 170-178. (Non IF).
228. Shaheen, F. A., M. W. Akram, M.A. Rashid, M. Saeed, M. Husain, K. Mehmood. 2016. Population and infestation assessment of red pumpkin beetle (*Aulacophora foveicollis* Lucas) and management using botanicals. *Journal of Entomology and Zoology Studies*, 4(5): 1076-1083. (Non IF).
229. Shaheen, S., G. Shabbir, U. Javed and A.R. Qaisar. 2016. Study of wheat (*Triticum aestivum* L.) genotypes under contrasting moisture regimes at maturity stage. *J. Agric. Res.*, 54(2): 161-171.
230. Shahid, S. H., M. U. Hassan, I. Iqbal, N. Fatima, T. Kousar, Z. Akram and S. Ali. 2016. Development of a simple and efficient protocol for chickpea (*Cicer arietinum* L.) transformation by floral injection method. *Intl.J.BioSc.*, 8(5):50-59. (I.F.0.553)
231. Shahjahan, M., M. I. Haq, T. Mukhtar and A. Khalid. 2016. Incidence of major fungal root diseases of chickpea in layyah and bhakkar districts of punjab, pakistan. *Pakistan Journal of Phytopathology*. Pak. J. Phytopathol., Vol. 28 (01) 2016. 75-79
232. Shahzad, Q., M. U. Mehmood, H. Khan, A. U. Husna, S. Qadeer, A. Azam, Z. Naseer, E. Ahmad, M. Safdar and M. Ahmad. 2016. Royal jelly supplementation in semen extender enhances post-thaw quality and fertility of Nili-Ravi buffalo bull sperm. *Animal Reproduction Science*, 167, 83-88.

233. Sharif, M., S. S. Ijaz, S. Ali, M. Ansar and A. Hassan. 2016. Prediction of tillage operation strategies for dryland wheat production in a degraded loess soil. Archives of Agronomy and Soil Science. Published online DOI : 10.1080/03650340.2016.1261115 (IF : 1.118)
234. Sheirdil, R. A., R. Hayat, X. Zhang, N. A. Abbasi, S. Ali and M. Azeem. 2016. Characterization and identification of wheat (*Triticum aestivum* L.) rhizospheric bacteria by using 16s rRNA gene sequencing. Journal of Biodiversity and Environmental Sciences 9: 31-38.
235. Sher, A., F. U. Hassan, H. Ali and W. Hassan. 2016. Seed rate and nitrogen application effects on production and brix value of forage sorghum cultivars. Grassland Science, 62:119-127. (IF:0.627).
236. Shoaib, M., M. J. Asad, S. Aziz, M. Usman, A. Rehman, M. M. Zafar and M. Ilyas. 2016. Prevalence of Pathogenic Microorganisms in Drinking Water of Rawalpindi and Islamabad. World Journal of Fish and Marine Sciences. 8 (1): 14-21.
237. Sobia, K., M. A. Javaid, M. S. Ahmad, R. Qureshi, G. Hina, B. Iram, A. Pervaiz, B. Farhana, J. Nyla and M. Gulfranz. 2016. Assessments of phytochemicals and hypoglycemic activity of leaves extracts of carica papaya in diabetic mice. International Journal of Pharmaceutical Sciences and Research. 7(9): 3658-3665.
238. Sultana T., F. Deebe, F. Naz, R. J. Rose and S. M. S. Naqvi. 2016. Expression of a rice GLP in *Medicago truncatula* exerting pleiotropic effects on resistance against *Fusarium oxysporum* through enhancing FeSOD-like activity. Acta Physiologiae Plantarum, 38(11), 1-12. DOI 10.1007/s11738-016-2273-9. [IF=1.563]
239. Sultana, T., F. Deebe and S.M.S. Naqvi. 2016. High-throughput Agrobacterium-mediated transformation of *medicago truncatula* in comparison to two expression vectors. Pakistan Journal of Agricultural Research. 29(2):161-169.
240. Syed, F., K. Ali, M. J. Asad, M. Gulfranz, Z. Khan, M. Imran, R. Taj and A. Ahmad. 2016. Preparation and characterization of green nano-support for the covalent immobilization of glucoamylase from *Neurospora sitophila*. Journal of Photochemistry & Photobiology, B: Biology. 162 (2016): 309-317. (IF = 3.035)
241. Syed, F., M. J. Asad, K. Ali, M. Gulfranz, A. Ahmad, Z. Khan, M. Imran, R. Taj and S. Khan. Optimization of various parameters for maximum production of Glucoamylase by *Neurospora sitophila*. Asian Journal of Chemistry. 28(3):669-674.
242. Tahir, M. I., M. I. Haq, M. Ashfaq, N. A. Abbasi, H. Butt, H. Ghazal. 2016. Screening of effective antagonists from potato rhizosphere against bacterial wilt pathogen. International Journal of Biosciences, 8(2): 228-240.
243. Tahir, S. and S. Shahzadi. 2016. Ontological Framework for Alignment of Web Services with Requirements in Service Oriented Requirement Engineering (SORE). International Journal of Software Engineering and Its Applications (IJSEIA).10(11):255-269.
244. Tariq, A., F. Naz, C. A. Rauf, G. Irshad, N. A. Abbasi and N. M. Khokhar. 2016. First Report of Anthracnose Caused by *Colletotrichum truncatum* on Bell pepper (*Capsicum*

