



Annual Report

2013-14

ENDOWMENT FUND SECRETARIAT
UNIVERSITY OF AGRICULTURE, FAISALABAD

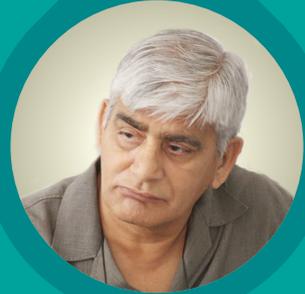


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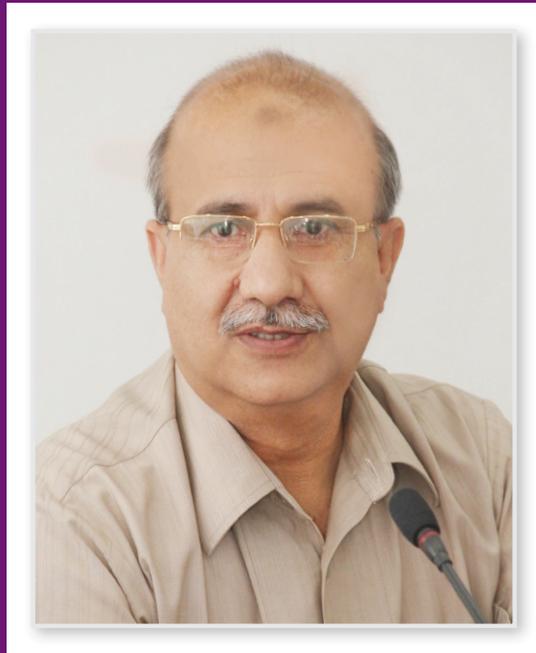
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CONTENTS

Sr.#	Description	Page #
1	INTRODUCTION	6
	FACULTY DEVELOPMENT	
1.1	Short Trainings	9
1.2	Travel Grants for Presenting Paper (abroad).....	9
1.3	Short Visits for Institutional Collaboration.....	10
1.4	Seminars/Conferences/Workshops/Trainings organized at UAF.....	11
1.5	Highlights of Some Events.....	13
1.6	List of Foreign Visitors/Experts Invited.....	22
2	TECHNOLOGY TRANSFER	
2.1	Projects Initiated During 2013-14.....	26
2.2	Projects Completed During 2013-14.....	27
2.3	Ongoing Projects During 2013-14.....	28
2.4	Progress and Achievement from Some of the Projects.....	29
2.5	Outreach Activities During 2013-14.....	36
3	RESEARCH & DEVELOPMENT	
3.1	Establishment of Bio-safety Lab	43
4	PRODUCT COMMERCIALIZATION	
4.1	Exhibition Center	45
4.2	Farm Market	46
4.3	Project.....	46
5	FINANCIAL REPORT	
5.1	Investment of Funds	48
5.2	Estimates for the Financial Year 2013-14.....	48
	ANNUAL EXPENDITURE STATEMENT OF OPERATIONAL BUDGET 2013-2014.....	50

INTRODUCTION

Establishment of Endowment Fund at UAF

Endowment Fund was established with the assistance of USDA with seed money of Rs. 650.00 million. The Syndicate under Section 25(2)(i) of the University of Agriculture Faisalabad Act, 1973 approved to establish Endowment Fund at UAF. The major objectives were:

- a. To support UAF Programmes for advanced training in biotechnology, agricultural sciences research, technology transfer and product commercialization.
- b. To strengthen faculty and support R&D activities of UAF.
- c. To support similar Programmes with other institutions of higher learning, private sector, not-for profit organizations, and domestic and international organizations.
- d. To encourage increased cooperation among scientists conducting agriculture-related research at universities in Pakistan and the United States of America.

Management of the Fund

The Board of Directors (BoD) is the governing body of this Fund and is responsible for Fund's program, its financial and managerial policies. Following is the composition of Board:

- | | |
|---|-------------|
| • Vice Chancellor, UAF (Chairman) | Ex-off |
| • Vice Chancellor, Agriculture University Peshawar, KPK | Ex-off |
| • USDA Agri. Attache in Pakistan or his nominee | Ex-off |
| • Agri. Specialist, USDA, US Embassy in Pakistan | Ex-off |
| • Eminent Scientists (Two) | For 3-years |
| • Progressive Farmer (One) | For 3-years |
| • Executive Director, ALP (PARC), Islamabad | Ex-off |
| • Registrar, UAF | Ex-off |
| • Treasurer, UAF | EX-off |
| • Executive Director, EFS/Secretary | Ex-off |



Endowment Fund Secretariat

Endowment Fund Secretariat is responsible for the operation of the Fund which consists mainly of the selection, processing, approval, monitoring, evaluation and coordination of projects supported in whole or in part by it. All the activities are planned, approved and coordinated through Endowment Fund Secretariat (EFS) under the supervision of Executive Director.



Section

7

**FACULTY
DEVELOPMENT**

Faculty Development Component of the Endowment Fund provides opportunity to the faculty members for enhancing their skills. This improves the interaction with the international community and exposure to the developed systems for better learning of the faculty. Various opportunities under this component include travel grants for short training, for presenting papers in conferences/seminars, specialized short visits and financial support for organizing seminars/conferences/workshops at UAF. Proposals under faculty development are evaluated/rationalized by faculty development committee. Presently, the faculty development committee consists of the following:

- | | | |
|--------------------------------|--|----------|
| 1. Prof. Dr. Muhammad Younas | Department of Livestock Management, UAF | Convener |
| 2. Prof. Dr. Asif Ali | Director, ORIC, UAF | Member |
| 3. Prof. Dr. Muhammad Iqbal | Faculty of Agri. Engineering & Technology, UAF | Member |
| 4. Prof. Dr. Ghulam Muhammad | Department of Clinical Medicine & Surgery, UAF | Member |
| 5. Prof. Dr. Amer Jamil | Department of Chemistry & Biochemistry, UAF | Member |
| 6. Prof. Dr. M. Jafar Jaskani | Institute of Horticultural Sciences, UAF | Member |
| 7. Prof. Dr. Zahir Ahmad Zahir | Executive Director, EFS, UAF | Member |

Endowment Fund Secretariat spent Rs. 7.090 million for Faculty Development during 2013-14. Following is the brief of achievements during the year 2013-14:

- | | |
|--|----|
| 1. Short Trainings (abroad) | 06 |
| 2. Travel grants for presenting papers (abroad) | 04 |
| 3. Short Visits for institutional collaboration | 07 |
| 4. Seminars/Workshops/Conferences organized at UAF | 26 |

1.1 Short Trainings

The following applicants were granted assistance (Rs. 2.010 million) for training during the year 2013-14:

Sr. #	Name /address	Title/Host Institute	Duration
1.	Dr. Adul Nasir Department of Structures & Environmental Engineering, UAF.	ASEAN Science and Technology Park (Development Zone) Beijing GREATWALL Enterprise Institution, China	August 30-September 13, 2013
2.	Dr. Imran-ul-Haq Department of Plant Pathology, UAF.	ASEAN Science and Technology Park (Development Zone) Beijing GREATWALL Enterprise Institution, China	August 30-September 13, 2013
3.	Dr. Ahsan Iqbal CABB, UAF	Use of Microsatellites (including RFLP and CAPS Markers) to study Introgression in Hybrid Zones, Using next Generation Sequencing to Generate Whole Chloroplast Phylogenies. Institute of Molecular Plant Sciences, University of Edinburgh, UK	September-November, 2013
4.	Dr. Haroon Zaman Khan, Department of Agronomy, UAF.	Business Startup of Rural Technical Task Force (TTF) Beijing, China	October 10-25, 2013
5.	Dr. Bilal Saeed Khan Department of Entomology, UAF	Soil Acarology. The Ohio State University, Columbus, Ohio, USA	June 09-27, 2014
6.	Prof. Dr. Muhammad Jafar Jaskani Institute of Horticultural Sciences, UAF	High Quality Fruit Production Techniques in Efficient and Safe Way Research Institute of Pomology, Chinese Academy of Agricultural Sciences, China	June 25-July 10, 2014

1.2 Travel Grants for Presenting Papers (abroad)

Endowment Fund Secretariat encourages faculty members to have international exposure by presenting their research findings at various international seminars, conferences, workshops, etc. In this regard, a total of Rs. 1.913 million were spent on following travel grants provided to faculty members for presenting papers at international events:

Sr. #	Name /Department	Title	Country
1.	Prof. Dr. M. Sajjad Khan Department of Animal Breeding & Genetics, UAF	Individual and Maternal Heterosis in Performance Traits of Holstein and Jersey Crosses with Sahiwal Cattle. Paper presented in ADSA-ASAS Joint Annual Meeting. July 08-12, 2013	USA
2.	Dr. Mubashir Mehdi Institute of Business Management & Sciences, UAF	The Effectiveness of a Whole of Chain Approach in Rural Industry Development in Developing Countries: A Case of Pakistan Mango Industry. Paper presented in the International Agribusiness Marketing Conference 2013 (IAMC 2013). October 22-23, 2013	Malaysia
3.	Dr. Tehseen Azhar Department of Plant Breeding & Genetics, UAF	Exploitation of Resistance Gene Analogs Encoding NBS-LRR Domains in Wide Hybridization of Cotton. Paper presented in the International Plant Breeding Congress. November 10-14, 2013	Turkey
4.	Dr. M. Asif Hanif Department of Chemistry & Biochemistry, UAF	Extraction, Isolation and Characterization of Bioactive Compounds of Medicago sativa Growing in the Desert of Oman. Paper presented in 5th International Congress on Medicinal and Aromatic Plants (CIPAM). March 17-20, 2014	Tunisia

