

ANNUAL REPORT

2010



PIR MEHR ALI SHAH

**ARID AGRICULTURE UNIVERSITY
RAWALPINDI**

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P R E F A C E

During the year 2010, Pir Mehr Ali Shah (PMAS) Arid Agriculture University made substantial efforts to improve academic as well as Research activities alongwith financial resources. Various teaching departments were upgraded/ strengthened through the development of infrastructure, procurement of sophisticated scientific equipments and purchase of books etc. The faculty members completed 52 Research Projects worth Rs. 64.493 million sponsored by various agencies.

Forty Three faculty members were promoted/inducted to over come staff shortage for teaching in different faculties. Professional Development Center was established at UIIT to facilitate the students for the award of scholarships, seeking employment and unforeseen emerging issues.

Faculty members attended Ninety two National and International workshop/ seminars/ symposium/conferences to share/transfer knowledge in different scientific fields with in the country and globally.

The linkage between faculty, Industry and farming community was further promoted to ensure the penetration and achievements of objectives of the university.

Memorandum of Understandings with various national and International organizations were signed for academic and research sharing. The provision of better Research facilities encouraged the faculty to publish 218 Research Publications in National and International reputed journals. With this effort University stood in HEC research ranking at 13th out of 93 Universities of Pakistan. University has improved its standing to 12th out of 93 this year and now 2nd in Agriculture Universities of Pakistan.

A C A D E M I C S

ESTABLISHMENT OF PROFESSIONAL DEVELOPMENT CENTER

To reduce the gap between academia and industry particularly in the discipline of Informational technology, a Professional Developmental Center (PDC) was established at University Institute of Information Technology (UIIT) and impart training for continuous professional development in the field of project management and information technology. The center will not only increase the visibility of UIIT and its students in the industry but will also help to generate revenue and further self sustainability. The center will be helpful in building capacity of graduates in terms of sharpening their IT and project management skills as per market needs. The two continuous Professional Development (CPD) courses IT Essentials and Cisco Network Associate (CCNA) are being offered at PDC

NEW DEGREE PROGRAMS INITIATED

The University initiated two new degree programs in M. Phil Sociology and M.Phil Education. The Academic council also approved the following M.Phil degree programs:

- Veterinary Pathology
- Veterinary Parasitology
- Veterinary Microbiology
- Animal Nutrition

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. During 2010, PMAS-AAUR management 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. Keeping above in view following new staff was inducted in various departments on the recommendation of the selection board after subsequent approval by the University Syndicate.

Department	Lecturer	Assistant Professor	Associate Professor	Professor	Total
Crop & Food Sciences	1	3	7	2	13
Sciences	2	9	2	2	15
Range Management & Forestry	1	1	1	0	03
Veterinary & Animal Sciences	6	2	0	0	08
University Institute of Information Technology	0	2	0	0	02
University Institute of Management Sciences	1	1	0	0	02
Woman Division	0	0	0	0	00
TOTAL	11	18	10	4	43

SHORT COURSES HELD

In addition to degree programmes, the Faculty of Crop & Food Sciences, the Faculty of Forestry, Wildlife & Environment and Faculty of Veterinary & Animal Sciences organized many short courses in the past year. Two hundred participants were trained in the following courses.

❖ Veterinary Assistant	12 Months
❖ Field Assistants course	04 months
❖ Computer Application	12 Weeks
❖ English Language Course	08 Weeks
❖ Professional Floristry	02 weeks
❖ Tunnel Farming	01 week
❖ Tissue culture Laboratory Technician & Nursery Management	01 week

STUDENT ENROLLMENT

There has been continuous increase in the student intake in various disciplines and the student enrollment increased from 4183 to 5192 in the last four years. The detail of which is given in table below:

S No	Name of Degree	2007	2008	2009	2010
01	Graduates	1677	1967	2291	2513
02	Post Graduates	2369	2566	2564	2494
03	Doctoral	137	144	160	185
	Total	4183	4677	5012	5192

LINKAGE WITH NATIONAL/INTERNATIONAL ORGANIZATIONS

In order to work and carried out research in close co-operation with National and International organization, the University signed ten memorandum of understanding (MoU) with the following International/national organizations

- Massey University New Zealand
- Ministry of Environment's Pakistan Wetlands Program (PWP)
- University of Agriculture Faisalabad
- NWFP Agriculture University Peshawar.
- Sindh Agriculture University Tandojam.
- State Life Insurance Corporation of Pakistan
- Catania University Italy
- Human Resource Development, Islamabad
- Capital Development Authority Islamabad
- Four Brothers Group of Companies Lahore

DOCTORAL /POST DOCTORAL TRAININGS / SHORT-TERM TRAININGS

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. In the objectivity, two faculty members completed Ph. D in the fields of Plant Breeding and Genetics from University of Edinburgh UK and Entomology from Imperial College London UK. Four faculty members obtained post-doctoral fellowship from HEC and executed research work in Australia, Canada & Italy. Moreover, seven faculty members proceeded on short-term trainings/courses in USA, Italy, Syria, Thailand, Austria & U.K.

RESEARCH FOCUS

University faculty focused their research activities on the issues of farming community of Barani areas in general and Potohar 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 2010.

- Allelopathic Crop Residue use for weed management in Rainfed areas of Punjab.
- Collection of Loquat Genotypes of Pakistan and their Multiplication through Conventional Vegetative Methods and Tissue Culture Techniques.
- Production of Pathogen Free, True to Type Olive Plants Through Tissue Culture.
- Varietals Improvement of Gladiolus through in vitro Mutation.
- Effect of Agricultural Insecticides on Neurological Behavior of Honeybee (*Apis mellifera*) in Pakistan.
- Identifying drought tolerant synthetic wheat lines and determining their genetic diversity through DNA markers.
- Genetic diversity and phylotyping of *Ralstonia solanacearum* strains causing bacterial wilt of chillies in major chillies growing areas of Pakistan.
- Study of polyphenol oxidase activity and its association with molecular markers in different wheat genotypes.
- Isolation, Purification and Monoculture for the production of edible oil from wild olive.
- Production of ethanol and butanol from agricultural waste.
- Epidemiology of Fasciolosis in large ruminants of Potohar Region.
- Repercussion of depletions in vulture populations on the ecology of the Potohar region.
- Growth performance of culturable carps feed on different diets prepared from plant based feed ingredients.
- Isolation/Identification of pathogenic bacteria from buffalo bull semen: Development high efficiency antibiotic combination to improve fertility rate.
- Ecology of Indian pangolin (*Manis crassicaudata*) in Potohar region.
- Baseline studies on wildlife diversity in selected protected areas of Pakistan.

- Conservation of Urial (*Ovis vignei punjabiensis*) through semen preservation.
- Effect of protease enzyme with decreasing amino acids levels and different protein sources on growth parameters, serum biochemistry and carcass characteristics in broilers.
- Influence of Naringenin on performance, meat quality and antioxidant status of broilers.
- Pre and Post Harvest Treatments of Food Grade Chemicals to Improve Peach Fruit Quality and Shelf-Life.
- Disease mapping and characterization of lentil with pathogens in Pakistan.
- Prevalence of Non-alcoholic liver disease (NAFLD) in Local Population of Pakistani Origin.
- Determination of Biological Activities and Micropropagation of *Polygonum amplexicaulis*: a popular medicinal plant of North Pakistan.
- Ethnobotanical survey of Thal Desert, Punjab Pakistan.
- Detection of anthelmintic resistance in gastrointestinal nematodes in small Ruminants.
- Ecology, status and management of fisheries in Mangla Dam.
- Identification of chemically defined extender for cryopreservation of buffalo bull spermatozoa.
- Phenotypic plasticity of Safflower (*Carthamus tinctorius*) in response to environment and integrated nutrient management.
- Utilizing bacterial ACC-deaminase biotechnology enhance water use efficiency for sustainable production of cereals.
- Mutator *M. tuberculosis* in Tehran and Rawalpindi; A comparative study on fingerprinting, mutator genes and antibiotic resistance genes of the isolates.
- Ethnobotanical Study of Mountain Range of Kalla Chitta in Potohar Region, Pakistan.
- Assessment of Seasonal Changes in Biomass Production and Utilization of Rangelands in Pothwar Tract.
- Studies on the distribution and management of root-knot nematodes (*Meloidogyne* spp.).
- Isolation and identification of plant growth promoting N₂-fixing soil bacteria using molecular techniques for improving legume-cereal cropping system
- Characterization of soil bacteria using gene sequencing and response of cereal to associative N₂-fixer and P-solubilizers