annuum) in Pakistan. Plant Disease [IF=3.02] (Accepted) (doi: <http://dx.doi.org/10.1094/PDIS-07-16-0996-PDN>)

245. Tariq, M., M. Jawad, M. A. Qureshi, M. Naeem and A. Gulzar. 2016. Dengue fever, mosquito's role and its control. (Urdu article) Baran, PMAS- AAUR April-June, 2016. 72-74.
246. Tariq, R., M. Shoaib, A. Umer , M. J. Asad, Q. Ain, M. M. Zafar and F. Naseer. 2016. Prevalence of HBV, HCV and co-infection with HBV and HCV Among the Pregnant Women of Pakistani Population. *Advances in Biomedicine and Pharmacy*. 3:3 161-165.
247. Ucan, U., N. Küçük, E. Ahmad, Z. Naseer, M. Aksoy, I. Serin, A. Ceylan. 2016. Effect of different sugars supplemented to the extender in combination with cholesterol-loaded cyclodextrin (CLC) on post-thaw quality of ram spermatozoa. *Small Ruminant Research*, 136, 243–246.
248. Umair, M., A. F. Dwiputro, I. G. A. B. Wirajati, Y. Ueda, and A. Akisawa. 2016. Design and Investigation of Heat Transfer in a New Adsorbent Bed With CPC for Solar Adsorption Refrigeration Systems. *Heat Transfer Engineering*. 37(7–8). 696–704. (IF =0.898).
249. Umar, S., M. A. Shah, M. T. Munir, M. Yaqoob, M. Fiaz, S. Anjum, K. Kaboudi, M. bouzouaia, M. Younus, Q. Nisa, M. Iqbal and W. Umar. 2016. Synergistic effects of thymoquinone and curcumin on immune response and anti-viral activity against avian influenza virus (H9N2) in turkeys. *Poultry Science*. 95(7): 1513-20. (IF = 1.685).
250. Umar, S., M. I. Khan, M. Younus, M. Yaqoob and Q. Nisa. 2016. Report on an Outbreak of Botulism in Broilers in Pakistan. *Pakistan Journal of Zoology*. vol. 48(1), pp. 298-300.
251. Umar, S., M. I. Khan, M. Younus, Q. Nisa, A. U. Khan, M. Yaqoob and M. A. A. Shah. 2016. Comparative Antiviral Efficacy of Zanamivir and Amantadine Against Tunisian Isolate of Avian Influenza Virus (H9N2). *Pakistan Journal of Zoology*. Vol. 48(5), pp. 1443-1447.
252. Urooj, A and A. Taufeeq. 2016. Social interaction at house hold level and mental health. *The explorer Islamabad*. 2 (2): 35-37.
253. Usman, M., M. Shoaib, Q. U. Ain, A. Rehman, M. M. Zafar and M. J. Asad. 2016. Analysis of hepatitis c virus induce lipogenic and antioxidant changes in HCV positive patients. *Journal of Entomology and zoology Studies*. In printlisted for publication vide Serial Ref: Ento 4-5-06.
254. Usman, Z. 2016. Forced displacement and educational system: a pilot study on displaced children of north Waziristan. *The explorer Islamabad*. 2 (3): 61-65.
255. Waqar, M., M. Ahmad, M. A. Aziz and M. Naeem. 2016. Lethal and sublethal effects of new chemistry insecticides against honeybees, *Apis mellifera*. 13th Asian Apicultural Association Conference, April 24-26, 2016, Jeddah, Kingdom of Saudi Arabia, p. 44.

