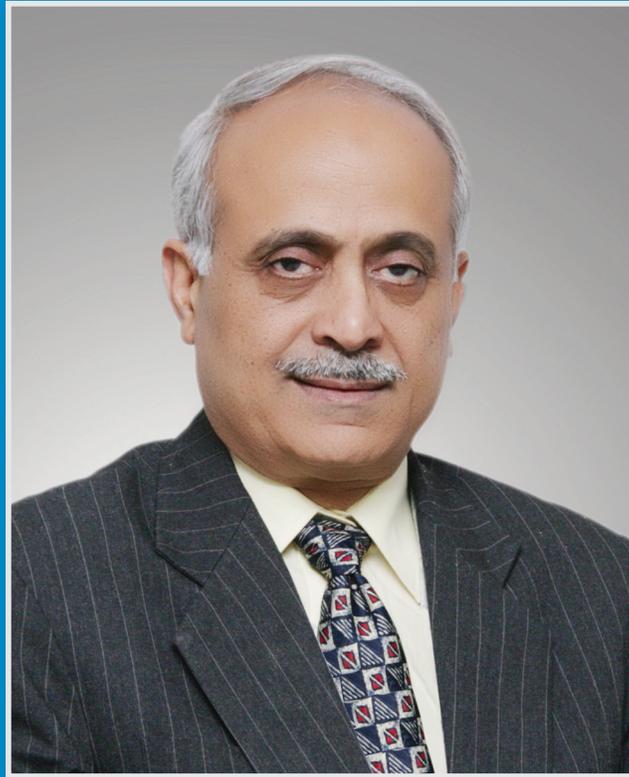




A N N U A L  
**REPORT**  
*2012-13*

**ENDOWMENT FUND SECRETARIAT  
UNIVERSITY OF AGRICULTURE, FAISALABAD**



Prof. Dr. Iqrar Ahmad Khan (*Sitara-i-Imtiaz*)  
Chairman BoD / Vice Chancellor



**Prof. Dr. Tahir Zahoor**  
Executive Director



**Dr. Naeem Mahmood**  
Additional Director /  
Associate Professor



**Mr. Amir Saeed Rana**  
Deputy Director /  
Assistant Professor



**Mr. Sajid Ali**  
Lecturer



**Mr. Ejaz Hussain**  
Accounts Officer

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## Introduction

### Establishment of Endowment Fund at UAF

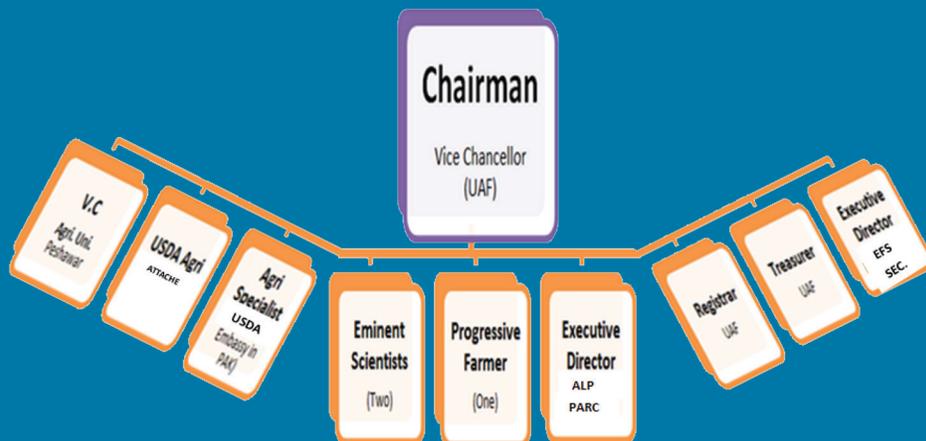
Endowment Fund was established with the assistance of USDA with seed money of Rs. 650.00 million. Endowment Fund was established at UAF with the major objectives as under:

- To support UAF Programmes for advanced training in biotechnology, agricultural sciences research, technology transfer and product commercialization.
- Strengthening of faculty and support R&D activities of UAF.
- To support similar Programmes with other institutions of higher learning, private sector, not-for profit organizations, and domestic and international organizations.
- 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 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.



## Evaluation of the Proposals:

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 detailed 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 EFS.
- Issuance of Administrative approval of the projects.