RESEARCH PROJECTS

The PMAS-AAUR Faculty also undertook Research Projects in addition to teaching assignments. These projects were sponsored by different funding/donor agencies. During 2010, the faculty fetched 49 Research Projects amounting to Rs. 64.493 millions. The detail of Research Projects is given below:

S No	Name of Funding Agency	No of Projects	Total Amount Rs. in Million
1.	Higher Education Commission	19	46.644
2.	Pakistan Science Foundation	07	8.175
3.	Pakistan Agriculture Research Council	01	1.913
4.	Ministry of Science & Technology	00	0.000
5.	Endowment Fund UAF	01	2.222
6.	International Funding Agencies	02	3.179
7.	University Own Resources	19	2.360
	Total Rs. In Million	49	64.493

In addition to above mentioned project, University also completed following 52 research projects, sponsored by different funding agencies worth Rs. 68.869 millions:

S No	Name of Funding Agency	No of Projects	Total Amount Rs. in Million
1.	Higher Education Commission	02	16.706
2.	Pakistan Science Foundation	06	4.399
3.	Pakistan Agriculture Research Council	07	15.499
4.	Ministry of Science & Technology	01	29.625
5.	University Own Resources	36	2.64
	Total Rs. In Million	52	68.869

ADMINISTRATIVE

In pursuant to good governance and transparency in the system, the meetings of administrative bodies of PMAS-AAUR were held regularly under the Chairmanship of the Vice Chancellor. A participatory approach was adopted in decision making and various academic, developmental and administrative decisions were taken in consultation with all members of committees constituted for the purposes and thereafter, approved by the statutory bodies.

UNIVERSITY SYNDICATE

The Syndicate is the highest executive body of the University, which holds its meeting as and when required to take up & ratifying the decisions of lower bodies and embark upon decisions of its own. During the reporting period, 04 Syndicate meetings were arranged and necessary decisions were taken in the best interest of PMAS-AAUR.

ACADEMIC COUNCIL

In year 2010, two meeting of Academic Council was conducted, wherein revised/amended and new curricula for under-graduate and post-graduate 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.

FINANCE & PLANNING COMMITTEE

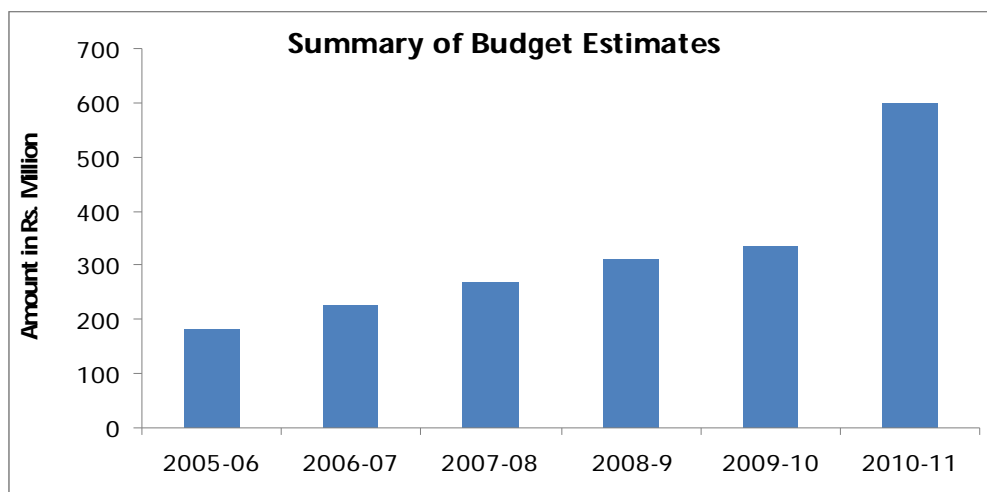
The Finance & Planning Committee collaborated twice in 2010 for resolution of financial issues and authorization of budget. After interactive sessions by the members, budget for the year and other related financial matters were approved.

ADVANCED STUDIES & RESEARCH BOARD

In the academic year 2010, Advanced Studies & Research Board was collaborated in two series of meetings; 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.

FINANCIAL RESOURCES

Utmost efforts had been put in to enhance the financial resources of the University. The total budget of PMAS-AAUR for the year 2010-11 was escalated up to Rs. 600.173 millions in comparison to correspondence year's budget amounting to Rs: 333.456 millions.



DEVELOPMENT PROJECTS

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

Development Projects (On-Going)	Cost (million Rs.)
• Establishment of Faculty of Veterinary & Animal Sciences	468.620
• Establishment of University Institute of Biochemistry & Biotechnology	358.619
• Development On Farm Students Research Facilities	343.224
• Establishment of R&D Facility in Hydroponic	52.546
• Strengthening of Department of Entomology	34.783
• Strengthening of Department of Wildlife Management	36.141
• Strengthening/ Up gradation of Library Facilities at PMAS-AAUR	41.021
Total	1334.954

Development Projects (Submitted)	Cost (million Rs.)
• Construction of New Academic Block	59.403

In addition to above Development projects, following construction works were completed in the University during the year under report:

Work	Cost (million Rs.)
• Construction of Residential Flats for Grade 1-10	24.951
• Construction of Residential Flats for Grade 15-17	20.165
• Construction Work at University Sports Ground	4.419
• Extension / Rehabilitation of University Mosque	19.023
• Construction of Shed / Store for Store Department at Main Campus	1.684
• Construction of Transport Shed Near Gate # 03, PMAS-AAUR	2.523
• Development of Road between New Academic Blocks of UIBB, FV & AS	2.000
• Up-Gradation of Sound System at Auditorium	0.430
• Extension of Data Centre at Main Library	0.649
• Supply / Laying of Cable & Power Distribution Panels for the Fields Labs and Glass House at Koont Farm	0.564
• Brick Soling for Approach to Laboratories at Research Farm Koont	0.250
• Making & fixing of MS grated door at seven (07) nos. Laboratories of research farm koont	0.536
• Supply and Installation of Brand New Diesel Engine Gnerator (DG) of 50 KVA Cummins Engine with Stamford Alternator and Allied Equipment (Origin and Make : UK Brand Fine Power)	1.444
• Supply And Installation of Brand New Diesel Engine Gnerator (DG) of 100, 200 & 300 KVA Cummins Engine with Stamford Alternator and Allied Equipment (Origin and Make : UK Brand Fine Power)	12.190
• Supply and Installation of Diesel Engine Generator (DG) of 50 KVA with Siemens or Equivalent Alternator and Allied Equipments at Main Library	1.433
Total	92.261

DELEGATES & VISITS

1. The Department of Zoology conducted a study tour for M.Phil and M.Sc students on January 12, 2010 to visit Trout Fish Hatchery, Kali Matti, Murree.
2. The Department of Wildlife Management conducted a study tour on 24-26 January 2010 to four notable wetlands (Kallar Khar, Khabbeki, Jahlar and Uchali Lakes).
3. HEC –USAID Monitoring and Evaluation Team visited Students Resource Center on February 01, 2010. The team comprised of Ms. Croshelle Harris, Deputy Director Education Office, USAID, Ms Aabira Sher Afghan, Education Officer USAID, Sayed Fauad Haider Naqvi and Rao Azhar Ali Khan of Merit and Need Based Scholarships Programme, Higher Education Commission.
4. Dr. Rahmatullah Qureshi conducted a week long research work at Botanical Garden & Herbarium at Shah Abdul Latif University, Khairpur to avail Lab. facility for M. Phil./PhD students during 20-2-2010 to 28-2-2010. They learnt working on scanning electron microscopy as well.
5. The Governor of the Punjab Mr. Salmaan Taseer inaugurated a four days (March 17-20, 2010) Spring Flower Show organized by Department of Horticulture in collaboration with the National Horticultural Society of Pakistan, Islamabad.
6. Ms. Fauzia Malik, Executive Director, Human Resource Development (HRDN) visited University and signed a MoU between Department of Agri. Economics and Economics PMAS-UAAR and Human Resource Development on April 22, 2010.
7. Students of MBA-Agribusiness final semester visited WALLS Pvt Ltd. and Haleeb Foods Lahore on June 19, 2010.
8. A fifteen members delegation of students from Sindh University, Jamshoro visited the University on August 02, 2010. Prof Dr Azhar Naeem briefed the delegation about academic background and objective of the University.