256. Waqas, M., M. U. Mehmood, Q. Shahzad, R. Kausar, A. Sattar and Z. Naseer. 2016. Comparative efficacy of G6G and Ovsynch protocols on synchronization and pregnancy rate in Nili–Ravi buffalo. *Animal Reproduction Science*, 166, 9-14.
257. Yasmeen, F., N. I. Raja, G. Mustafa, K. Sakata, S. Komatsu. 2016. Quantitative proteomic analysis of post-flooding recovery in soybean root exposed to aluminum oxide nanoparticles. *Journal of proteomics. Elsevier*.143:136-150. (Impact Factor 3.867).
258. Yasmeen, F., N. I. Raja, A. Razzaq and S. Komatsu. 2016. Gel-free/label-free proteomic analysis of wheat shoot in stress tolerant varieties under iron nanoparticles exposure. *BBA - Proteins and Proteomics*. 1864(11):1586-98. (Impact Factor 3.28).
259. Yasmeen, F., N. I. Raja, A. Razzaq and S. Komatsu. 2016. Proteomic and physiological analyses of wheat seeds exposed to copper and iron nanoparticles. *BBAPRO-16-235R2*. (Impact Factor 3.28).
260. Younas, M. R., U. Inam and M. Tayyab. 2016. Socio-economic causes of diseases among senior citizens in Rawalpindi. *The explorer Islamabad*. 2 (3): 66-70.
261. Younis, J and A. Nasir. 2016. Change in income and architectural transformation. . *The explorer Islamabad*. 2(1): 4-6
262. Zafar, M. A., A. Yousaf, M. Hasan, F. A. Kiayani, M. Islam and M. F. Iqbal. 2016. Treatment of traumatic umbilical hernia with peritonitis due to intestinal perforation in a three-month old calf. *Veterinary Sciences: Research and Reviews*, 2(1): 6-10.
263. Zaheer, A.N. and A. Rashid. 2016. Analyzing the role of public sector marketing in improving social effectiveness: a case study from Anhui province, China. *International Review on Public and Nonprofit Marketing*. 1-15.
264. Zarin, K., T. Mahmood, A. Khalid, M. A. Durrani, H. U. Rehman, A. Khan, M. A. Waheed, M. Asim and B. Khan. 2016. Enhancing growth of spinacia oleracea by typha angustata biochar. *Int. J. App. Bio. and Pharma.Techonol*. 07(3): 8-21.
265. Zeeshan, M. 2016. Book review in the field contemporary social research series by Robert G. Burgess. 2(9): 219-241
266. Ziad, T., M. T. Siddique, K. S. Khan, N. A. Abbasi, H. Ahmed and M. Iqbal. 2016. Indexing bioavailable and foliage boron content in apple orchards of Pishin district, Baluchistan, using GIS and geo-statistics as diagnostic tools. *Soil Environ*. 35(1): 35-45.
267. Zulfiqar, Z., S. Ghazanfar, S. Shahzadi and M. K. Mehmood. 2016. Causes and consequences of malnutrition. *The explorer Islamabad*. 2 (2): 38-42.