# FACULTY DEVELOPMENT



## Overview of the Component

The focus of the activities under Faculty Development Component is to provide opportunity to the faculty members for enhancing their skills. Better interaction with the international community and exposure to the developed systems are the outcomes of this program. Under Faculty Development, EFS offers travel grants for short training, for presenting papers in conferences/seminars, specialized short visits and financial support for organizing seminars/conferences/workshops at UAF.

Following is the brief of achievements during the year 2012-13:

1. Short Training (Abroad)	04
2. Short Training (Inland)	01
3. Travel Grants for Presenting Papers (Abroad)	13
4. Short Visit for Institutional Collaboration	04
5. Seminars/Workshops/Conference organized at UAF	16

### 1.1 Short Trainings

The following faculty members were granted assistance for training during the year 2012-13:

Sr.#	Name/address	Title/Host Institute	Duration
<b>a. Abroad</b>			
1.	Prof. Dr. M. Aslam Pervez Institute of Horticulture Sciences, UAF	Agri-Business Management. Host institute: Asian Institute of Technology, Thailand	November 5-16, 2012
2.	Dr. Zia Ahmad Chatha Department of Farm Machinery & Power, UAF	New Technologies of Agricultural Products Processing for Developing Countries. Host Institute: Chinese Academy of Agricultural Mechanization in Science (CAAMS), China	April 05-24, 2013
3.	Miss Sadaf Shakoor Institute of Rural Home Economics UAF	International Training Workshop on Safety Evaluation and Quality Control of Food, Health Care Products and Pharmaceuticals. Host Institute: School of Bioscience and Bioengineering, South China	June 23 - July 12, 2013
4.	Dr. Muhammad Iqbal Institute of Soil & Environmental Sciences, UAF	4 <sup>th</sup> International Course on Sustainable Management of Soil and Water Resources. Host Institute: International Agricultural Research and Training Center (IARTC), Izmir Turkey	June 24 - July 05, 2013

### b. Inland

1.	Prof. Dr. Tahir Zahoor National Institute of Food Science & Technology, UAF	Security Management System for the Supply Chain. Host Institute: Royal Palm Golf & Country Club, Lahore	October 25-26, 2012
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### 1.2 Travel Grants for Presenting Paper (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, following travel grants were provided to faculty members to present papers at international events:

Sr.#	Name of Grantee	Title of Paper//Host Institute	Country Visited
1.	Prof. Dr. M. Sarwar Institute of Animal Nutrition and Feed Technology, UAF	Effects of Feeding Different Levels of Dietary Protein with or without Probiotics or Ionospheres on Performance of Growing Kids. Paper presented in the 2nd International Seminar on Animal Industry 2012. July 5-6, 2012	Indonesia

Sr.#	Name of Grantee	Title of Paper//Host Institute	Country Visited
2.	Prof. Dr. M. Younas Department of Livestock Management, UAF	Effects of Climate Change on Livestock Production in Pakistan. Paper presented in the 2 <sup>nd</sup> International Seminar on Animal Industry 2012 July 5-6, 2012	Indonesia
3.	Dr. Muhammad Sajjad Khan Department of Animal Breeding & Genetics, UAF	Growth Curve Analysis of Sahiwal Calves up to Six-month Age Given Milk or Milk Replacer up to Weaning. Paper presented in the ADSA-AMPA-ASAS-CSAS-WSASAS Joint Annual Meeting. July 15-19, 2012	USA
4.	Dr. Shoukat Ali Bhatti Institute of Animal Nutrition & Feed Technology, UAF	Prospects of Raising Sahiwal Cow Calves For Veal Production Under Tropical Environment. Paper presented in the 2012 Joint Annual Meeting of ADSA-AMPA-ASAS- CSAS-WSASAS. July 15-19, 2012	USA
5.	Dr. Zain Ul Abidin Department of Entomology, UAF	Functional Analysis of The Venom of Meal YBUG Parasitoid <i>Aenasius Bambawalei</i> Hayat ( <i>Hymenoptera encyrtidae</i> ). Paper presented in the Ento-12 National Science Meeting/ Conference. July 18-20, 2012	United Kingdom
6.	Dr. Muhammad Dildar Gogi Department of Entomology, UAF	Evaluation of Some Botanical Extracts, Adult Food-baits, Coloured egg—Receptacles and Cultural Practices and their Possible Integration for IPM of Melon Fruit Flies. Paper presented in XXIV International Congress of Entomology. August 19-25, 2012	Korea
7.	Dr. Imran Pasha National Institute of Food Science & Technology, UAF	Distribution of B-Vitamins & Enzymes in Newly Developed Spring Wheats. Paper presented in AACC International Annual Meeting, American Association of Cereal Chemists. September 30 - October 04, 2012	USA
8.	Miss Fareha Ghaffar Institute of Rural Home Economics, UAF	Participated in Terengganu International Islamic Art Festival 2012 organized by Taman Tamadun Islam Management Sdn Bhd. September 14-17, 2012	Malaysia
9.	Prof. Dr. Amer Jamil Department of Chemistry & Biochemistry, UAF	Expression Profiling of Bioactive Genes from a Medicinal Plant <i>Nigella sativa</i> . Paper presented in 15 <sup>th</sup> International Biotechnology Symposium and Exhibition September 16-21, 2012	Korea
10.	Dr. Bushra Sultana Department of Chemistry & Biochemistry UAF	i) Variation in the Antioxidant Potential of <i>Spinacia oleracea</i> in Response to Application of Plant Growth Regulators, and ii) Variation of Phenolics, Antioxidant and Antifungal Activities Among Different Parts of Selected Medicinal Plants. Papers presented in 7 <sup>th</sup> Scientific Agricultural Conference (SSAC-2012). October 8-10, 2012	Jordan