9. A Class of Officer of the Forest Department from Pakistan Forest Institute visited Department of Forestry & Range Management 23 August 2010.
10. Prof. Dr. Khalid Mahmood Khan S.I. the Vice Chancellor visited Turkey to attend the regional workshop on “ Science Academies in Central and Southern Asia and their role in Society” on September 1 -2, 2010.
11. Prof. Dr. Khalid Mahmood Khan S.I. the Vice Chancellor visited Korea to attend the ninth General Assembly of the Association of Academics of Science in Asia (AASA) and the fourth council meeting of the Fedration of Asian Scientific Academies and Societies (FASAS) organized by the Korean Academy of Science and Technology on October 18-22, 2010.
12. Accreditation Council of HEC visited Department of Forestry & Range Management on 11-12 Nov. 2010.
13. A delegation from South China Agricultural University comprising of 5 persons headed by Dean Faculty of Agriculture, Prof. Lin visited Department of Horticulture of PMAS-AAUR and the loquat growing areas of Pakistan for molecular characterization of genotypes on December 07, 2010.
14. Two visits of experts from Winroch International, USA. Mr. Danial Jerome Gudahl, Mr. Don and Mr. Henry discussed about the cool chain project to be launched in Bolochistan and how the post harvest section of Department of Horticulture PMAS-AAUR can help to resolve any possible issues during postharvest handling of fruit and vegetables. The possibilities of coordination of Winroch and Department of Horticulture were the main focus of discussion.
15. A field study tour of M.Sc./M.Phil./PhD students of Department of Botany was organized to visit Thandiani, Santh Saroola, Shahdrah, Salghira, Jhelum & Marghalla Hills.
16. Dr. Abdul Saboor, Chairman of the Department of Economics and Agri. Economics, visited University of Gujrat and delivered a lecture on Economics of Climate Change.

SEMINARS, WORKSHOPS & CONFERENCES

Seminar, Workshops and Conferences are regular feature of universities where experts from various fields are invited to share their experience with faculty, students & various fields are invited to share their experience with faculty, students & researchers on current issues of international and national levels. Such an activity is important for research and academic development of an institution as it provides guidelines for policy development at national level. During 2010, 92 International / National Conferences/ Seminars/ Workshops were held at PMAS-AAUR or attended by Faculty, apart from departmental seminars. A brief detail of each is given below:

1. Dr. Syed Moazzam Nizami Associate Professor, Department of Forestry and Range Management, chaired the Preliminary meeting of the NCRC of Forestry organized by HEC on 5-7 Jan 2010 at Islamabad.
2. Dr. Maqsood Anwar, Department of Wildlife Management, participated in the Inception workshop on “Distribution and status of threatened species of fresh water turtles in selected areas of Indus River System”. January 13, 2010. Organized by Department of Zoological Survey, Ministry of Environment/Indus for All Program, WWF-P, Islamabad.
3. Dr. Noshin Ilyas, Department of Botany, participated in 2nd International Seminar on Medicinal Plants (ISMP) held in Lahore College for Women University on Jan 14-16, 2010.
4. Prof. Dr. Nemat Ullah, Department of Veterinary Obstetrics and Gynecology attended one day workshop on “Veterinary Education” at the University of Veterinary and Animal Sciences, Lahore organized by Livestock and Dairy Development Department Government of the Punjab, Lahore, January 19, 2010.
5. University Institute of Management Sciences (UIMS) organized a workshop on “ Self Assessment and Personal Development” on January 27, 2010.
6. The Quality Enhancement Cell PMAS-UAAR, in collaboration with the Quality Assurance Agency HEC, organized a video training workshop on “ How to Use ‘Turnitin’ Anti-plagiarism Software” on January 28, 2010.

7. Mr. Muhammad Ramzan, University institute of Information and Technology, delivered a seminar at National University, NU-FAST, Islamabad Campus in Feb 2010.
8. Dr. Aamir Saleem, Department of Forestry and Range Management, participated in the “Provincial Consultative workshop on National Rangeland Policy”. February 8, 2010. Organized by Ministry of Environment, at PC Lahore.
9. Dr. Manzoor Hussain, Associate Professor, Department of Veterinary Microbiology attended a Seminar,” Progressive Control of Foot & Mouth Disease in Pakistan and Afghanistan”, organized jointly by the Ministry of Livestock & Dairy Development and USDA on February 14, 2010.
10. Prof. Dr. Nemat Ullah, Department of Veterinary Obstetrics and Gynecology, attended a Trilateral Conference on Control of Foot and Mouth Disease in Pakistan and Afghanistan sponsored by Ministry of Livestock & dairy Development, Islamabad and USDA on February 16-17, 2010
11. Prof. Dr. Nemat Ullah, Department of Veterinary Obstetrics and Gynecology, attended Workshop on “Establishment of Camel Breeding farms and Extension Network in Pakistan” organized by Ministry of Livestock and Dairy Development, Government of Pakistan, Islamabad on February 20, 2010.
12. Hafiz Muhammad Waheed, Dr Farhana Ch, and Mr. Muhammad Irfan, Department of Zoology and biology, attended the Workshop on Teachers Training Workshop: laboratory methods in genetics. One week intensive practical training workshop for the understanding of fundamental principles of heredity held on February 22-26, 2010 at Department of Animal Sciences, Quaid –i-Azam University Islamabad.
13. Dr. Nasir Mukhtar, Assistant Professor, Department of Poultry Sciences, attended an International Conference on Agriculture and Animal Science on February 26-28, 2010, Singapore.
14. Dr. Maqsood Anwar, Associate Professor , Dr. Tariq Mahmood, Assistant Professor, Dr Muhammad Sajid Nadeem, Ms. Bushra Allah Rakha, Mr. Muhammad Rais, attended and presented research papers in 30th Pakistan

Congress of Zoology (International) on March 02- 04, 2010 at University of Agriculture, Faisalabad.