ANNEXURE-II

SEMINARS, WORKSHOPS & CONFERENCES

SEMINARS, WORKSHOPS & CONFERENCES HELD AT UNIVERSITY

Sr. No.	Title of Event	Date
1.	Seminar on The SALTMED Model Application in Water Management and Crop Yield	07.01.2016
2.	Scientific Writing Workshop	20.01.2016
3.	World Wetlands Day, 2016	02.02.2016
4.	Workshop on Safety Measures of Pesticide	23.02.2016 to 24.02.2016
5.	Seminar on Intellectual Property Rights and Patent Filing	10.03.2016
6.	16 th International Congress of Soil Science “Healthy soils for Food Security”	15.03.2016 to 17.03.2016
7.	Seminar on Entrepreneurial Thinking & Paradigm Change in Agriculture	10.02.2016
8.	National Seminar on Egg as Complete Food	25.02.2016
9.	International Seminar on Improvement & Development of the Korean Livestock Industry by Saemaul Undong & Quarantine and Inspection of Animal Products	25.02.2016
10.	Seminar on Quarantine and Inspection of Animal Products	25.02.2016
11.	International Workshop on Farmers Training Courses on Animal Health, Sustainable Livestock and Poultry Production	03.03.2016
12.	Seminar on Processing of Fruits and Vegetables	07.03.2016
13.	Seminar on Role of Saemaul Undong in Rural Development of Korea	08.03.2016
14.	International Seminar on Farmers Training Course in Tree Nursery Establishment, and Advancement in Korean Forestry	07.03.2016
15.	Seminar on Pets Animal Health and Their Vaccinations Schedule	09.03.2016

16.	Seminar on Hydroponic Agriculture: Way Forward for Food Security	23.03.2016
17.	Regional Training Workshop on GIS for Agriculture Monitoring	28.03.2016
18.	Conference cum Exhibition on Agricultural Dynamics in Potohar Region-2016	29.03.2016
19.	Workshop on Self Assessment Report Writing	04.04.2016
20.	Seminar on Food Security and Export of Vegetable	06.04.2016
21.	A Seminar on ADKAR: A Change Management Competency Model for Quality Assurance in Higher Education Institutions	17.05.2016
22.	Seminar on Saemaul Undong and Its Lessons for Escape from Rural Poverty in Pakistan	23.05.2016
23.	Seminar on Islamic and Traditional Banking	25.05.2016
24.	Indigenous On-Campus Training on Quality Assurance	30.05.2016 to 01.06.2016
25.	seminar on Small Farmers Access to Resources and Knowledge Issues & Options	31.07.2016
26.	Seminar on Health Management and Vaccination Schedule	01.06.2016
27.	Seminar on Knowledge, Universe and Youth	02.06.2016
28.	Conference on Agriculture Productivity Improvement Through Nudging	06.06.2016
29.	Agriculture Package Awareness Seminar	30.06.2016
30.	Organization of Open House and Job Fairs	20.07.2016
31.	Anti-Dengue Day Observed	23.07.2016
32.	Training Seminar on Olive Cultivation in Pothohar	27.07.2016
33.	Seminar on Control of Transboundary Animal Diseases in Pakistan	17. 08.2016 to 18.08.2016
34.	Training workshop on Governance, Finance and Audit	22.08.2016 to 26.08.2016
35.	Two days National Seminar on “Promoting the Research Attitude in Pakistan	26.08.2016 to 27.08.2016

36.	Awareness Seminar on Crimean-Congo Hemorrhagic Fever (CCHF) and its Control Strategy in Pakistan	08.09.2016
37.	World Egg Day Celebration	14.10.2016
38.	Seminar on World Food Day	20.10.2016
39.	Seminar on Poverty Alleviation, in collaboration with Pakistan Bait-ul-Maal	31.10.2016
40.	A symposium on Step Forwards Zero Waste showcasing Integrated Resource Recovery Center (IRRC)	15.11.2016
41.	Interactive Session on Entrepreneurship Development	17.11.2016
42.	A Seminar on Role of ICT's in Agricultural Development	17.11.2016
43.	A three-days International Conference on "Asia-Pacific Policy Dialogue on Water, Energy and Food Security for Poverty Alleviation in Dry land Regions	23.11.2016 to 25.11.2016
44.	Annual E-Pakistan Conference on ICT	6.12.2016 to 7.12.2016