1.3 Short Visits for Institutional Collaboration

Travel grants for short visits abroad are provided for strengthening international collaboration and signing of MoUs etc. Following faculty members/board member were awarded grants under short visits program:

Sr. #	Name /Department	Purpose of Visit	Country
1.	Miss. Fatima Mustafa Department of Agri-Entomology, UAF	Oral Presentation: Potential for Applications to the Old World Screwworm. November 09-13, 2013. Collaborative Project: Visit to University of Nebraska Lincoln, Department of Entomology for drafting a new project on the Old World Screwworm to be worked on by UAF, the USDA-ARS and the Insect Genetics Laboratory at the University of Nebraska. November 14-19, 2013	USA
2.	Prof. Dr. Iqrar Ahmad Khan Vice Chancellor, UAF	To attend Alumni Meet, College of Agriculture, Punjab Agricultural University, Ludhiana. December 23-25, 2013	India
3.	Prof. Dr. M. Javed Faculty of Sciences, UAF	To participate in the ABARES Outlook 2014 Conference at Canberra. March 01-11, 2014	Australia
4.	Prof. Dr. M. Jalal Arif Department of Entomology, UAF	To participate in the ABARES Outlook 2014 Conference at Canberra. March 01-11, 2014	Australia
5.	Mr. Afaq Ahamd Tiwana Member of BoD, EFS, UAF & CEO, Farmers Associates of Pakistan, Lahore	To Participate in the ABARES Outlook 2014 Conference at Canberra. March 01-11, 2014	Australia

Sr. #	Name /Department	Purpose of Title	Country
6.	Dr. Farooq Ahamd Department of Entomology, UAF	To attend the World Tent Pegging Championship invited by President of Oman Equestrian Federation. March 29-April 05, 2014	Sultanate of Oman
7.	Prof. Dr. Ahrar Khan Quality Enhancement Cell, UAF	4 th QS-MAPLE Conference and Exhibition 2014. May 6-8, 2014	UAE: Abu Dhabi

1.4 Seminars/Conferences/Workshops/Trainings Organized at UAF

Endowment Fund provides financial support to UAF faculty members to organize seminars/conferences/workshops/trainings at the campus. During the year 2013-14, EFS sponsored following events and spent Rs. 3.166 million for this purpose:

Sr.#	Organizer	Title of Seminars/Workshops/Conferences
1.	Dr. Sagheer Ata College of Agriculture, D.G. Khan	First National meeting on Huanglongbing (Citrus Disease) September/October, 2013
2.	Dr. Tahir Saddiqui Department of Forestry, Range Management & Wildlife, UAF	Seminar on Prospects of Bamboo Cultivation as Future Wood. September 18, 2013
3.	Dr. Anjum Munir Department of Farm Machinery & Power, UAF	International Conference on Renewable Energy Technologies in Pakistan. October 01-03, 2013
4.	Prof. Dr. Shahzad Maqsood Ahmad Basra, Department of Crop Physiology, UAF	International Seed Technology Training Workshop. October 3-4, 2013
5.	Prof. Dr. Abdul Wahid, Department of Botany, UAF	National Seminar on Allelopathy Research in Pakistan: Experiences and Prospects. November 13, 2013
6.	Mrs. Naveed Farah Department of Rural Sociology, UAF	Seminar on Empower Rural Women-End hunger & Poverty Celebrating International Rural Women's Day. November 24, 2013
7.	Prof. Dr. Jalal Arif Department of Entomology, UAF	Seminars: <ul style="list-style-type: none"> • Problems, Prospective and Scope of IPM and Bio-Intensive Pest Control Program in Fruits and Vegetables. • Integrated Pest Management of Fruits and Vegetables in Collaboration with University of Florida. November 25-30, 2013
8.	Dr. Rehana Qureshi Department of Social Sciences & Humanities, UAF	Seminar on Women Emancipation. January 23, 2014
9.	Dr. Nausheen Syed Institute of Business Management & Sciences, UAF	Training Workshop on High Impact Train the Trainer (HITT). January 23-25, 2014
10.	Prof. Dr. Javaid Akhtar Institute of Soil & Environmental Sciences, UAF	Training Workshop on Remote Sensing for Monitoring Agricultural Crops and Assessing Soil Salinity. February, 2014
11.	Prof. Dr. M. Asghar Department of Chemistry & Biochemistry, UAF	International Conference of Biochemical and Chemical Sciences (ICBCS-2014). February 24-26, 2014
Sr.#	Organizer	Title of Seminars/Workshops/Conferences

12.	Dr. M. Iftikhar Institute of Agri. Extension & Rural Development, UAF	International Conference on Emerging Horizons of Agricultural Extension for Sustainable Rural Development. February 27-28, 2014
13.	Dr. Farah Raiz Institute of Rural Home Economics, UAF	Workshop on Lead to Success. March 7-8, 2014
14.	Dr. Rehana Qureshi Department of Social Sciences & Humanities, UAF	Workshop on Women Empowerment & Feminism. March 9-13, 2014
15.	Dr. Nausheen Syed Institute of Business Management & Sciences, UAF	Workshop on Leadership Development and Capacity Building March 15-30, 2014
16.	Prof. Dr. Ahrar Khan Quality Enhancement Cell, UAF	Training workshop on Self-Assessment Report (SAR). March 24, 2014
17.	Prof. Dr. Muhammad Arshad Faculty of Agriculture, UAF	Conference on Prospects, Challenges and Strategies to Maximize Sugarcane Production. April 08, 2014
18.	Dr. Mian Kaman Sharif National Institute of Food Science & Technology, UAF	Workshop on Human Nutrition & Dietetics Curriculum Review. April 09, 2014
19.	Prof. Dr. Muhammad Ashfaq Institute of Agri. & Resource Economics, UAF	Seminar on Choice Experiment on Irrigation Water Supply. April 16, 2014
20.	Prof. Dr. Javaid Akhtar Institute of Soil & Environmental Sciences, UAF	Seminar on World Earth Day Celebrations April 22, 2014
21.	Dr. Muhammad Aslam Department of Plant Breeding & Genetics, UAF	International Conference on Recent Trends in Maize Production. May 03, 2014
22.	Prof. Dr. Tahir Zahoor National Institute of Food Science & Technology, UAF	<ul style="list-style-type: none"> • International Conference on Nutritional Therapies against Lifestyle related Disorders • Food Product Development Competition with Special reference to Therapeutic Foods. May 29-30, 2014
23.	Dr. Abdul Nasir Department of Structures & Environmental Engineering, UAF	Workshop on Drinking Water Quality Issues in Pakistan: Present Scenario-Remedies and Management Practices in the wake of World Environment Day Celebration. June 05, 2014
24.	Dr. M. Anwar-ul-Haq Institute of Soil & Environmental Sciences, UAF	World Environment Day Celebration. June 05, 2014
25.	Prof. Dr. Shahzad Maqsood Ahmad Basra Department of Crop Physiology, UAF	Workshop on Capacity Building in Seed Technology. June 7, 2014
26.	Prof. Dr. Muhammad Younas Department of Livestock Management, UAF	Workshop on World Camel Day. June 21, 2014

HIGHLIGHTS OF SOME EVENTS

International workshop on Seed Physiology, Production and Management

The workshop was organized on October 03-04, 2013. The objectives of the workshop were to provide a platform for capacity building of the seed industry people, public-private seed industry partnership, and establishment of Pakistan Seed Academy for professionals and seed industry people for future research prospects, build up strong linkage and trade policy about seed sector of the country. The event was very successful with participation from all private and public sectors across the country. Participants were from private seed companies, multinational seed industries, public sectors (universities, FSC & RD, AARI). The trainers were the leading seed scientists of the world (Prof. Dr Norbert Leist and Mr. Johan Van Asbrouck, Managing Director, Rhino Research Group). Comprehensive discussion was held about the current situation and future needs of the seed industry of Pakistan. A platform was established for seed sector of the country.

There was an opportunity for international interaction of faculty, post graduate students and private and public seed sector with leading seed scientists of the world. The private and public seed sector was convinced by the research, activities and potential of seed physiology lab, UAF.



National Seminar on Allelopathy Research in Pakistan: Experiences and Prospects

The seminar was organized on November 13, 2013. The objective of the seminar was to overview the challenges, review the recent developments and devise the strategies for improvement in productivity and efficiency of cropping systems through allelopathy. Awareness was created amongst the faculty and students about the science of allelopathy. The on-going work on allelopathy was reviewed and researchable issues in the field of allelopathy, after a threadbare discussion, were identified. The constitution of Pakistan Allelopathy Society was approved.



Seminar on “Empower Rural Women-End Hunger & Poverty” at the Eve of International Rural Women’s Day

The seminar was organized on November 24, 2013. The objective of the seminar was to give honor to rural women through acknowledgement of their role in agriculture and rural development. Awareness was created regarding new agricultural techniques, food storage, seed preservation to enhance food security and their knowledge was enhanced about the credit services to ensure the access. About 135 female farmers got knowledge about tunnel farming, backyard poultry, domestic livestock management and credit facilities. They showed their keen interest to raise their farm production and young females were eager to know how they can use their land, farming experience and their education to increase their food production. They asked many questions from the chief guest and the agricultural credit officer of ZTBL.