15. Ms Asma Zafar, Lecturer, Department of Sociology and Anthropology, attended a seminar on “Preventing Plagiarism: A complete Roadmap” through video conference held on 4th March, 2010 organized by QEC-PMAS-AAUR in collaboration with the Quality Assurance Agency of HEC in University Institute of Information Technology of PMAS-AAUR.
16. Dr. Syed Moazzam Nizami, Department of Forestry and Range Management, attended workshop on “Propagation of Healthy Shisham in South East Asia” held on March 4-6 2010 at Avari Hotel Lahore.
17. Prof Dr. Sarwat N Mirza and Dr. Aamir Saleem, Department of Forestry and Range Management, participated in the National consultative workshop on “Formation of National Rangeland Policy”. March 16, 2010. Organized by Ministry of Environment at Margallah Hotel, Islamabad.
18. Dr. S. M. Saqlan Naqvi, Department of Biochemistry, delivered a seminar on “Emergence, Evolution and control of the cotton leaf curl disease complex” on March 19, 2010 at NUST, Rawalpindi.
19. Prof. Dr Tariq Mahmood, Chairman, Department of Environmental Sciences, participated in 24th IUFRO Conference for Specialists in Air Pollution and Climate Change Effects on Forest Ecosystems. “Adaptation of Forest Ecosystems to Air Pollution and Climate Change” March 22-26, 2010 at Antalya Turkey.
20. Dr. Azeem Khalid and Dr Audil Rashid, Department of Environmental Sciences, attended 13th Congress of Soil Science on “Efficient Resource Management for Sustainable Agriculture”. March 24-27, 2010, Soil Science Society of Pakistan, Faisalabad, Pakistan.
21. Dr. Rifat Hayat Department of Soil Science attended 13th International Congress of Soil Science, Faisalabad, March 24-27, 2010

22. Mr. Muhammad Ramzan, University institute of Information and Technology, delivered a seminar at International Islamic University, Islamabad in April 2010.
23. Dr. Muhammad Javaid Asad participated in Bioplastics & Green Composites Workshop organized by Bioproducts Discovery and Development Centre, University of Guelph, Canada, from 31-March- 01 April, 2010.
24. Dr. Muhammad Arshad, Dr. Rahmatullah Qureshi and Zia-ur-Rehman Mashwani, Department of Botany, participated in National workshop to trained stakeholders about the implications of WTO/TRIPs on traditional knowledge/ traditional medicines organized by NIH and Ministry of Health and WHO Islamabad on April 4, 2010.
25. Zia-ur-Rehman Mashwani, Department of Botany, attended 2 days National workshop on “Adaptation and Implementation of GACP and FCP guideline” at NIH, Islamabad. April 5-6, 2010.
26. Dr. Syed Moazzam Nizami, Associate Professor, Department of Forestry and Range Management, chaired the final Meeting of National Curriculum Revision Committee for Forestry organized by HEC at HEC Regional Office 11-15 April 2010, Lahore.
27. Dr. S. M. Saqlan Naqvi and Dr. Muhammad Gulfraz and Dr. Rahmatullah Qureshi, participated in workshop titled “Training Workshop on Biofuel Production from Agriculture Waste” held at PMAS-Arid Agriculture University Rawalpindi, Pakistan, April 13-14, 2010.
28. Khan, K.S. 2010. Use of food crops, crop residues and other substrates for biofuel production. Presented at International Workshop on Biofuel Production from Agricultural Waste, April 13-14, PMAS-Arid Agriculture University Rawalpindi Pakistan
29. Prof. Dr. Nadeem Akhtar Abbasi, Department of Horticulture, participated and presented papers in III International Symposium on Loquat in Antakya - Hatay, Turkey from 03-06 May, 2010.

30. Dr. Azra Khanum, Department of Biochemistry, attended 3rd National Symposium on “Recent Trends in Endocrinology and Reproductive Sciences Sponsored by the Pakistan Academy of Sciences, Centre for Research in Molecular Medicine, University of Lahore, Lahore from 15-16 May, 2010, and delivered a lecture on Regulatory Mechanisms Involved in Control of Steroidogenesis.
31. Prof. Dr. Nadeem Akhtar Abbasi, Department of Horticulture, participated and presented papers in Horticultural CRSP Inception Workshop at Singapur from 16-18 May 2010.
32. Ms Asma Zafar, Lecturer, Department of Sociology and Anthropology, participated in a seminar on “Sports Management and its Role in Development” held on 19th May, 2010 organized by QEC in collaboration with ConsTech in PMAS-AAUR.
33. Dr. Rahmatullah Qureshi, Department of Botany, participated one day seminar on conserving and restoring the undesignated remnants of natural plant communities organized by Pakistan Botanic Garden Network Secretariat held at GC University Botanic Garden, Lahore on 20-05-2010.
34. Prof. Dr. Nemat Ullah, Department of Veterinary Obstetrics and Gynecology, attended Workshop on “Logical Framework Approach” To Prepare Livestock Development Schemes For the year 2010-11 for the Livestock and Dairy Development Department, Government of the Punjab from May 23-26, 2010 at Lahore.
35. Dr. Aamir Saleem, Department of Forestry and Range Management, participated in the National workshop on “Sustainable Land Management”. May 26-27, 2010. Sponsored by UNDP and GEF, at Hill View Hotel Islamabad.
36. Dr. S. M. Saqlan Naqvi, Department of Biochemistry, participated as Resource Person for Two week elementary Teacher Training Programme from May 24-June 4 2010 under CIDA Project at NISTE, Islamabad.
37. Dr. Nasir Mukhtar, Assistant Professor, Department of Poultry Sciences attended a Conference, “Nutrition – acid base status – human health: A critical

link for well being.” Presented in: International Conference on Agriculture and food Engineering, May 26-28, 2010, Tokyo, Japan.

38. Prof. Dr Tariq Mahmood, Dr. Muhammad Rasheed, Mr. Irfan Aziz, Dr Noshin Ilyas and Dr Abida Akram Participated in workshop on “Climate change and Sustainability of Agro-environment: Challenges and Interventions” organised by Department of Environment Sciences, PMAS-Arid Agriculture University, Rawalpindi in June 3-4, 2010
39. Dr. Rifat Hayat Department of Soil Science attended the International workshop on Climate change and sustainability of agro-environment: Challenges and interventions, PMAS-AAUR; June 3-4, 2010
40. Dr. S. M. Saqlan Naqvi, Department of Biochemistry organized a training course on Real-Time PCR, during 8-11, June 2010.
41. Dr. Rifat Hayat participated in Training workshop on Real Time PCR, June 08-11, 2010. Department of Biochemistry. PMAS Arid Agriculture University, Rawalpindi
42. Dr. Azra Khanum, Department of Biochemistry attended an exhibition under Pak-US Program title “Showcasing the Pak-US Research Collaboration” for Multiplex micro bead immunoassay for detection of tuberculosis. Islamabad on June 9, 2010.
43. Dr. S. M. Saqlan Naqvi, Department of Biochemistry, participated in National Training Workshop on “Analytical Laboratory Management” held on 23-25 June, 2010 at University of Gujrat, Gujrat.
44. Faculty of Veterinary and animal Sciences, organized one day seminar on “Current Status of Foot & Mouth Disease and its Progressive Control in Pakistan” at the PMAS-Arid Agriculture University, Rawalpindi on 23.06.2010.
45. Mr. Muhammad Ramzan, University institute of Information and Technology, delivered a seminar at First UIIT Research Conference during UIIT Open House at UIIT Auditorium, July 2010.

46. The Department of Economics & Agri. Economics, organized a Symposium on Human Resource Development in July 2010.
47. Dr. Noshin Ilyas, Department of Botany, delivered a presentation at 1st International Conference on Biotechnology and microbiology at Bara Gali on July 3 to 7, 2010.
48. Dr. Abdul Saboor, Chairman of the Department of Economics and Agri. Economics, Research and Training Workshop, South Asian Network of Development and Environmental Economics (SANDEE), from 6th to 10th of July, 2010, Colombo, Sri Lanka.
49. Dr. S. M. Mughal, Department of Plant Pathology, participated in National conference on global warming, impact on agriculture and adaptation strategies. Organized by the Agriculture Foundation of Pakistan and Pakistan Meteorological department, Islamabad. July 8, 2010.
50. Dr. S. M. Saqlan Naqvi and Ms. Beenish Saba , participated in the Conference on “Utilization of Modern Agriculture Technology in Changing Environment Perspective” held on 21-23 July, 2010 at University of AJK, Muzaffarabad.
51. Dr. Abdul Khaliq Ch., Department of Forestry and Range Management, attended a seminar on “Social forestry” Organized by Society of Upgradation of Knowledge, Health and Infrastructure (SUKHI) and UNDP/GEF. 22 July, 2010, Islamabad
52. Dr. Noshin Ilyas, Department of Botany, participated in workshop Development of Sustainable and Collaborative Research Networks under Talented Research Exchange programme-INSPIRE-Pakistan held at Lahore College for Women University on 2nd to 3rd August.
53. Prof. Dr. Fayyaz ul Hassan attended the Oilseed stalk holder’s workshop at University of Agriculture, Faisalabad, held on 4th Aug.2010.
54. Dr. Shahzada Sohail Ijaz attended the meeting on Tear Down the Walls at Nebraska, USA on August 10-11, 2010