WORKSHOPS, SEMINARS AND CONFERENCES ATTENDED BY THE FACULTY

INTERNATIONAL

1. Dr. Mansur Abdullah, Assistant Professor, Department of Veterinary Biomedical Sciences attended the International Conference – Alexander Von Humboldt Meeting Dusseldorf at Berlin, Germany on February 29 to March 02, 2016.
2. Prof. Dr. Arfan Yousaf, Department of Clinical Sciences attended the Pakistan One-Health Career Development Symposium at Dubai, UAE on March 01-04, 2016.
3. Dr. Audil Rashid, Assistant Professor, Department of Environmental Sciences attended the 13th International Conference on Urban Health at San Francisco, USA on April 01-04, 2016.
4. Dr. Shamim Akhtar, Chairman, Department of Zoology/Biology attended the Chulalongkorn University Veterinary Conference (CUVC 2016): Research in Practice at Chulalongkorn University, Bangkok, Thailand on April 20-22, 2016.

5. Prof. Dr. Arfan Yousaf, Department of Clinical Sciences attended the Keystone Symposia Meeting on New Approaches to Vaccines for Human and Veterinary Tropical Disease at Cape Town, South Africa on May 22-26, 2016.
6. Prof. Dr. Mazhar Qayyum, Department of Zoology/Biology and Dr. Ghazala Kaukab Raja, Chairman, Department of Biochemistry attended the 18th European Congress of Endocrinology at Munich, Germany on May 28-31, 2016.
7. Dr. Noshin Ilyas, Assistant Professor, Department of Botany attended the 19th International Sunflower Conference at Edirne, Turkey on May 29 to June 03, 2016.
8. Dr. Audil Rashid, Assistant Professor, Department of Environmental Sciences attended the International Conference on Communication, Media & Governance in the Age of Globalization at Beijing, China on June 17-19, 2016.
9. Dr. Muhammad Fiaz, Assistant Professor, Department of Livestock Production & Management attended the International Symposium on Global Livestock Production: Past, Present & Future at Seoul National University, South Korea on June 23-24, 2016.
10. Dr. Muhammad Moaeen-ud-Din, Associate Professor, Dr. Ghulam Bilal, Assistant Professor, Department of Livestock Production & Management attended the Joint Annual Meeting at Salt Lake City, UT, USA on July 19-23, 2016.
11. Dr. Abida Arshad, Assistant Professor, Department of Zoology/Biology attended 34th International Congress of the ISBT in Dubai at Dubai on September 03-08, 2016.
12. Dr. Riaz Hussain, Assistant Professor, Department of Veterinary Biomedical Sciences and Mr. Zaib ur Rehman, Lecturer, Department of Poultry Sciences attended the International Conference “The XXV World’s Poultry Congress” at Beijing China on September 05-09, 2016.
13. Dr. Yamin Bibi, Assistant Professor, Department of Botany attended the VIII International Scientific Agriculture Symposium “Agrosym 2016” at Jahorina, Bosnia and Herzegovina on October 06-09, 2016.
14. Dr. Audil Rashid, Assistant Professor, Department of Environmental Sciences attended the 2016 Annual Meeting of International Society of Exposure Science at Utrecht, Netherlands on October 09-13, 2016.

15. Ms. Nazia Rafiq, Lecturer, Department of Sociology attended the Regional Training Workshop for the Asian Region on Community Protocols, Indicators on Traditional Knowledge and Customary Sustainable Use of Biodiversity under the Convention on Biological Diversity at Thimphu, Bhutan on October 17-21, 2016.
16. Dr. Tariq Mahmood, Assistant Professor, Department of Wildlife Management attended the IUFRO Regional Congress for Asia and Oceania at CNCC, Beijing, China on October 24-28, 2016.
17. Prof. Dr. S. M. Saqlan Naqvi, Dean, Faculty of Sciences attended the 3rd International Plant Breeding Conference 2016 at Putrajaya, Malaysia on November 15-16, 2016.
18. Dr. Ghazala Kaukab Raja, Chairman, Department of Biochemistry attended the EGHS-WGO International Congress World Gastroenterology Organization at UAE on November 17-19, 2016.