Seminars:

1. **Problems, perspective and scope of IPM and Bio-Intensive Pest Control Program in Fruits & Vegetable.**
2. **Vegetables Integrated Pest Management of Fruits and Vegetables.**

The seminars were organized on November, 25-30, 2013 by the Department of Entomology in collaboration with the University of Florida, USA. The objective of the activity aimed on the exchange of knowledge and ideas and partnership among the universities. Pakistan will benefit from this partnership between University of Agriculture, Faisalabad and the University of Florida. The collaborative efforts have been initiated to address entomological problems facing fruit and vegetable systems in both countries. In addition, the collaboration will facilitate exchange of personnel including graduate students between both countries. Pakistan will also benefit from the experience and expertise of American scientists who will be able to perceive and address agricultural problems from a different perspective and make specific recommendations. Finally, they will benefit from the financial resources that are available to American scientists.

Most of all, The MOU between the University of Agriculture Faisalabad and the University of Florida has been initiated with certain objectives and on basic terms and conditions including exchange scholar program and research collaborations. Furthermore, the two research projects with the joint efforts of the scientists from both universities have been designed keeping in view the certain issues of fruits and vegetables.



Short Training Course on Remote Sensing for Monitoring Agricultural Crops and Assessing Soil Salinity

This training workshop was organized on February, 3-15, 2014. This short training course delivered the theoretical background and practical hand-on knowledge of recent advances in satellite remote sensing and opportunities of this unique technology in the field of agriculture, especially use of hyperspectral remote sensing data. The proposed training immersed the participants in an interactive environment where they acquired fundamental understanding of various remote sensing tools and techniques for land and water resources monitoring and agricultural crops assessment. This workshop was focused on training of participants for capacity building in remote sensing in soil salinity appraisal and other soil and water resources assessment and management as well as evaluation tool for major degradation processes in soils, alongside soil

erosion, salinity, drought and soil water balance as well as climatic change and crop production assessment.



International Conference on Emerging Horizons of Agricultural Extension for Sustainable Rural Development

The Conference was organized on February 27-28, 2014. The significance of conference was that various national and international stakeholders from various public and private organizations participated. This event proved more beneficial for the students as they were able to listen the experiences of various organizations under one umbrella. This conference contributed in making image of country positive as all the international participants felt safe here and found Pakistan a peaceful country. International participants belonging to well reputed universities showed their interest for future collaboration for the sake of development. Experts ensured their cooperation in strengthening agricultural extension advisory services for the development of rural people. Event developed a strong linkage between private and public organizations working for the rural development. All the stakeholder showed their interest to implement projects in rural areas to increase agricultural production and poverty reduction. Some agencies showed their interest to invest in the form of projects in future by visualizing the current situation of the country concentrating on the major issues for Agri. development and combating the mounting issues in Pakistan like food insecurity, malnutrition and poverty. Students/youth are the building blocks of nation and this conference opened opportunities for the students to prove themselves and get prestigious employment. International experts promised to try their level best to arrange scholarships and sandwich degree program. Private organizations offered open invitation of jobs for students in future. Agricultural extension is prime link between research and farmers. This conference proved the importance of extension and pointed the need of interdisciplinary research. Various experts from other agricultural fields also showed their interest to work in collaboration with extension.



Workshop on “Lead to Success”

The Workshop was organized on March 7-8, 2014. The objectives of the workshop were to empower university females, to give them new insights in a way which is useful to women, to make females aware of leadership traits within them for which they are unaware, to impart leadership skills in females, and to enhance women participation in decision making. The participant females learnt the leadership skills. These skills help females in playing roles effectively and efficiently at university and in their personal lives as well.



Training/Workshop on the “Self-Assessment Reports (SARs)”

The training/workshop was organized on March 24, 2014 by QEC. The objective of the Training/workshop was capacity building of the Faculty and training of the Program Teams (PT's) of the Departments/Institutes to develop/prepare SARs of their respective degree programs. After workshop, all PTs got awareness about writing of Self-Assessment Reports, especially standard maintaining criteria and identifying the current/existing problems alongwith suggestions for taking corrective actions.

Conference on Prospects, Challenges and Strategies to Maximize Sugarcane Production

The Conference was organized on April 08, 2014. The Objective of the conference was to explore the issues faced by the sugarcane growers and millers. A one-day conference was arranged including lectures and discussion sessions on breeding/ varietal development/Biotechnology, production technology, protection technology and farm machinery and mechanization. Scientists from University of Agriculture, Faisalabad and Ayub Agri. Research Institute, Faisalabad cordially exchanged their views and field experiences on sugarcane issues. Measures were collectively discussed amongst the participant scientists to enhance productivity of sugarcane crop and to develop allied technologies in this respect. The participants from farming community of sugarcane were introduced about latest sugarcane growing techniques, diseases, insect attacks and other related crop losses.



Workshop on “Human Nutrition & Dietetics” Curriculum Review

A workshop was organized on April 09, 2014 to identify deficiencies in the existing curriculum of B.Sc. (Hons.) Human Nutrition & Dietetics and to highlight the possible weak linkages among the stakeholders through interaction (students and the teaching staff). This event provided an opportunity for interaction of the resource person with the Faculty members involved in the teaching of B.Sc. (Hons.) Human Nutrition & Dietetics as well as with students enrolled in the said degree program followed by visit of the laboratories and facilities of the Institute. Prof. Dr. Masood Sadiq Butt, Director General, NIFSAT, gave briefing about the degree program to the Guest Speaker Dr. Nawazish A. Khan. According to Dr. Khan, the curricula of the degree program leading to B.Sc. (Hons.) Human Nutrition & Dietetics is one of the best degree programs offered worldwide in this domain. As this degree is being offered by an Agricultural University so the students have the additional benefits related to food production, handling and processing with maximum retention of nutrients in the food stuff. Furthermore, discussing the concerns of students, as pointed out during his interaction with students, he emphasized for counselling of the students regarding misconceptions about the degree program among the students and suggested authorities to establish fully equipped Dietetics Clinic at the campus to further strengthen the practical aspects of the degree and transferring the benefits of Human Nutrition & Dietetics to the masses. At the end, he delivered comprehensive lecture on Overview of Clinical Nutrition, in which he highlighted the scope and application of dietetics in daily life.



Seminar on World Earth Day Celebrations

The seminar was organized on April 22, 2014 to give awareness to scientists, workers and the general public about sources/causes of radiation and possible safety measures and to create awareness among students about "Earth Day" and the need for keeping the environment clean through an Inter University Poster competition on World Earth Day: Save, Care and Share. Overall, the event was a success. Participants gained better understanding of the causes and sources of radiation from specific and everyday sources and awareness of environmental issues related to radiation and safety strategies. A large number of hand-made posters were received from students of various Universities in Faisalabad. The posters were evaluated and top three position holders were awarded cash prizes, shields and certificates.



Workshop on "Drinking Water Quality Issues in Pakistan; Present Scenario – Remedies & Management Practices"

In connection with the World Environment Day 2014, a workshop was organized on June 05, 2014.

During the workshop drinking water quality issues were discussed along with the remedies and possible technical approaches to deal with adverse situation in this regard. The event provided opportunity to get introduced to so highly educated experts of environment and profound repute which would help in further extending research cooperation and support in different upcoming projects related to environment and more specifically drinking water quality monitoring. In addition, collaboration with Pakistan Engineering Council helped the registered engineers to score one CPD point by which they obtained status of professional engineers as part of essential requirement by PEC.

International Conference on “Nutritional Therapies Against Lifestyle Related Disorders” and “Food Product Development Competition with Special Reference to Therapeutic Foods”

These events were organized on May 29-30, 2014, to create awareness among the participants regarding recent developments and trends in the field of food science and nutrition with special reference to therapeutic nutrition, to highlight the novel approaches in nutritional therapies against various physiological health disorders, to highlight Worldwide trends in food fortification and supplementation of staple and processed food designing, to develop and promote therapeutic modification of Pakistani diets for various health disorders, and to develop linkages and strengthen collaboration with international teaching and research institution/organizations in the human nutrition. The event was held efficiently and contributed significantly to achieve the objectives.



Workshop on Capacity Building in Seed Technology

A capacity building workshop in seed technology was organized on June 07, 2014. The Objective of the workshop was to train the people related to seed sector in Pakistan and share an updated knowledge about seed technology among students, professionals, faculty, and seed industry people. The participants were equipped with the lectures on seed registration and certification, plant breeder' right, seed amendment bill, phytosanitary measures for seed import and germplasm conservation and storage. A platform "Pakistan Seed Academy" was established to facilitate public-private partnership in seed sector of the country. Many collaborative research projects were proposed. International interaction of faculty, post graduate students and private and public seed sector was discussed



Workshop on World Camel Day

The World Camel Day was celebrated by the Department of Livestock Management with the collaboration of Camel Association of Pakistan (CAP) on June 21, 2014. Dr. Ilse Kohler-Rollefson from League for Pastoral Peoples and Indigenous Livestock Development, Sadri, India was the guest of Honor. She made a presentation on Camel Culture in India and the products they have made from camel skin and camel feces. Dr. Ilse further emphasized to create the awareness of camel fiber as it is soft. It may have

good market and the biopaper (desert paper) could be produced from the camel feces. Dr. Nabeel Irshad from CBRs, Rakh Mahni highlighted the facilities and scope of camel research at their Farm. The Farmer representation was made by Syed Noor Zaman Shah from Rakh Mahni. He said that they keep camels not only for their profession but it is also passion and "Sunnah of the Holy Prophet" to keep and raise animals especially camel, which was a gift to desert dwellers the "Bedouins".