55. Dr. Javaid Iqbal, Assistant Professor (HEC-IPFP), Department of Entomology attended the Training workshop on ‘Sustainable management of insect pests of fruits with special reference to Citrus through modern protection and post-harvest losses reduction techniques’ from 1-4 September, 2010, at University of Agriculture, Faisalabad
56. Prof. Dr. Nemat Ullah, Department of Veterinary Obstetrics and Gynecology, attended International Workshop on “Veterinary Education in South Asia Specific: New Approaches to Teaching and Learning for Evolving Scenario”, September 21-22, 2010, held at Chittagong Veterinary and Animal Sciences University, Khulsi Chittagong, Bangladesh
57. Prof. Dr. Nemat Ullah, Department of Veterinary Obstetrics and Gynecology, attended 8th Annual Scientific Conference 2010; Networking for Promoting Changes Towards One World, September 23-25, 2010 held at Hotel Agarabad Chittagong, Bangladesh
58. Prof. Dr Tariq Mahmood, Chairman, Department of Environmental Sciences, attended Fifth International Popular Symposium “Popular and Willows: from research models to multipurpose trees for a bio-based society” 20 – 25 September 2010, Palazzo de Popolo, Orvieto (TR) Italy.
59. Ms Beenish Saba, Department of Environmental Sciences, participated in International conference “Challenges in Environmental Science and Engineering (CESE-2010)” from 26 Sep to 01 October, Cairns Australia.
60. Prof. Dr. M. Naeem, Department of Entomology, attended a seminar on September 30, 2010 at the Department of Entomology and Zoology “Filippo Silvestri” in University of Naples.
61. Dr. Muhammad Gulfraz, Department of Biochemistry, delivered a lecturer on “Biofuel production from agro wastes, in two days workshop on alternative energy” in Pakistan Academy of Sciences Islamabad in September, 2010.
62. Mr. Nawazish Naveed, University institute of Information and Technology, attended a seminar IEEE ICET 2010 at National University of computer and Emerging Sciences, October 2010.

63. Ms Asma Zafar, Lecturer, Ms Faria Ibad Mirza, Lecturer, Department of Sociology and Anthropology, attended a regional conference on “21st Century and Policing in South Asia, Response towards Gender based Violence: Challenges and prospects” held on October 5 & 6, 2010 organized by Rozan in collaboration with Federal Ministry of Human Rights, Government of Pakistan and Islamabad Capital Territory Police in Best Western Hotel, Islamabad.
64. Dr. Manzoor Hussain, Associate Professor, Department of Veterinary Microbiology, attended a Conference, “Lessons learnt during the Rinderpest eradication in Pakistan.” October 13-15, 2010, FAO Head Quarter, Rome, Italy
65. Dr. Azra Khanum, Department of Biochemistry, participated in International Seminar on Alternate Sources of Energy: Prospects and Options at Pakistan Academy of Sciences, Islamabad, Pakistan from October 14-15, 2010.
66. Dr. Azra Khanum, Department of Biochemistry attended National Biotechnology Exhibition and Seminar 2010 at Institute of Biochemistry and Biotechnology, University of Veterinary and Animal Sciences, Lahore from October 20-21, 2010.
67. Prof. Dr. Nemat Ullah, Department of Veterinary Obstetrics and Gynecology, attended Workshop entitled “Developing Training Module for Project Preparation, Monitoring & Evaluation” at the Pakistan Science Foundation Conference Hall, Islamabad on October 21, 2010.
68. Prof. Dr. M. Naeem, Department of Entomology, delivered a seminar on October 25, 2010 at IPP-CNR (Institute for Plant Protection, the National Research Council) Portici, Italy.
69. Dr. Abida Akram, Department of Botany, attended the Mycotoxin training workshop on 27th & 28th Oct. 2010 organized by Romer Labs, Rawalpindi, Pakistan.
70. Dr Audil Rashid, Department of Environmental Sciences, delivered an oral presentation at “9th International Conference on Urban Health”. October 27–29, 2010, NY, USA.

71. Dr. Azra Khanum, Department of Biochemistry presented a paper on “Isolation and characterization of peptide(s) from *Pisum sativum* having antimicrobial activity against mammalian pathogenic bacteria” in 2nd International Symposium on Medicinal Plants, Their Cultivation and Aspects of Uses. Petra, Jordan. 3-4 November, **2010**.
72. A one day Seminar on Policy Adequacy and Awareness of Agri. Financing was held in the University on November 3, 2010 in collaboration with State Bank of Pakistan.
73. Dr. S. M. Saqlan Naqvi, Department of Biochemistry, participated in “6th International Conference on Biological Sciences” from November 10-11, 2010 at Tanta University Egypt.
74. Khan, K.S. 2010. Collaboration in agricultural research for food security in south Asia. Presented at Alexander von Humboldt Kolleg International Conference, November 15-18, 2010 Kathmandu, Nepal.
75. Department of Horticulture organized a “CHRYSANthemum & AUTUMN FLOWER SHOW 2010” in collaboration with The National Horticulture Society of Pakistan from 25-27 November, 2010.
76. Mr. Nawazish Naveed, University institute of Information and Technology, delivered a seminar at National University, NU-FAST, Islamabad, December 2010.
77. Prof. Dr. Nadeem Akhtar Abbasi, Department of Horticulture, participated and presented paper in “Expert Consultation Meeting on Postharvest and Value Addition of Horticultural Produce 2010” from Nov. 29 to Dec. 2, 2010 at Marriott Hotel, Putrajaya, Malaysia organized by Malaysian Agricultural Research and Development Institute (MARDI) and Asia-Pacific Association of Agricultural Research Institutions (APAARI).
78. Jilani, G., A.A. Khan, A. Latif. 2010. Enhancing soil productivity through biological amendments. International Planning Workshop on watershed management & Land Rehabilitation, December 6-8, 2010 Islamabad

79. Dr. Abdul Saboor, Chairman of the Department of Economics and Agri. Economics, participated in 10-Year Celebration Conference, South Asian Network of Development and Environmental Economics (SANDEE) from 5th to 7th of December, 2010, Khatmandu, Nepal.
80. Ms Asma Zafar, Lecturer, Department of Sociology and Anthropology, participated in a seminar on “Protection against Harassment of Women at the Work Place Act 2010” held on 7-12-2010 organized by the Division of Continuing Education, Home Economics and Women Division, Government of Pakistan in PMAS-AAUR.
81. Dr. Abdul Saboor, Chairman of the Department of Economics and Agri. Economics, Research and Training Workshop, South Asian Network of Development and Environmental Economics (SANDEE), from 8th to 11th of December, 2010, Khatmandu, Nepal.
82. Dr. Ghazala Kaukab, Department of Biochemistry participated in one day seminar on “Impact of Various Assessment Tools on Teacher’s Training Assessment” at Learning Innovation Division, HEC on 13th Dec 2010.
83. Professor Dr. Sarwat N. Mirza Dean FRW chaired the 13th conference on Sustainable Development in South East Asia held at Best Western on 23rd Dec. 2010.
84. Dr. Syed Moazzam Nizami Department of Forestry and Range Management,, presented on “REDD⁺ : Protocols for Assessment of Carbon Stocks in Pakistan “in 13th conference on Sustainable Development in South East Asia held at Best Western on 23rd Dec. 2010.
85. Dr. Rahmatullah Qureshi, Department of Botany, participated in International Conference on “Biodiversity is our Life” December 29-31, 2010 organized by the centre of Biodiversity Conservation, Shah Abdul Latif University, Khairpur, Sindh, Pakistan.
86. Zia-ur-Rehman Mashwani Department of Botany, participated in three days International conference (December 29-31, 2010) on “Biodiversity is our Life (IC Biour-Life)” at Centre of Biodiversity and Conservation, Shah Abdul Latif University (SALU) Khairpur.