NATIONAL

1. Dr. Aneela Afzal, Assistant Professor, Department of Sociology attended the National Conference on ICTs and Innovative Extension Services at University of Agriculture, Faisalabad on January 11, 2016.
2. Prof. Dr. Tariq Mukhtar, Chairman, Dr. Farah Naz, and Dr. Gulshan Irshad, Assistant Professors, Department of Plant Pathology attended the 14th National and 5th International Conference of Botany: Climate Change and Phytodiversity: Challenges and Opportunities at University of Karachi on January 15-18, 2016.
3. Prof. Dr. Maqsood Anwar, Dean, Faculty of Forestry, Range Management & Wildlife attended the Consultative Workshop to Develop an Action Plan to Combat Illegal Wildlife Trade in Pakistan at Hill View Hotel, Islamabad on February 9-10, 2016.
4. Dr. Ghazala Kaukab Raja, Chairman, Department of Biochemistry attended the Seminar on Entrepreneurial Thinking & Paradigm Change in Agriculture at PMAS-AAUR on February 11, 2016.
5. Prof. Dr. Mazhar Qayyum, Dr. M. Zubair Anjum, Assistant Professor, Department of Zoology/Biology attended the 36th Pakistan Congress of Zoology at Sindh, Jamshoro on February 16-18, 2016.
6. Prof. Dr. Tariq Mukhtar, Chairman, Department of Plant Pathology attended the 2nd International Conference on Horticultural Sciences:

Production Challenges and Food Security at University of Agriculture, Faisalabad on February 18-20, 2016.

7. Dr. Tanveer Ahmad, Associate Professor, Department of Livestock Production and Management attended the Consultative Workshop on Opportunities and Challenges in Ostrich Farming in Pakistan – A Way Forward at University of Veterinary & Animal Sciences, Lahore on February 26, 2016.
8. Dr. Azeem Khalid, Associate Professor, Dr. Shahid Mahmood, Assistant Professor, Dr. Muhammad Zahid, Assistant Professor and Ms. Anika Batool, Lecturer, Department of Environmental Sciences attended the 16th International Congress of Soil Science at Rawalpindi on March 15-17, 2016.
9. Dr. Abid Riaz, Associate Professor, Department of Plant Pathology, Dr. Muhammad Zahid, Assistant Professor, Dr. Ghazala Kaukab Raja, Chairman, Department of Biochemistry and Ms. Anika Batool, Lecturer, Department of Environmental Sciences attended the Regional Training Workshop on GIS for Agriculture Monitoring at PMAS-AAUR on March 28-30, 2016.
10. Prof. Dr. Tariq Mukhtar, Chairman, Department of Plant Pathology and Dr. Noshin Ilyas, Assistant Professor, Department of Botany attended the International Conference on Major Environmental Constraints to Plants: Assessment & Reclamations at Government College University, Faisalabad on March 28-30, 2016.
11. Dr. Ghazala Kaukab Raja, Chairman, Department of Biochemistry attended the Seminar on Food Security and Export of Vegetable at PMAS-AAUR on April 06, 2016.
12. Dr. Muhammad Zahid, Assistant Professor, Department of Environmental Sciences attended the International Workshop on 4R Nutrient Stewardship for Food, Economic and Environment Security at Islamabad on April 11-12, 2016.
13. Dr. Farah Naz, Assistant Professor, Department of Plant Pathology attended the 14th National Training Course on Modern Techniques in Biotechnology at NIBGE, Faisalabad on April 18-22, 2016.
14. Dr. Azeem Khalid, Associate Professor, Dr. Audil Rashid, Assistant Professor and Dr. Shahid Mahmood, Assistant Professor, Department of Environmental Sciences attended the 6th International Conference on

Environmentally Sustainable Development at COMSATS, Abbottabad on April 25-27, 2016.