1.5. List of Foreign Visitors/Experts Invited

Visit of foreign scholars is of utmost importance for faculty development as more people are benefited than the visit abroad of one individual. Foreign experts invited in training workshops/seminars/conferences are sponsored partially/fully as per requirement. Following foreigner scientists were invited during 2013-14:

Sr.#	Name of Visitors	Date	Event
1.	Prof. Dr. Olivr Hensel DAAD Project Coordinator, University of Kassel, Germany	October 01-03,2013	International Conference on Renewable Energy Technologies in Pakistan. Organized by Department of Farm Machinery & Power, UAF
2.	Mr. Wolfgang Scheffler Director, Simply Solar/Solar Burecke, Germany		
3.	Mr. Christian Schellert Department of Agricultural Engineering, University of Kassel, Germany		
4.	Prof. Dr. Rainer Kertess CEO, STCS Ag, Switzerland		
5.	Prof. Dr. Hubert Leitner CEO, Leitner Solar Ag, Italy		
6.	Ms. Heike Hoedt Vice President, Simply Solar, Germany		
7.	Prof. Dr. Anton Josef Hotz CAE Ag Solar and Wind, Germany		
8.	Mr. Daniele Marrazzi Deputy CEO, Leitner Solar Ag, Italy		
9.	Dr. Akhtar Abbas Australia		
10.	M. T. Afzal Director of Graduate Studies, University of New Brunswick		
11.	Waseem Amjad DAAD Scholar, University of Kassel, Germany		
12.	Mr. Johan Van Asbrouck Managing Director, Rhino Research Group, Thailand	October 03-04, 2013	International Seed Technology Training Workshop Seed Physiology, Production and Management Organized by Department of Crop Physiology, UAF
13.	Prof. Dr. Norbert Leist Past President, ISTA, Germany		
14.	Dr. Oscar Liburd University of Florida, USA	November 25-30, 2013	Seminar: <ul style="list-style-type: none"> Problems, Perspective and Scope of IPM and Bio-Intensive Pest Control Program in Fruits and Vegetables. Integrated pest Management of Fruits and Vegetables in Collaboration with University of Florida. Organized by Department of Entomology, UAF

Sr.#	Name of Visitors	Date	Event
15.	Dr. Mahrukh Saeed Khan University of Auckland, NZ	January 23, 2014	Seminar on Women Emancipation. Organized by Department of Social Sciences & Humanities, UAF.
16.	Dr. Khurram Sharif Department of Management & Marketing College of Business & Economics, University of Qatar.	January 23-25, 2014	Training Workshop High Impact Train the Trainer (HITT). Organized by Institute of Business Management Sci, UAF.
17.	Dr. Waqar Ahmad, Principal Research Scientist & Research Leader, Spatial Informatics, Centre for Environment and Life Sciences, Australia	February 1-15 2014	Training Workshop on Remote Sensing for Monitoring Agricultural Crops and Assessing Soil Salinity Organized by Institute of Soil & Environmental Sciences, UAF.
18.	Prof. Martin A. Hubbe North Carolina State University, USA	February 24-26, 2014	International Conference of Biochemical and Chemical Sciences ICBCS-2014 Organized by Department of Chemistry & Biochemistry, UAF
19.	Dr. Leslie Hicks The University of North Carolina at Chapel Hill, USA		
20.	Dr. Gunter Grampp University of Erlagen, Germany		
21.	Dr. Shirley Randell, Managing Director, SRI Public Sector Reform (Australia)	February 27-28, 2014	International Conference on Emerging Horizons of Agricultural Extension for Sustainable Rural Development. Organized by Institute of Agricultural Extension and Rural Development, University of Agriculture, Faisalabad
22.	Dr. Qijie Gao, China Agriculture University Beijing, China		
23.	Dr. Alex Koutsouris, Dept. of Agri. Economics & Rural Development, Agricultural University of Athens, Greece		
24.	Dr. Mbeyale, Sokoine University of Agriculture, Tanzania		
25.	Dr. Yu Lerong Li Xiaoyun China Agricultural University, Beijing, China		
26.	Miss Shahraj Parveen, Jai Narayan Vyas. University Jodhpur, Raj. India		

Sr.#	Name of Visitors	Date	Event
27.	Marjon Fredix Food & Agriculture Organization (FAO) of United Nations	February 27-28, 2014	International Conference on Emerging Horizons of Agricultural Extension for Sustainable Rural Development. Organized by Institute of Agricultural Extension and Rural Development, University of Agriculture, Faisalabad
28.	Grant Vinning, Food & Agriculture Organization (FAO) of United Nations		
29.	Dr. Mahrukh Saeed Khan, University of Aukland, NZ	March 7-8, 2014	Workshop on Lead to Success Organized by Institute of Rural Home Economics, UAF.
30.	Dr. Mahrukh Saeed Khan University of Aukland, NZ	March 9-13, 2014	Workshop on Women Empowerment & Feminism Organized by Department of Social Sciences & Humanities, UAF.
31.	Dr. Nawazish A. Khan Loma Linda University Medical Center, Loma Linda, CA, USA	April 04, 2014	Workshop on HND Curriculum Review Workshop Organized by National Institute of Food Science & Technology, UAF
32.	Ahmed H, Ei-Ghorab Flavour and Aromatic Department, National Research Center, Dokki, Cairo, Egypt	May 29-30, 2014	<ul style="list-style-type: none"> • International Conference on Nutritional Therapies against Lifestyle related Disorders • Food Product Development Competition with Special reference to Therapeutic Foods. Organized by National Institute of Food Science & Technology, UAF
33.	Dr. Amanat Ali Department of Food Science and Nutrition, College of Agricultural and Marine Sciences, Sultan Qaboos University, Muscat, Oman		
34.	Prof. Dr. Ishtiaq Mahmud Department of Biochemistry and Molecular Biology, University of Dhaka, Bangladesh		
35.	Dr. Isae Kohler-Rollefson Livestock development, Sadri India	June 21, 2014	Workshop on World Camel Day Organized by Department of Livestock Management, UAF

Section

2

**TECHNOLOGY
TRANSFER**

Endowment Fund Secretariat accepts proposals for technology transfer from all public entities which demonstrate needed research and development capabilities and financial responsibilities. The project proposals are processed in accordance with the procedures approved by the BoD as under:

- Invitation of proposals in the National Press.
- Initial evaluation by Endowment Fund Secretariat.
- Review of proposals by two national referees (Nominated by the Chairman BoD/Vice Chancellor)
- Submission of projects to TAC along with recommendations of referees for evaluation.
- Rationalization of the recommended projects by the Committee constituted by the Chairman BoD.
- The rationalized projects are submitted to the BoD for final approval and allocation of budget.
- Implementation Agreement between the executor/PI and UAF

The portfolio under this component consists of outreach projects, demonstration on campus, organizing Farmers' Fairs/Exhibitions and Horse & Cattle Show. Activities under Faculty Outreach Program are also funded under this component.

2.1 Projects Initiated During 2013-14

Sr.#	Title of the Project	Name of the PI	Duration
1.	Dissemination of Seed Production Technology of Important Vegetable Crops	Dr. Khurram Ziaf Institute of Horticultural Sciences	3 Years
2.	Dissemination of Seed Production Technology of Alfalfa	Mr. Qamar Shakil Fodder Research Sub-Station, AARI, Faisalabad	3 Years
3.	Demonstration and Control of Mango Mealy Bug (<i>Drosicha stebbingi</i> Green) at the University of Agriculture Faisalabad Using Funnel Type Slippery Trap (an innovative technology)	Prof. Dr. Rashid A. Khan Department of Forestry, Range Management and Wildlife, UAF	3 Years
4.	Transfer of Animal Health Related Technologies to Farmers by Involving DVM Students	Prof. Dr. Ghulam Muhammad Department of Clinical Medicine and Surgery, UAF	1 Year
5.	Demonstration of Hydroponic Model for Vegetable Production under Shade House	Prof. Dr. Rai Naiz Ahmad Vice Chancellor, PMAS-Arid Agriculture University, Rawalpindi	1 Year
6.	Construction of Bag Type Biogas Plant at University of Agriculture, Faisalabad	Prof. Dr. Muhammad Iqbal Faculty of Agricultural Engineering and Technology, UAF	1 Year
7.	Establishment of Date Palm Germplasm Unit	Mr. Summar Abbas Naqvi Institute of Horticultural Sciences, UAF	3 Years
8.	Rain Water Harvesting for Groundwater Recharge	Prof. Dr. Allah Bakhsh Department of Irrigation and Drainage, UAF	1 Year
9.	Technology Transfer to Citrus Growers in Relation to Changing Cultivars in Existing Citrus Orchards through Top Working	Dr. Muhammad Jafar Jaskani Institute of Horticultural Sciences, UAF	3 Years
10.	Water Economics of Growing Basmati, Hybrid and Coarse Rice in Punjab, Pakistan	Prof. Dr. Muhammad Ashfaq Institute of Agriculture and Resource Economics, UAF	1 Year

11.	Improvement of Beetal Goats and Indigenous Chicken through Availability of Superior Sires	Prof. Dr. M. Sajjad Khan Department of Animal Breeding and Genetics, UAF	2 Years
12.	Direct Seeding of Rice, New Option in Rice-Wheat Cropping System in Central Punjab	Dr. Nadeem Akbar Department of Agronomy, UAF	2 Years