87. Mobushir Riaz Khan, Assistant Professor, Department of Entomology delivered a seminar on “Applications of Remote Sensing and Geographical Information Systems in Natural Resource Management” at PMAS-AAUR.
88. Ms Faria Ibad Mirza, Lecturer, Department of Sociology and Anthropology attended a seminar on “Women Empowerment through Employment” organized by PMAS-AAUR in collaboration with USAID.
89. Ms Faria Ibad Mirza, Lecturer, Department of Sociology and Anthropology, attended a seminar on “Human Rights in Pakistan & role of academia” organized by PMAS-AAUR in collaboration with Islamic International University Islamabad.
90. Dr. Rahmatullah Qureshi, Department of Botany, organized a stall in spring flower show 2010 conducted by the Horticulture Department, PMAS-AAUR. The theme of stall was “Arid zone Medicinal Plants”.
91. Dr Zia-ul- Qayyum, Director, University institute of Information and Technology, participated in 24th International Conference on Industrial, Engineering and Other Applications of Applied Intelligent Systems (IEA/AIE 2011) held in Syracuse, USA.
92. Dr. Aamir Saleem, Department of Forestry and Range Management, attended the National Workshop on “GIS and Remote Sensing, and their use in NRM”. Sponsored by UNDP, GEF and Ministry of Environment, at Margallah Hotel, Islamabad.

STUDENTS EXTRA CURRICULAR ACTIVITIES

Following co-curricular activities were performed by Directorate of Students Affairs during year 2010.

- | | | |
|-----|---|-----------------------|
| 1. | A one day intensive and interactive training workshop titled “ Leadership Development | 07-Jan-10 |
| 2. | Science Projects Competition | 09-Jan-10 |
| 3. | Arfana Kalam/ Folk singing competition | 09-Jan-10 |
| 4. | Drama Long Play | 14-Jan-10 |
| 5. | Training Workshop Exam. Conduct | 21-Jan-10 |
| 6. | Arfaana Kalaam | 21-Jan-10 |
| 7. | Dramatic club staged a Drama “ Hum Milat Kay Pasban” | 21-Jan-10 |
| 8. | Celebration of Eid Melad-un-Nabbi & Naat competition | 11-Mar-10 |
| 9. | Students of UIMS organized a one day Fun Fair | 27-Mar-10 |
| 10. | Students Week 2010
Inter Faculty competitions
-Soft ware competition
-Poster competition
-Flower Arrangement Competition
-Games Competition
-Writing Competition(Essay & Story)
-Art Exhibition
-Urdu Mushaira
-Drama Competition
-Photography
-Video games
Inter University Competitions
-Qiraat & Naat Competition
-Solo performance Competition
-Bilingual Declamation
-Arfana Kalam competition
-Video making competition | 06-10-Apr-2010 |
| 11. | Inter faculty debates | 06-May-2010 |
| 12. | Traffic Awareness Program | 17-Jun-2010 |
| 13. | Orientation for new enrolled students | 30-Sep-2010 |
| 14. | Qiraat & Naat Competition | 14-Oct-2010 |
| 15. | Bilingual Declamation | 28-Oct-2010 |
| 16. | Allama Iqbal Day Celebrations | 11-Nov-2010 |
| 17. | Arfana Kalam/ Folk singing competition | 16-Dec-2010 |
| 18. | Allama Iqbal Shield – Debate Contest | 23-Dec-2010 |
| 19. | Training Workshop Leadership development | 30-Dec-2010 |

SPORTS ACTIVITIES

The Directorate of Sports is striving hard for the promotion of sports at PMAS-Arid Agriculture University. The beautiful and prestigious **Khalid M. Khan Gymnasium** has been completed in the university premises. The Inaugural ceremony was held on 07-10-2010. His Excellency Prof. Dr. Khalid Mahmood Khan SI, Vice Chancellor, PMAS-Arid Agriculture University was the chief guest on this jubilant occasion.

The following **Intervarsity Championship 2009-10** were organized by Directorate of Sports at **Khalid M. Khan Gymnasium**, PMAS-Arid Agriculture University Rawalpindi.

- **Intervarsity Badminton Championship 2009-10 Zone “C” March 14-17, 2010**

Sixteen Universities from Rawalpindi/Islamabad and AJ&K participated in the championship. PMAS-AAUR Team was the Winner while NUST was Runner up.

- **All Pakistan Intervarsity Badminton Championship 2009-10 March 24-27, 2010**

Sixteen Universities (winner and runner up from 14 Zones) from all over Pakistan participated in the championship.

- **Intervarsity Table Tennis Championship 2009-10 Zone “C” April 14-17, 2010**

Sixteen Universities from Rawalpindi/Islamabad and AJ&K participated in the championship.

- **Intervarsity Volleyball Championship 2009-10 Zone “C” Feb, 09-12, 2010**

Sixteen Universities from Rawalpindi/Islamabad and AJ&K participated in the championship. PMAS-AAUR team was the runner up.

PMAS-AAUR Students teams also participated in the following **Intervarsity Sports Championship** during 2009-2010.

- **All Pakistan Intervarsity Volley Ball Championship 2009-10** Feb. 24-27. 2010 at **University of the Punjab, Lahore.**
- **Inter University Cricket Championship (Zone “C”)** held at Bahira University Islamabad Dec.15-18, 2009
- **Inter University Basket Ball Championship (Zone “C”)** held at Bahira University Islamabad Feb.22-24, 2010
- **Inter University Foot Ball Championship (Zone “C”)** held at National University Science & Technology, Islamabad January 08-10, 2010
- **All Pakistan Inter University Hiking Championship (Zone “C”)** held at AJ&K University Muzaffarabad May 13-16, 2010

- **All Pakistan Inter University Athletics Championship (Zone “C”)** held at Sargodha of University Sargodha Oct 31 to Nov. 3, 2009
- **All Pakistan Inter University Tug of War Championship (Zone “C”)** held at Tandujam University, Tandujam Jan 22-28, 2010

The following Inter Faculty sports Championship was organized by Directorate of sports were organized by Directorate of sports during 2009-10.

- **INTER FACULTY BADMINTON (Boys) CHAMPIONSHIP 2009-10**

Inter Faculty Badminton Championship was organized in which all faculties, UIMS and UIIT teams participated in the Championship. Basic Sciences stood 1st while faculty of Agriculture remained second.

- **INTER FACULTY VOLLEYBALL (Boys) CHAMPIONSHIP 2009-10**

Inter Faculty Badminton Championship was organized in which all faculties, UIMS and UIIT teams participated in the Championship. Agriculture Sciences A stood 1st while Agriculture Sciences B 2nd.

The following **Inter Faculty Sports/Games Championship (Boys)** was organized during **Students Week (April 2010)** at University convocation Lawn.

- **Inter faculty Tug of War Championship**
- **Inter faulty Three Leg Race**
- **Inter Faculty Handkerchief Game Championship**
- **Inter Faculty Musical Chair championship**

The following **Inter Faculty Sports/Games Events (Girls)** were also organized during Students Week (April 2010) at Girls Hostel.

- **Inter faculty Tug of War Championship**
- **Inter faculty Three Leg Race**
- **Inter Faculty Handkerchief Game Championship**
- **Inter Faculty Musical Chair championship**

UNIVERSITY PUBLICATIONS

JOURNAL OF AGRICULTURE AND BIOLOGICAL SCIENCES

In order to infuse a culture of publications among the faculty and research students the charges for publication in the journal were revised. Any student who intends to publish will be charged at subsidized rate, while faculty members can publish one paper free of cost per journal as first author of the journal. The journal is circulated to about 80 different organizations in the country and 10 international organizations without price.