15. Prof. Dr. Mazhar Qayyum, Dr. M. Zubair Anjum, Assistant Professor, Department of Zoology/Biology attended the Seminar on Climate Warming Impact on Fish Biodiversity at Chashma, Mianwali on April 26, 2016.
16. Dr. Rehmatullah Qureshi, Associate Professor, Dr. Noshin Ilyas, Dr. Yamin Bibi, Dr. Zia-ur-Rehman Mashwani, Assistant Professors, Department of Botany attended the Second International Symposium on Biodiversity of Pakistan: Prospects and Associated Issues at Baragali Summer Campus, Abbotabad on May 22-24, 2016.
17. Dr. Ghazala Kaukab Raja, Chairman, Department of Biochemistry and Ms. Nazia Rafiq, Lecturer, Department of Sociology attended the Seminar on Saemaul Undong and its Lessons for Escape from Rural Poverty in Pakistan at PMAS-AAUR on May 23, 2016.
18. Dr. Tanveer Ahmad, Associate Professor, Department of Livestock Production and Management attended the International Conference on Livestock Genomics (ICLG) at University of Veterinary & Animal Sciences, Lahore on May 30-31, 2016.
19. Dr. Ghazala Kaukab Raja, Chairman, Department of Biochemistry, Ms. Faria Ibad Mirza and Ms. Nazia Rafiq, Lecturers, Department of Sociology attended the Conference on Agriculture Productivity Improvement through Nudging at PMAS-AAUR on June 06, 2016.
20. Prof. Dr. Riaz Ahmad, Director, Quality Enhancement Cell attended the Indigenous on Campus Training (IOT) at Air University, Islamabad on July 19-21, 2016.
21. Prof. Dr. Maqsood Anwar, Dean, Faculty of Forestry, Range Management & Wildlife attended the Consultative Workshop for Finalizing the Scope of Study – Preparation of Integrated Development Master Plan for Potohar Region of Punjab at ABAD, Rawalpindi on July 26, 2016.
22. Dr. Ghazala Kaukab Raja, Chairman, Department of Biochemistry attended the Training Seminar on Olive Cultivation in the Potohar Region at PMAS-AAUR on July 27, 2016.
23. Mr. Asghar Khan, Lecturer, Department of Clinical Studies attended the two days training on How to Use the Statistical Tools in Research

Publication at University of Veterinary & Animal Sciences, Lahore on August 09-10, 2016.

24. Dr. Tanveer Ahmad, Associate Professor, Dr. Kashif Ishaq, Assistant Professor, Department of Livestock Production & Management, All Faculty Members of Department of Veterinary Biomedical Sciences and Department of Clinical Studies attended the Training Workshop on Control of FMD and PPR in Livestock organized by FAO at PMAS-AAUR on August 17, 2016
25. Mr. Munibullah, Lecturer, Department of Clinical Sciences attended the International Symposium on Technology Entrepreneurship and Incubation at Higher Education Commission of Pakistan on August 19-20, 2016.
26. Dr. Ghazala Kaukab Raja, Chairman, Department of Biochemistry attended the International Diabetes and Endocrine Congress (IDEC) at Karachi on August 19-21, 2016.
27. Dr. Noshin Ilyas, Assistant Professor, Department of Botany attended the International Conference on Emerging Trends in Science and Technology at Fatima Jinnah Women University, Rawalpindi on September 05-08, 2016.
28. Prof. Dr. Arfan Yousaf, and Mr. Munibullah, Lecturer, Department of Clinical Sciences attended A Joint Pakistan US Workshop on Strengthening and Sustaining a Network of Public & Animal Health clinical Laboratory in Pakistan at Pakistan Academy of Science on September 27-29, 2016.
29. Prof. Dr. Maqsood Anwar, Dean, Faculty of Forestry, Range Management & Wildlife attended the National Forum on Higher Education Leadership – Six Cs in Education System at NUST, Islamabad on October 19, 2016.
30. Dr. Muhammad Arif Zafar, Associate Professor, Department of Clinical Studies attended the Training on Preservation on Natural Resources at National Centre for Rural Development, Islamabad on October 03-07, 2016.
31. Prof. Dr. Raiz Ahmad, Director, Quality Enhancement Cell attended the Training Workshop on Implementation of Plagiarism Policy at Higher Education Commission of Pakistan on October 06, 2016.
32. Dr. Tanveer Ahmad, Associate Professor, Dr. Muhammad Moaen-ud-Din, Associate Professor, Dr. Muhammad Farooq Iqbal, Assistant Professor, Dr.