2.2 Projects Completed During 2013-14

Sr.#	Title of the Project	Name of the PI	Duration
1.	Synthesis of Available Fertilizer Trials Data for Site-Specific Recommendations and Diagnostic Survey for Low Adoption of Fertilizer Use Technology	Dr. Muhammad Rashid Ex-DG, AARI/Subject Specialist, Institute of Soil & Environmental Sciences, UAF	2 Years
2.	Epidemiology and Control of Foot & Mouth Disease in Punjab	Dr. Muhammad Arshad Institute of Microbiology, UAF	2 Years
3.	Demonstration of Fogging and Spraying at the UAF Campus for the Control of Mosquitoes	Prof. Dr. Anjum Suhail Department of Entomology, UAF	1 Year
4.	Installation of Automatic Weather Data Recording System for Demonstration Purposes	Prof. Dr. Rashid Ahmad Department of Crop Physiology, UAF.	6 months
5.	Development, Fabrication, Installation and Operation of Biogas Plant at UAF	Prof. Dr. Rai Niaz Ahmad Faculty of Agricultural Engineering & Technology, UAF	1 Year
6.	Demonstration of Production Technology of Quinoa (<i>Chenopodium quinoa</i> Wild.) as a New Climate Proof Grain Crop	Prof. Dr. Shahzad Maqsood Ahmed Basra Department of Crop Physiology, UAF	3 Years
7.	Strengthening Informal Seed Supply System at Two Locations in Potohar Trough Participatory Technology Transfer	Dr. Abdul Razzaq PMAS-Arid Agriculture University Rawalpindi	2 Years
8.	Rhizobacterial Formulations Application Technology for the Control of Major Pathogenic Root Infecting Fungi in Chickpea for Sustainable Crop Production	Dr. Muhammad Inam-ul-Haq PMAS-Arid Agriculture University, Rawalpindi	2 Years
9.	Technology Transfer to Potato Growers in Relation to Pathogen Free Seed Potato, Management of Diseases and Adoption of Improved Agrotechniques	Dr. Ishfaq Ahmad Hafiz PMAS-Arid Agriculture University, Rawalpindi	2 Years
10.	Improving Degraded Soil and Low Quality of Water Using Farm Wastes and their Use for Crop Farming	Dr. Ghulam Murtaza Institute of Soil & Environmental Sciences, UAF	3 Years
11.	Improving Degraded Soil and Low Quality of Water Using Farm Waste and their Use for Vegetable Farming (Vegetable Tunnel Farming)	Prof. Dr. M. Aslam Pervez Institute of Horticultural Sciences, UAF	3 Years
12.	Drip Irrigation System for Fruit Orchards and Row Crops for Research and Demonstration Purpose	Prof. Dr. Allah Bakhsh Water Management Research Center, UAF	3 Years
13.	Demonstration and Training of Integrated Pest Management Techniques for the Control of Fruit Flies at Farm Field Level	Dr. Muhammad Ahsan Khan Department of Entomology, UAF	1 Year

14.	Causes of Low Grain Productivity in Pakistan: Policy Opinions for Sustainable Growth	Mr. Asghar Ali Institute of Agricultural and Resource Economics, UAF	1 Year
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2.3 Ongoing Projects During 2013-14

Sr.#	Title of the Project	Name of the PI	Duration
1.	Facilitation of the Demonstration of Different Technologies under UAF-Technology Park Projects at Postgraduate Agricultural Research Station (PARS), University of Agriculture, Faisalabad	Mr. Amir Saeed Rana Superintendent PARS, UAF	5 Years
2.	Technology Transfer through Cyber Extension: Helping Communities to Help Themselves	Dr. Babar Shahbaz Department of Agriculture Extension, UAF.	3 Years
3.	Creating Knowledge-Based Society through Agricultural Technology Transfer via FM Radio	Prof. Dr. Tanvir Ali Institute of Agriculture Extension & Rural Development, UAF	2 Years
4.	Establishment of Integrated Farming Facility for Crops/vegetables, Fish and Livestock at Proka Farms of University of Agriculture, Faisalabad	Executive Director EFS, UAF (Coordinator)	3 Years
5.	Establishment of Fish Farming Facility in Integration with Poultry/Crop Farming at Proka Farms University of Agriculture, Faisalabad	Prof. Dr. Muhammad Javed Department of Zoology & Fisheries, UAF	3 Years
6.	Establishment of Poultry Farming Facility in Integration with Fish/Crop Farming at Proka Farms University of Agriculture, Faisalabad.	Prof. Dr. Ahsan-ul-Haq Department of Poultry Science, UAF	3 Years
7.	Introducing Farmers with UAF-11: A Brassica Oilseed Elite Line of the University of Agriculture, Faisalabad	Prof. Dr. Hafeez Ahmad Sadaqat Department of Plant Breeding & Genetics, UAF	3 Years
8.	Integrated Control of Drug Resistant/Susceptible Worms of Goat by Targeted Selective Treatments Using FAMACHA	Dr. Zai Ud Din Sindhu Department of Parasitology, UAF	3 Years
9.	Establishment of Mushroom Cultivation Unit for Demonstration and Growth Trials of Wild and Exotic Mushrooms	Prof. Dr. Muhammad Asif Ali Institute of Horticultural Sciences, UAF	3 Years
10.	Improving Farmers' Profitability and Human Nutrition through Popularization of Carrots	Prof. Dr. Muhammad Amjad Institute of Horticultural Sciences, UAF	3 Years
11.	Demonstration of Resources Utilization Efficiency for Citrus and Mango Plants under Drip Irrigation at PARS	Dr. Saeed Ahmad Institute of Horticultural Sciences, UAF	3 Years
12.	Spring and Winter Flower Exhibition/ Demonstration for Transfer of Technology at UAF	Dr. Atif Riaz Institute of Horticultural Sciences, UAF	3 Years
13.	Demonstration/Dissemination of Promising Ber Cultivars in Marginal Land in Distt. Faisalabad (Punjab)	Dr. Saeed Ahmad Institute of Horticultural Sciences, UAF	3 Years
14.	Quantification of Agro-Forestry Services and Increment in Agro-Forestry Area in Distt. Khushab through Participatory Approach	Dr. M. Farrakh Nawaz Department of Forestry, Range Management and Wildlife, UAF.	3 Years
15.	Establishment of Crop, Seed and Weed Museum	Dr. Hassan Munir Department of Crop Physiology, UAF	3 Years
16.	Demonstration of Technology of Silymarin Extraction from Milk Thistle	Prof. Dr. Khalil-ur-Rehman Department of Chemistry & Biochemistry, UAF	3 Years

PROGRESS AND ACHIEVEMENTS FROM SOME OF THE PROJECTS

Synthesis of available Fertilizer Trials Data for Site-Specific Recommendations and Diagnostic Survey for Low Adoption of Fertilizer use Technology

Nitrogen and phosphorus are two major nutrients which have become deficient in almost all the soils. No doubt, the deficiency of zinc, boron and potassium is also prevalent in most of the areas but the use of N & P is more than 95% among all fertilizers. Unfortunately, N & P use is highly imbalanced. It has been estimated that by using N & P in balanced ratio for wheat, rice, cotton, maize and sugarcane on 50 % area in Punjab, we can add Rs. 300 billion.

Soil Fertility of every field is variable; the requirement of nutrients, therefore, will vary. The general fertilizer recommendations will not, therefore, meet the site specific requirement. To determine the N and P requirement for desired yield of crops, fertilizer prediction models have been developed and uploaded on the website: www.fertilizeruaf.pk. Through these models, every farmer can determine the requirement of N and P for every field by selecting his district and crop. He has to enter organic matter and available phosphorus as indicated in the laboratory report and desired yield then press "predict". N and P requirement will be displayed in kgs. for one acre. The calculations in bags are also available. The management factors, list of varieties and production plan are also available for the complete guidance of the user. The fertilizer prediction models for wheat, rice, cotton, maize sugarcane, potato, tomato, carrot, cabbage, garlic and sunflower are available on the web.

Epidemiology and Control of Foot and Mouth Disease in Punjab

Foot and Mouth Disease (FMD, Mun Khur) is one of the most important diseases in the country including Punjab causing very high economic losses. Total 15 villages were selected from district Faisalabad for technology transfer activities. All the farmers of these villages were registered and provided awareness about the disease and its control through farmer meetings/gatherings, farmer days and printed material.

Level of disease was also measured in buffaloes, cattle, sheep and goats population of Punjab. For this purpose three districts Chakwal (Northern Punjab), Faisalabad (Central Punjab) and Khanewal (Southern Punjab) were selected. Blood samples of 7150 animals including buffaloes (1625), cattle (1625), sheep (1950) and goats (1950) were tested for the presence of disease. In case of buffaloes, level (Prevalence) of the disease was highest in Faisalabad (20.32%) followed by Khanewal (16.20%) and Chakwal (6.60%). In case of cattle, it was 39.84%, 20.40% and 15.20% in the districts of Faisalabad, Khanewal and Chakwal, respectively.

It was very interesting to find that large proportion of sheep and goats population in Punjab is also affected with FMD. The sheep and goats are not vaccinated against FMD in Pakistan. Therefore, sheep and goats may play very significant role in spread of disease to buffaloes and cattle. It was found that level of disease in sheep was highest in Khanewal (31.50%) followed by districts of Faisalabad (20.13%) and Chakwal (5.17%). Same pattern was observed in case of goats. It was 32.17%, 22.00% and 5.50 % in goat population of Khanewal, Faisalabad and Chakwal, respectively.