PMAS-AAUR-NEWS

In order to have a close contact with community and activities at university “PMAS-AAUR NEWS” is published on monthly basis. This is widely circulated among students, faculty and to all sister organizations.

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.

STUDENT DISSERTATIONS

Two Hundred and Ninety Four (294) theses were delivered during 2010 by post-graduate students of the university out of which Twenty-One (21) theses were received on account of PhD degrees.

FACUTLY PUBLICATIONS

1. **Abbass, D., M. Rais, M. Z. Khan and S. A. Ghalib.** 2010. New record of spotted munia (*Lonchura punctulata*) from Karachi. Pakistan Journal of Zoology. **42**: 503-505.
2. **Abbass, M., S. M. Nizami, A. Saleem, I. A. Khan and S. Gulzar.** 2010. Biomass Expansion Factors of *Olea Ferruginea* in Sub Tropical Forests of Pakistan. African Journal of Biotechnology, Accepted.
3. **Abbasi, N. A., Z. Singh and A. S. Khan.** 2010. Dynamics of anti-oxidant levels and activities of reactive oxygen-scavenging enzymes in 'pink lady' apple fruit during maturation and ripening. Pakistan Journal of Botany, **42**: 2620-2610.
4. **Abbasi, N. A., S. Hafeez and M. J. Tareen.** 2010. Salicylic acid prolongs shelf life and improves quality of 'Maria Delicia' peach fruit. Acta Horticulturae, **880**: 191-197
5. **Abbasi, A. M., M. A. Khan, M. Ahmad, R. Qureshi, M. Arshad, S. Jahan, M. Zafar and S. Sultana.** 2010. Ethnobotanical study of wound healing herbs among the tribal communities in Northern Himalaya Ranges District Abbottabad, Pakistan. Pakistan Journal of Botany, **42**: 3747-3753
6. **Abubakar, M., M. J. Arshed, M. Hussain and Q. Ali.** 2010. Evidence of Peste des Petits Ruminants in Serology of Sheep and Goats from Sindh, Pakistan. Transboundary and Emerging Diseases, doi:10.1111/j.1865-1682.2010.01193.x.
7. **Abubakar, M., M. J. Arshed, M. Hussain, E. U. Haq, and Q. Ali.** 2010. Serological Evidence of *Brucella abortus* prevalence in Punjab Province, Pakistan –A Cross-Sectional Study. Transboundary Emerging Diseases, **57**: 443–447.
8. **Afsheen, F. and A. Sajid.** 2010. "Impact of Emotional Intelligence on Transformational leadership in telecom sector of Pakistan. 10th National Research Conference at SZABIST, Islamabad. **UIMS**
9. **Afzal, R., S. M. Mughal, M. Munir, K. Sultana, R. Qurashi, M. Arshad and M. K. Laghari.** 2010. Mycoflora associated with seeds of different sunflowers cultivar and its management. Pakistan Journal of Botany. **42**: 435-445.
10. **Afzal, S. N., M. I. Haque, A. Rauf, I. Ahmad and S. S. Firdous.** 2010. Vulnerability of Pakistani wheat (*Triticum aestivum* L.) varieties against stripe rust under rain-fed climate of the northern Punjab and NWFP. Pakistan Journal of Botany, **42**: 2029-2042.
11. **Ahmad, H., M. T. Siddique, I. A. Hafiz and Ehsan-ul-Haq.** 2010. Zinc status of apple orchards and its relationship with selected physico-chemical properties in Murree Tehsi. Soil and Environment, **29**: 142-147

12. **Ahmad, A., F. M. Anjum, T. Zahoor, H. Nawaz and Z. Ahmed.** 2010. Extraction and characterization of B-glucan from oat for industrial utilization. *International Journal Biological Macromolecules*, **46**: 304-309.
13. **Ahmad, A., F. M. Anjum, T. Zahoor and H. Nawaz.** Beta glucan: A valuable functional ingredient in foods. *Critical Reviews in Food Science and Nutrition*. (Accepted).
14. **Ahmad, M. A., S. M. Iqbal, N. Ayub, Y. Ahmad and A. Akram.** 2010. Identification of resistant sources in chickpea against *Fusarium* wilt. *Pakistan Journal of Botany*, **42**: 417-426.
15. **Ahmad, M., S. Ahmad, Fayyaz-ul-Hassan, M. Arshad, M. A. Khan, M. Zafar, S. Sultana.** 2010. Base catalyzed transesterification of Sunflower oil biodiesel. *African Journal of Biotechnology*, **9**: 8630-8635.
16. **Ahmad, F., M. A. Khan, M. Ahmad, M. Zafar, T. Mahmood and A. Jabeen.** 2010. Ethnomedicinal uses of grasses in salt range region of Northern Pakistan. *Journal of Medicinal Plants Research*, **4**: 362-369
17. **Ahmad., N and M. Qayyum.** 2010. The Incidence of Intestinal Parasites in Buffaloes in Fateh Jang, 30th Pakistan Congress of Zoology. March 2-4, 2010.
18. **Ahmad, N., E. Ahmad and Z. Naseer.** 2010. Use of CIDR for the regulation of fertility in anestrous buffaloes. *Revista Veterinaria*. **21**: 997-1000.
19. **Ahmad, T., M. Sarwar, M. U. Nisa, A. U. Haq, J. Ansari and I. Iqbal.** 2010. Dietary electrolyte balance responses in broilers reared in moderately high environmental temperature and high humidity. *Advanced Animal Biosciences*, **1**: 418-419.
20. **Ahmad, T., Ullah, N., Ishaq, K., Hadi, S. A. and Qadir, M. M. F.** 2010. Small ruminant feeding systems in semi-arid land of Punjab, Pakistan: Status and prospectus for improvement. *Advances in Animal Biosciences*, **1**: 485-486.
21. **Ahmed, M., F. Hassan, M. Aslam, M. N. Akram and M. A. Aslam.** 2010. Correlation of photothermal quotient with spring wheat yield. *African Journal of Biotechnology*, **9** :7495-7503, 2010.
22. **Ahmed, F., M. A. Khan., M. Ahmad, M. Zafar , M. Arshad., A. Khan., G. M. Shah, and M. R. Awan.** 2010 Taxonomic utilization of anatomical characters in tribe Andropogoneae (Poaceae) based on transverse sections of leaves. *Journal of Medical Plants Research*, **4**: 1349-1358.
23. **Ahmed, A., F. M. Anjum, M. A. Randhawa, U. Farooq, S. Akhtar.** 2010. Effect of multiple fortification on the bioavailability of minerals in wheat meal bread. *Journal of Food Science and Technology* (Accepted) Ref. Ms. No. JFST-D-10-00209
24. **Ahmed, M., M. A. Khan, M. Zafar, M. Arshad, S. Sultana, B. H. Abassi and S. Din.** 2010. Use of chemotaxonomic markers for misidentified medicinal