Ghulam Bilal, Assistant Professor, Dr. Kashif Ishaq, Assistant Professor, Department of Livestock Production & Management and All Faculty Members of Department of Veterinary Biomedical Sciences attended National Seminar on Importance of Egg organized by FAO at PMAS-AAUR on October 14, 2016.

33. Mr. Asghar Khan, Lecturer, Department of Clinical Studies attended the Seminar on Devise Strategies to Control Emerging Viral Hemorrhagic Fevers in Pakistan at University of Veterinary & Animal Sciences, Lahore on November 14-16, 2016.
34. Dr. Muhammad Zahid, Assistant Professor and Dr. Zulfiqar Ahmad, Department of Environmental Sciences attended the International Training Workshop on Application of Methane Production Using Common Agricultural Waste at NARC, Islamabad on October 14-23, 2016.
35. Dr. Ghazala Kaukab Raja, Chairman, Department of Biochemistry attended the Symposium on Step Forwards Zero Waste Showcasing Integrated Resource Recovery Center at PMAS-AAUR on November 15, 2016.
36. Prof. Dr. Maqsood Anwar, Dean, Faculty of Forestry, Range Management & Wildlife, Prof. Dr. Tariq Mukhtar, Chairman, Dr. Abid Riaz, Dr. Muhammad Ashfaq, Associate Professors, Department of Plant Pathology, Prof. Dr. M. Kausar Nawaz Shah, Dr. Zahid Akram, Chairman, Dr. Ghulam Shabbir, Assistant Professor, Department of Plant Breeding & Genetics, Dr. M. Zubair Anjum, Assistant Professor, Department of Zoology/Biology, Dr. Ghazala Kaukab Raja, Chairman, Department of Biochemistry, Dr. Nasir Mukhtar, Assistant Professor, Department of Poultry Science and All the Faculty Members of Department of Biomedical Sciences and Department of Clinical Sciences attended the International Conference on Asia Pacific Policy Dialogue on Water Energy and Food Security for Poverty Alleviation in Dry Land Regions at PMAS-AAUR on November 23-25, 2016.
37. Dr. Ghazala Kaukab Raja, Chairman, Dr. Feroza Hamid Wattoo, Assistant Professor, Department of Biochemistry, Ms. Faria Ibad Mirza and Ms. Nazia Rafiq, Lecturers, Department of Sociology attended the ICT Use of Pakistani Girls in Rural Farming Households. E-Pakistan Conference on ICT at PMAS-AAUR on December 06-07, 2016.

38. Prof. Dr. M. Inam-ul-Haq, Department of Plant Pathology attended the International Conference on Research and Enterprise on Food Safety in Developing World at COMSATS, Islamabad on December 05-08, 2016.
39. Prof. Dr. Tariq Mukhtar, Chairman, Department of Plant Pathology attended the Conference on Sustainable Crop & Animal Production Systems at University of Haripur, KPK on December 08-10, 2016.
40. Prof. Dr. Riaz Ahmad, Director, Quality Enhancement Cell attended the Training of QEC Officials on HEC's Ranking Software at Higher Education Commission of Pakistan on December 09, 2016.
41. Dr. Muhammad Rais, Assistant Professor, Department of Wildlife Management attended the 4th International Conference on Biology and Computer Sciences at Capital University of Science and Technology, Islamabad on December 17, 2016.

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