Disease can be controlled if buffaloes, cattle, sheep and goats are vaccinated regularly against the disease using proper vaccine.

Demonstration of Fogging and Spraying at the UAF Main Campus for the Control of Mosquitoes

This was a need based project for the welfare of the residents of the UAF campus. In this project, the Department of Entomology/students were engaged to monitor the mosquitoes' population. They were trained by capacity building lectures and guidance and mosquitoes' larvae and adults were collected from Ovi-traps which were placed in different areas at the UAF campus. This was not a research project but an assignment given to the Department on the basis of research experience and to work for the community welfare.



Installation of Automatic Weather Data Recording System for Demonstration Purposes

University of Agriculture, Faisalabad has established an Agricultural Meteorological Cell with the objective to record and provide meteorological data to the University students, faculty, researchers and industry in the region. For this purpose, a Meteorological Observatory has been established. This Observatory has been upgraded recently by installing an automatic weather data recording system. Now all meteorological data is recorded automatically and is made available on the University Website. The main clients of weather data are University students, researchers and the Industry in the area. The facility developed is also open for educational and demonstration purposes. The upgraded facility of weather data recording system has been intensively tested and is now fully operational.

Strengthening Informal Seed Supply System at two Locations in Pothwar through Participatory Technology Transfer

Twenty farmers were selected at Gujar Khan and 20 at Mulhal Mughlan, Chakwal for seed technology transfer. Interviews of the farmers revealed that only few farmers used the seed produced at their own land while the others used the seed purchased from other big farmers or bought it from the open market. They were not satisfied with the availability of good quality seed. One of the main reasons for low yield, as told by the farmers, was use of poor quality seed in addition to low probability of rainfall during growing season. Several farmers never bothered which crop variety they sow. Therefore, farmers showed their interest to acquire skills for production of good and healthy seed. They promised to participate in all activities aiming at training of the farmers for good seed production. Project Team ensured the farmers for their regular guidance/supervision during growing and care of the crop for seed production. The farmers were also told about the different agro practices for successful and quality wheat seed production.

During farmers' meetings (held at both locations) team members told the farmers about the importance of producing and using good healthy seed. They showed their interest to be seed producing farmer under the supervision of project team. The selected farmers were advised to sow at least one plot as a seed plot to be supervised by the project team. Skill imparting programs and participatory technology transfer activities were conducted simultaneously at both locations for production of quality wheat seed. Consequently farmers produced seed of different wheat cultivars under supervision of project team. Seed produced by the farmers was tested for minimum standards set by FSC&RD and the seed qualifying the minimum standard was approved for storage till next sowing season. Next step was to establish Kisan Seed Bank for storage of seed produced by the farmers at both locations. Farmers' associations at both locations cooperated for this purpose. First Kisan Seed bank was inaugurated at Nara Mughlan (Tehsil Chakwal). Necessary training to the farmers is being imparted for seed care in storage. Final testing for analytical purity, varietal purity, germination percentage and viability will be tested. Seed found within the permissible limits as describe by FCS&RD will be packed in 50 kg bags with printed logos of the university and the respective association. This seed will be named as Farm Seed and could be traded in the farming community at both locations on "No Profit No Loss" basis.



Rhizobacterial Formulations Application Technology for the Control of Major Pathogenic Root Infecting Fungi in Chickpea for Sustainable Crop Production

Root infecting fungi are posing a serious threat to modern agriculture due to the intensive and multiple cropping systems. They attack roots of various plants, limit nutrient uptake of plant and destroy the roots system of the victim plant, which often results in death of plants. Chickpea is the main crop of Potohar region of Pakistan affected by number of root infecting pathogens and causing huge yield losses. For the control of soil-borne pathogens, uses of chemical pesticides are a routine practice. Since pesticides are costly and cause environmental hazards and biocontrol with fungal antagonists have shown little success, use of beneficial bacteria in the control of soil borne pathogen offers an alternate method of control.

Surveys and meeting with farmers were conducted in these areas to give famers the concepts of the diseases of chickpea plants especially root infecting pathogenic fungi. The purpose of this awareness is that they should know the difference between healthy and diseased plants. The concept of rhizobacteria and their application in the form of formulation was demonstrated.

First of all the demonstration and training was given to the farmers for identification of the crop disease problems, for this purpose temporary identification facilities were arranged at their own fields. Then the farmers were introduced to the rhizobacteria and its formulation preparation and application methods. For this purpose necessary temporary arrangements were made at the field and this was explained by group discussion and performed practically which helped the farmers to understand in most appropriate way. Various farmer fields were visited in Attock, Hassan Abdal, Fatehjang, Pindighep and Hazro where these activities were performed because these are the major chickpea growing areas.

Realizing the importance of the issue and in order to resolve these problems practical manual is being developed in Urdu for the chick pea growers. This brochure will be having practical information related to production technology including land preparation, cultural practices, seed rate, developing and maintaining disease free seed of chick pea, pest, and disease management. This emphasizes to correct the faulty practices which impede the high and qualitative yield.





Technology Transfer to Potato Growers in Relation to Pathogen Free Seed Potato, Management of Diseases and Adoption of Improved Agro Techniques

Potato is the most important crop of the world. It has great socio-economic importance the world wide. This crop also has capability to give more production in limited time. It is very easy to grow and can be successfully grown from sea level to nine thousand feet height. It is considered as king of vegetables in Pakistan because area under cultivation of this crop is more as compared to other vegetables crops. It ranks third among field crops after wheat and rice.

Potato is a good source of carbohydrates, vitamins, minerals and proteins. Moreover, the main advantage is that it is very low in fats. If we compare the increasing population with their increasing demand of food then it may be concluded that situation will become worse and it will be difficult to cope with the situation, so present scenario of potato potential in Pakistan and its contribution to fulfill the dietary requirements, is opening a new aspect to fulfill the future food demands of increasing population.

Potato is short duration and high yielding crop. In Pakistan three potato crops are raised. Instead of having great potential still the main and serious problem is of low yield due to fungal and viral diseases which are the most devastating throughout the country and responsible for great economic losses. Therefore, this project is designed to provide disease free seed potato and to disseminate improved cultural practices to the growers and farmers. The objectives are being met by evaluating the potato production systems of the selected areas. Surveys were done to know the problems of the farmers of the selected areas of the Pothohar regions. After knowing the constraints of the regions, growers are trained according to their relevant impediments, so that they can improve their yield and fulfill the future demand of the country.

Demonstration and Training of Integrated Pest Management Techniques for the Control of Fruit Flies at Farm Field Level

Guava is an important fruit of Pakistan. The fruit is very delicious in taste with high nutritional value, and low price. The fruit is a rich source of citric acid, minerals and vitamins particularly vitamin C. Guava has five times more vitamin C than oranges. In folk medicine, extracts of roots, bark and leaves are used to treat several diseases. The production of fruit can be less due to insect pest attack which reduces its production up to 90-100%. Insects include mealy bugs, mites, stink bug, red-banded thrips, guava moth, white fly, bark-eating caterpillar, scale insects and fruit fly. Fruit flies are the major pest of most of the fruit crops and a great threat to the world horticulture industry because of their greatest economic impacts in fruit production. Most of the fruit flies are causing both direct damage and indirect damage to horticultural fruits and vegetables because of quarantine restrictions in export markets and has become an important quarantine insect pest because of their severe damage, high fecundity rate and wide host range. Fruit flies damage fruits by puncturing and laying eggs under the soft skin in both mature and green fruits. The eggs hatch and larvae feed inside the fruit causing the fruits to rot resulting in unmarketable fruits. Farmers use only insecticides for control of fruit flies, which are toxic to both human and environment. Insecticides have a residual effect on fruit which are dangerous for humans. The project team helped to control fruit flies with different methods, like cultural control, pheromone traps, bait application and chemical control etc. These methods control the flies in immature and mature stages. These methods have less toxic effect for humans and also farmers which used them.



Drip Irrigation System for Fruit Orchards and Row Crops for Research and Demonstration Purpose.

The project entitled "Drip Irrigation System for fruit Orchard and Row crops for Research and demonstration Purpose" was under taken. Initially the site survey was done for designing and installation of drip system on 25 acres cotton site PARS, 14 acres, sq 9 and sq 32 at UAF. Samples for soil analysis were taken and a laboratory study was conducted and it was found that the soil was sandy loam and 8 lph emitter (bubbler) was selected according to the infiltration rate of soil type.

There were two types of water; one from tube wells and 2nd was canal water available for irrigation during the project. Chemical analysis of tube well water and canal water were made and was found that water was fit for irrigation.

By using site survey information, soil sampling report, water analysis report and climatic data, Water management Research Centre (WMRC) UAF designed the drip irrigation system and site was divided into five equal zones.