- plants used in traditional medicines. Journal of Medical Plants Research, **4**: 1243-1255.
25. **Akhtar, A., N. A. Abbasi and A. Hussain.** 2010. Effect of calcium chloride treatments on quality characteristics of loquat fruit during storage. Pakistan Journal of Botany, **42**: 181-188.
 26. **Akhtar, N., T. Mahmood, S. Ahmad, M. Ashraf and S. Rauf.** 2010. Screening of sunflower populations for seed yield and its components through step-wise regression analysis. Pakistan Journal Botany. (Accepted).
 27. **Akhtar, N., T. Mahmood, A. Aziz, M. Ashraf and S. Ahmad.** 2010. Estimation of correlation coefficients among seed yield and some quantitative traits in wheat (*Triticum aestivum* L.). African Journal of Agriculture Research (Accepted).
 28. **Akhter, S., M. S. Ansari, B. A. Rakha, S. M. H. Andrabi and N. Ullah.** 2010. Cryopreservation of buffalo (*Bubalus bubalis*) semen in Bioxcell[®] extender. Theriogenology, **74**: 951-955.
 29. **Akhter, S., M. S. Ansari, B. A. Rakha, N. Ullah, S. M. H. Andrabi, M. Khalid.** 2010. *In vitro* evaluation of liquid-stored buffalo semen at 5°C diluted in soya lecithin based extender (Bioxcell[®]), tris-citric egg yolk, skim milk and egg yolk-citrate extenders. Reproduction in Domestic Animals, DOI: 10.1111/j.1439-0531.2009.01561.x.
 30. **Akhter, S., B. A. Rakha, M. S. Ansari, S. M. H. Andrabi and N. Ullah.** 2011. Storage of Nili-Ravi buffalo (*Bubalus bubalis*) semen in skim milk extender supplemented with ascorbic acid and α -tocopherol. Pakistan Journal of Zoology, **43**: 273-277.
 31. **Akhter, S., B. A. Rakha, M. S. Ansari.** 2010. Cryopreservation of Sahiwal bull epididymal spermatozoa from slaughtered animal in extender containing different avian egg yolk. Animal Science Papers and Reports. (Accepted).
 32. **Akhter, S., B. A. Rakha, M. S. Ansari, S. M. H. Andrabi, N. Ullah.** 2011. Effect of glucose supplementation in skim milk diluter on motility, plasma membrane and acrosomal integrity of Nili-Ravi buffalo bull spermatozoa stored at 5°C. Pakistan Journal of Zoology, **43**: 291-294.
 33. **Akhter, S., M. S. Ansari, B. A. Rakha, S. M. H. Andrabi M. Anwar and N. Ullah.** 2010. Effect of fructose addition in skim milk extender on the quality of liquid Nili-Ravi buffalo (*Bubalus bubalis*) semen. Pakistan Journal of Zoology, **42**: 227-231.
 34. **Akhter, S., M. S. Ansari, B. A. Rakha.** 2011. Effect of bovine serum albumin on motility, plasmalemma, viability and chromatin integrity of buffalo bull spermatozoa. Romanian Biotechnological letters (Accepted)
 35. **Akram, Z., S. U. Ajmal, G. Shabbir, M. Munir and N.M. Cheema.** 2009. Inheritance mechanism of some yield components in bread wheat. Pakistan Journal of Agriculture Research, **22**: 1-8.

36. **Akram, Z., S. U. Ajmal, K. S. Khan, R. Qureshi and M. Zubair.** Combining ability estimates of some yield and quality related traits in spring wheat (*Triticum aestivum* L.). Pakistan Journal Botany, (Accepted).
37. **Ali, I., and A. Saboor.** 2010. Cross Sectional Trends and Dynamics of Economic Inequality in Pakistan. Pakistan Journal of Agriculture Science, **47**: 303-308.
38. **Ali, I., A. Saboor and Mustafa.** 2010. Relative Poverty Dynamics in Pakistan. Pakistan Journal of Agriculture Science, **47**: 1-8.
39. **Ali, I., A. Saboor and Mustafa.** 2010. Identifying the pathways out of poverty: Evidence of Exit time poverty estimations of Pakistan. Pakistan Journal of Life and Social Sciences **8**:
40. **Ali, I., A. Saboor and Mustafa.** 2010. A profile of Regional Contribution of Rural Poverty in Punjab: Some Hidden Dynamics. Pakistan Journal of Life and Social Sciences **8**: 35-41.
41. **Ali, S., B. A. Rakha, M. S. Ansari, T. Hussain, S. A. Khan and S. Akhter.** 2010. Ecology of blue rock pigeon (*Columba livia*) in urban areas of Rawalpindi/Islamabad. Proceedings of the 30th International Pakistan Congress of Zoology held at University of Agriculture, Faisalabad, 2-3 March, 2010.
42. **Altaf, S., M. Aslam and M. Aslam.** 2010. Bayesian Analysis of the Davidson Model for Paired Comparison with order Effect using Noninformative Priors. Pakistan Journal of Statistics. (Accepted).
43. **Amair, A., S. Ali, K. Bashir and S. Hussain.** 2010. Evaluation of different seed priming techniques in mung bean *Vigna radiata*. Soil Environment, **29**: 181-186.
44. **Amjad, K., H. Javed, Ata ul Mohsin and M. Naeem** 2010. Host plant resistance in mash bean, *Vigna mungo* (L.) against *Callosobruchus analis* under laboratory conditions. (Accepted in Int. Journal for Agro Veterinary and Medical Sciences, Letter Ref. Dated May 21, 2010)
45. **Ansar, M., Z. I. Ahmed, M. A. Malik, M. Nadeem, A. Majid and B. A. Rischkowsky.** 2010. Forage yield and quality potential of winter cereal-vetch mixtures under rainfed conditions. Emirate Journal of Food and Agriculture, **22**: 25-36.
46. **Ansar, M., N. M., Cheema and M. H. Leitch.** 2010. Effect of agronomic practices on the development of *Septoria Leaf Blotch* and its subsequent effect on growth and yield components of wheat. Pakistan Journal of Botany. **43**: 1225-1238.
47. **Ansari, M. S., B. A. Rakha, S. Akhter.** 2010. Effect of L-cysteine in extender on post-thaw quality of Sahiwal bull semen. Animal Science Papers and Reports. (Accepted)

48. **Ansari, M. S., B. A. Rakha, S. M. H. Andrabi and S. Akhter.** 2010. Effect of straw size and thawing time on quality of cryopreserved buffalo (*Bubalus bubalis*) semen. Reproductive Biology. (Accepted)
49. **Ansari, M. S., B. A. Rakha, S. Akhter.** 2011. Effect of butylated hydroxytoluene in extender on motility, plasmalemma and viability of Sahiwal Bull Spermatozoa. Pakistan Journal of Zoology, **43**: 311-314.
50. **Ansari, M. S., B. A. Rakha, S. M. H. Andrabi and S. Akhter.** 2010. Usefulness of powdered and fresh egg yolk for cryopreservation of Zebu bull spermatozoa. Reproductive Biology, **10**: 235-240
51. **Ansari, M. S., B. A. Rakha, N. Ullah, S. M. H. Andrabi, S. Iqbal, M. Khalid and S. Akhter.** 2010. Effect of exogenous glutathione in extender on the freezability of Nili-Ravi buffalo (*Bubalus bubalis*) bull spermatozoa. Animal Science Papers and Reports, **28**: 235-244.
52. **Ansari, M. S., B. A. Rakha, S. M. H. Andrabi, N. Ullah and S. Akhter.** 2010. Cryopreservation of Sahiwal bull epididymal spermatozoa. Pakistan Journal of Zoology, **42**: 241-243.
53. **Ansari, M. S., B. A. Rakha, N. Ullah, S. M. H. Andrabi and S. Akhter.** 2011. Glutathione addition in *tris*-citric egg yolk extender improves the quality of cooled buffalo (*Bubalus bubalis*) bull semen. Pakistan Journal of Zoology, **43**: 46-55.
54. **Ansari, M. S., B. A. Rakha, N. Ullah, S. M. H. Andrabi, M. Khalid, S. Akhter.** 2011. Effect of L-cysteine in *tris*-citric egg yolk extender on post thaw quality of Nili-Ravi buffalo (*Bubalus bubalis*) bull spermatozoa. Pakistan Journal of Zoology, **43**: 41-47.
55. **Anwar, A., M. Ansar, M. Nadeem, G. Ahmad, S. Khan and A. Hussain.** 2010. Performance of nontraditional winter legumes with oat for forage yield and soil health under rainfed conditions. Journal of Agriculture Research, **48**: 171-179.
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