Causes of Low Grain Productivity in Pakistan: Policy Options for Sustainable Growth

The present study estimated Total Factor Productivity (TFP) growth of major grain crops (wheat and rice) in Pakistan, using Tornqvist-Theil index number approach for the period 1970-2011. Output and input quantity data of major grain crops (wheat and rice) along with their prices were utilized in constructing output quantity index and input quantity index, respectively. The average annual TFP growth rate of major grain crops (wheat and rice) was estimated to be 1.25 percent for the study period. The main objective of the study was to investigate the impact of different macro variables on total factor productivity growth of major grain crops in Pakistan. Thus TFP index of major grain crops (wheat and rice) estimated in first stage analysis was used as a dependent variable in second stage analysis. Cointegration technique was applied to

find the relationship between macro variables and TFP of major grain crops. ADF- test was applied on data series of different macro variable and TFP index of major grain crops to check the unit root. The long-run relationship between TFP index and the macro variables, integrated of I(1) was examined by the Johansen's method. The coefficients of primary school enrolment, road length, credit disbursement to major grain crops (wheat and rice) as percent of agricultural GDP, agricultural expenditure and improved seed distribution were found significant and positive in the long-run and non-significant in the short-run except agricultural expenditure which was also significant in short-run. The inflation had significant negative effect on TFP of major grain crops (wheat and rice). The variable of sum of grains exports and imports was positively associated with productivity growth of major grain crops. Over all, the results showed that policies which promote human capital, equitable credit resources distribution for major grain crops (wheat and rice), improve infrastructural development, openness of agricultural economy, ensure macroeconomic stability and improved seed distribution with equitable distribution; would lead to improve productivity growth of major grain crops (wheat and rice) in Pakistan.

2.4 Outreach Activities During 2013-14

The University Outreach Program initiated as a project during 2010-11 was converted into a Program with recurring budget under Technology Transfer Component. Under this program, faculty members submit a proposal for an activity ranging from one day to one week. Under outreach program, proposals may cover hands-on trainings, demonstrations, farmers gatherings, exhibitions and lectures/seminars for the awareness/sensitization of the community. A committee consisting of the following members evaluates and rationalizes the proposals for recommendation to the chairman BoD for final approval:

- | | | |
|---------------------------------|------------------------------------|----------|
| 1. Prof. Dr. Ashfaq Ahmad Maann | Department of Rural Sociology, UAF | Convener |
| 2. Prof. Dr. Zahir Ahmad Zahir | Executive Director, EFS, UAF | Member |

These programs have received enormous response and have been highly admired. The outreach activities conducted during the year 2013-14 are as under:



Name & Department

Prof. Dr. Muhammad Ashfaq
Institute of Agriculture & Resource
Economics, UAF

Title

Collection & Analysis of the Flour
Samples from "SASTA Bazars" in Punjab
for Quality Assessment
July 20-23, 2013

Location

Deferent cities in the Punjab



Name & Department

Prof. Dr. Muhammad Jalal Arif
Department of Entomology, UAF

Title

Dengue Campaign-2013
September, 2013

Location

University of Agriculture, Faisalabad



Name & Department

Dr. Abdul Naveed
ORIC, UAF

Title

Vice Chancellors Forum, 2013
September 23-24, 2013

Location

Serena Hotel, Islamabad

Name & Department

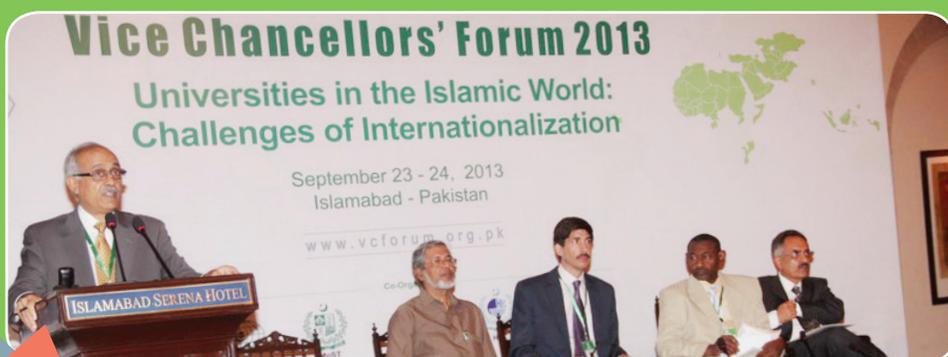
Dr. Abdul Hanan
Department of Plant Pathology, UAF

Title

Integrated Disease Management of
Vegetables Under Tunnel
October & November, 2013

Location

Chak No. 36 JB, Thekrewala, Faisalabad





Name & Department

Dr. Sajid Mahmood Nadeem
UAF Sub-Campus Burewala, Vehari

Title

Enhancing Wheat Production with
Modern Technology
November 20, 2013

Location

Sub-Campus Burewala, Vehari

Name & Department

Prof. Dr. Asif Ali
ORIC, UAF

Title

UAF/FAP Collaborative Outreach for
Agro-security in Pakistan

Location

Okara, Khanewal, Sadiq Abad



Name & Department

Mr. Farooq Hassan
Research Officer, BIC. UAF

Title

Agriculture Expo/Kisan Mela 2013
December 29-31, 2013

Location

Expo Center, Johar Town, Lahore



Name & Department

Prof. Dr. Aman Ullah Malik
Institute of Horticultural Sciences, UAF

Title

Field Survey for Kinnow Quality: Issues and
Strategies for Improvement
December 30 - January 05, 2014

Location

Bhalwal, Sargodha, T. T. Singh and Khanewal



Name & Department

Dr. Farooq Ahmad
Estate Management, UAF

Title

International Tent Pegging Champions
Trophy & National Horse Show
February 16-22, 2014

Location

University of Agriculture, Faisalabad





Name & Department

Dr. Saira Akhtar
Department of Rural Sociology, UAF

Title

Lecture on Population Growth and its
Impact on Society

February 20, 2014

Location

University of Agriculture, Faisalabad



Name & Department

Dr. Abdul Naveed
ORIC, UAF

Title

Dawn Sarsab Pakistan Agri Expo
and Conference 2014

March 13-14, 2014

Location

Expo Center Johar Town, Lahore

Name & Department

Mr. Farooq Hassan
Research Officer, BIC, UAF

Title

Two Days Invention To Innovation
Summit 2014

March, 19-20, 2014

Location

University of the Punjab, Lahore



Name & Department

Dr. Abdul Naveed
ORIC, UAF

Title

Pak-China Business Forum 2014
March, 21-24

Location

COMSAT Inst. of Information
Technology, Islamabad.



Name & Department

Mr. Farooq Hassan
Research Officer, BIC, UAF

Title

Lahore International Tourism
Expo (LITE-2014)

April, 19-20, 2014

Location

Expo Center Johar Town Lahore

Name & Department

Miss Naveed Farah
Department of Rural Sociology, UAF

Title

Colors of Pakistan
May 28-30, 2014

Location

Exhibition Center, UAF



Name & Department

Dr. Izhar Ahmad Khan Department of Rural Sociology, UAF

Title

Lecture on Rural Woman - Key to Food & Nutrition Security
May, 29, 2014

May, 29, 2014

Location

Iqbal Auditorium, UAF





Name & Department

Endowment Fund Secretariat

Title

Agri. Expo, 2014

May 28-30, 2014

Location

Exhibition Center, UAF



Name & Department

Mr. Farooq Hassan

Research Officer, BIC, UAF

Title

The News Education Expo 2014

June 1, 2014

Location

Royalton Hotel, Faisalabad



Name & Department

Mr. Farooq Hassan

Research Officer, BIC, UAF

Title

The News Education Expo 2014

June 16-17, 2014

Location

Pearl Continental Hotel, Lahore

section

3

**RESEARCH &
DEVELOPMENT**

3.1 Establishment of Bio-safety Lab

The Board approved to establish Bio Safety Lab. (BSL-3) in UAF at total estimated cost of Rs. 33.749 million, by pooling the funds from the allocation under R&D Component, EFS and the grant funds (cash prize) received under IDB Science & Technology Award-2012. Due to very sensitive nature of the work a committee was constituted to give technical input and finalize the architectural/engineering design of BSL-3 as per International standard and to oversee the construction of BSL-3 and its operations to seek International Certification. The committee is as under:

1. Dr. Saiyed I. Ahmed HEC Foreign Professor, Institute of Microbiology, UAF	Convener
2. Prof. Dr. Iftikhar Hussain Director, Institute of Microbiology, UAF (Rep. of Dean, Faculty of Veterinary Sciences, UAF)	Member
3. Prof. Dr. Zahir A. Zahir Institute of Soil & Environment Sciences, UAF (Rep. of Dean, Faculty of Agriculture, UAF)	Member
4. Prof. Dr. Amer Jamil Department of Chemistry & Biochemistry, UAF	Member
5. Mr. Shoaib-ur-Rehman Executive Engineer (ECD), UAF	Member
6. Mr. Muhammad Ilyas Assistant Executive Engineer, EFS	Member
7. Prof. Dr. Tahir Zahoor Executive Director, EFS	Member/Secretary

The committee opted the following members for Technical & Administrative support.

1. Dr. Muhammad Imran Arshad, Institute of Microbiology, UAF
2. Mr. Sajid Ali, Lecturer, Endowment Fund, UAF

The committee in its various meetings proposed alterations/amendments/additions at each stage. The committee evaluated the HVAC consultants and recommended to the competent authority for final selection. Prof. Dr. Saiyed I. Ahmad contacted international sources online for meeting the international standards and obligations. The committee members visited National Institute of Health, Islamabad, Veterinary Research Institute, Lahore, Shoukat Khanim Memorial Hospital, Lahore and Jinnah Hospital, Lahore to see the Bio Safety Labs. facilities and their working. Keeping in view the need of the Level-3 Laboratory, the committee designed the orientation of the rooms, dust proof and rust proof material, double glazing provision, separate toilet block for females at each floor, devised flow of working, specified area for BSL-3, proposed proper space for equipment, Biosafety cabinets and laboratory accessories, preparation rooms, changes rooms and emergency exit, provided eye washes emergency showers at suitable places, provision of CCTV cameras, fire extinguisher, bio metric system, and composites sinks with accessories. Best quality utensil/earthenware in washrooms have been fixed. One training room and one ramp for special person has also been provided.

After receiving HVAC installation plan/design tender will be floated for HVAC system in the BSL-3.



Section 4

**PRODUCT
COMMERCIALIZATION**



Commercialization is to convert ideas, research, or prototypes into viable products that retain the desired functionality. Commercialization also involves formulating the manufacturing and supply chain strategies, devising plans, and implementing such plans. For commercialization of cutting edge products and technologies, concept papers are invited from scientists working in the public sector agricultural organizations.

4.1 Exhibition Center

Establishment of Exhibition Center is a milestone of EFS, which was started at Main Campus UAF in December, 2011. This is meant for display/demonstration of developed and tested innovative and cost effective technologies to attract the stakeholders of agricultural industry in the country. The themes of exhibitions will generally be pertinent to educational, economic, social or technological developments. The centre will act as incubator of scientific knowledge. The exhibits will serve as excellent material for complementing science teaching.

The Exhibition Center has been completed and is ready for its operation. The Board in its meeting held on 21.05.2014 allowed for construction of parking area to facilitate the visitors during the event which is almost complete. One event under the name of Pakistan Agri. Expo-2014 was conducted on May 28-30, 2014.



4.2 Farm Market

Four sheds of Farm Market/Sasta Bazar have been constructed and made operational. Director Farms is running the facility. Income will be shared by Endowment Fund and University.



4.3 Project

Under Product Commercialization, one project "Development and Fabrication of Biomass Compactor Machine as Source for Producing Bio Fuel Energy" was executed by Dr. Abdul Nasir, Department of Structures and Environmental Engineering, UAF from 01.07.2013 to 30.06.2014. The brief of the project is as under:

With the evolution of civilization, man has experienced variety of sources of energy production including coal, oil, wood, petroleum and nuclear power. Presently due to severity of environment issues and energy scarcity, promotion of renewable energy resources has become need of the hour. There could be a number of energy resources but among all, biomass is supposed to be the most sustainable and viable resource. Low bulk density of biomass is the major demerit of its utilization. It is difficult to store, handle and transport in loose form so an indigenous machine was designed, fabricated and tested to densify the selected biomass materials such as cotton stalks, maize straw, rice straw and sawdust. The machine was designed for a capacity of 200 kg/hr with briquette diameter of 50 mm. After fabrication, machine was tested at different ranges of temperature and compression ratios. It was observed that machine performed excellent results at 300 °C with moisture contents and particle size of 10 percent and 3 mm, respectively. After testing of machine statistical analysis of briquettes was done and moisture contents, compression ratio and particles size were taken as independent variables and durability, density, compression ratio and calorific value were taken as dependent variables. Four biomass materials were selected including sawdust, cotton stalks, maize straw and rice straw. The results showed that the maximum density, durability and compression ratio was attained at moisture contents 12 %, compression ratio 1:10 and particle size 3 mm. The effect of compression ratio was highly non-significant as compared to effect of moisture and particle size. Durability, density and compression ratio was highest as 94%, 1005 kg/m³ and 9.6 MPa, respectively, in case of sawdust and lowest as 65%, 980 kg/m³ and 5.5 MPa in case of rice straw. Economic analysis has also been done for briquetting technology which indicated that the total cost for adaptation of this technology is 0.4 million Pakistani rupees and payback period was 4 months.



Section

5

**FINANCIAL
REPORT**

5.1 Investment of Funds

The principal amount of Rs. 650.0 million was invested during 2006-07, which has increased to 790.0 million during the year 2013-2014 as a result of yearly addition @ 15% of the profit on investments to the principal amount to counter the impact of inflation/devaluation of rupee.

Financial Year	Investment	Income
2006-07	650.000	40.607
2007-08	680.000	55.267
2008-09	710.000	82.18
2009-10	726.000	103.072
2010-11	743.000	112.73
2011-12	760.000	113.45
2012-13	777.000	109.571
2013-14	790.000	88.784

5.2 Estimates for the Financial Year 2013-14

Expenditure

The Expenditure for the year, 2013-2014 originally was estimated at Rs. 175.385 million for the five components. However, the expenditure remained at Rs. 168.015 million at the closing of financial year 2013-2014.

Income

The Income from investment out of Endowment Fund was originally estimated at Rs. 94.306 million during the year 2013-2014. However, the income from investment was Rs. 88.784 million. The saving from the allocation of the financial year 2012-13 was Rs. 95.079 million. Thus, the total resources available for allocations for the year, 2013-14 were estimated at Rs. 175.385 million.

Allocation/Expenditure

The Budget Estimates and Revised Estimates for the financial year, 2013-14 are shown in Table-II and Allocation/Expenditure are in shown in Table III

Table-II Revised Estimates for the financial year 2013-14

Allocation/Expenditure	Budget Estimates 2013-2014	Revised Estimates 2013-2014
Opening Balance for 2013-2014	95.079	91.017
Income from Investment 2013-2014	94.306	88.784
Other Receipts*	-	10.825
Total	189.385	190.625
Transfer to Principal Amount 15% of the Income	14.000	13.000
Expenditure against Components	175.385	168.015
Closing Balance (Unspent)	-	9.611

*It includes

- Rs. 6.825 million from UAF as share contribution for the construction of BSL-III UAF.
- Income from projects.
- Saving from closed projects.
- Rental income from Exhibition Center.

Table-III Component wise Allocation/Expenditure during the year 2013-14 (Rs. in million)

Name of components	Allocation	Expenditure
Faculty Development	9.500	8.090
Technology Transfer	30.000	27.837
Product Commercialization	105.000	104.764
Research & Development	25.000	21.720
Operational Cost	5.885	5.604
Total:	175.385	168.015

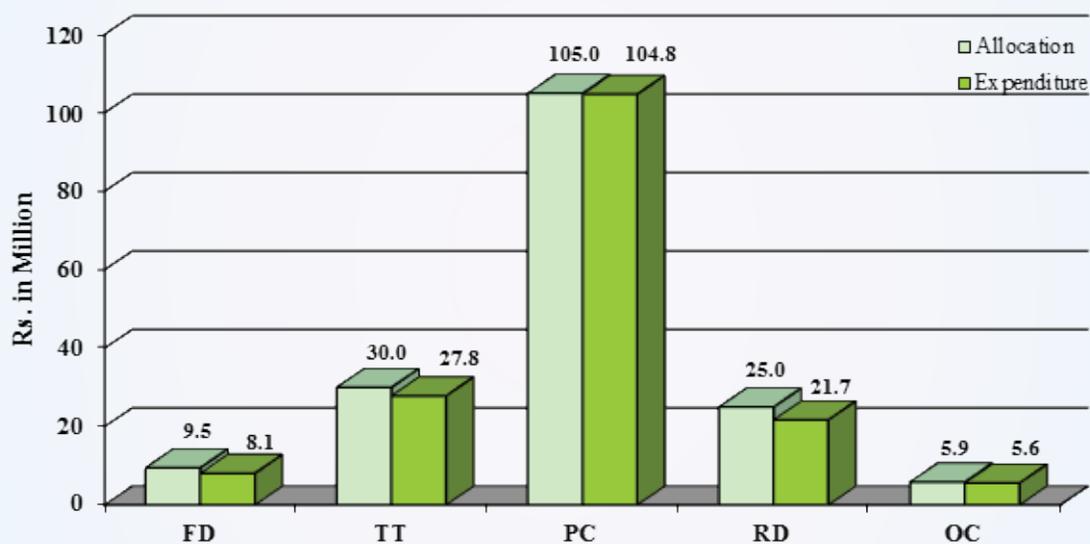


Figure 2: Component Wise Allocation & Expenditure

**ANNUAL EXPENDITURE STATEMENT OF
OPERATIONAL BUDGET 2013-2014 (Rs.)**

Code	Head	Expenditure (2013-2014)
A 01273	Honorarium/Remuneration	1,532,840
A 03201	Postage and Courier etc.	12,455
A 3202	Telephone and Trunk Calls , E-mail/Internet	71,456
A 03702	Management (Contractual Services)	61,750
A 03805	Traveling Allowance	121,653
A 03807	POL Charges	1,003,798
A 03901	Stationary	100,240
A 03902	Printing and Publication etc.	162,847
A 03903	Seminar/Workshops	Nil
A 03940	Hire of Vehicles	NIL
A 03905	News papers, periodicals and Books	7,155
A 03907	Advertising & Publication	133,794
A 03940	Unforeseen	124,237
A 6301	Entertainment Charges & Gifts	164,855
A 09203	Purchase of IT Equipment	366,999
A 09501	Purchase of Transport	Nil
A 09601	Purchase of Plant & Machinery	264,143
A 09701	Purchase of Furniture & Fixture etc.	208,269
A 13001	Repair of Transport	456,436
A 13101	Repair of Plant & Machinery	39,839
A 13201	Repair of Furniture & Fixture	8,925
A 13301	Repair and Maintenance of Office Building	746,474
A 13703	Repair of IT Equipment	16,017
A 12470	Other – Civil Works	Nil
Grand Total		5,604,182