Sr.#	Name of Grantee	Title of Paper//Host Institute	Country Visited
11.	Dr. M. Muzammil Jahangir Institute of Horticulture Sciences, UAF	Hormonal Seed Priming Invigorates Lettuce Achenes at Supraoptimal Temperature (35°C) Conditions. Paper presented in 7 <sup>th</sup> Scientific Agricultural Conference (SSAC-2012). October 8-10, 2012	Jordan
12.	Mr. M. Ahsan Khan President, Agrarian Society, (Ph.D. 1st Semester PBG, UAF)	Participated in the Conference of European Directors organized by International Association of Students in Agricultural and related Sciences. December 27, 2012-Jan 03, 2013	Sweden
13.	Dr. Nasir Ali Tauqir Institute of Animal Nutrition & Feed Technology, UAF	Response of Growing Buffalo Calves Fed on Urea Corn Steep Liquor Treated Corn Cobs. Paper presented in the 10 <sup>th</sup> World Buffalo Congress & 7 <sup>th</sup> Asian Buffalo Congress. May 06-08, 2013	Thailand

### 1.3 Short Visits for Institutional Collaboration

Travel grants for short visits abroad are provided for strengthening international collaboration and signing of MoUs etc. Financial support to following short visits was provided:

Sr.#	Name & Address	Country Visited
1.	Prof. Dr. Saiyed I. Ahmad Institute of Microbiology, UAF	To Establish Active Collaboration in Dengue Research Program, Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand. August, 6-8, 2012
2.	Prof. Dr. Saiyed I. Ahmed Institute of Microbiology, UAF	To give Presentation in the International Seminar on Science and Technology Innovations 2012 (ISSTIN 2012) as an invited Speaker and follow up of the Collaboration in Indonesia. September 30- October 05, 2012
3.	Prof. Dr. Ahrar Khan Director, Quality Enhancement Cell, UAF	To Gain Special Insight on the Latest "QS Asian University Rankings" plus "QS top 50 under 50" in Jordan. June 9-10, 2013
4.	Prof. Dr. Abdul Wahid Department of Botany, UAF	To Gain Special Insight on the Latest "QS Asian University Rankings" plus "QS top 50 under 50", in Jordan. June 9-10, 2013

### 1.4 Seminars/Conferences/Workshops/Trainings organized at UAF

Financial support is provided to UAF faculty members to organize seminars/conferences/workshops at the campus. Following events were sponsored by Endowment Fund during the year 2012-13:

Sr.#	Organizer	Event
1.	Prof. Dr. Sohail Ahmad Department of Entomology, UAF	Seminar on New Challenges of Insects in Citrus Plant. July 13-14, 2012
2.	Dr. Muhammad Rashid Subject Specialist Institute of Soil & Environmental Sciences, UAF	Stakeholders Conference on Potential and Prospects of Data Generation for Improving the Precision of Fertilizer Predication Models. August 25, 2012
3.	Prof. Dr. Faqir Muhammad Anjum National Institute of Food Science & Technology, UAF	International Symposium on Prevention, Management and Future Strategies in Dengue Fever. Symposium held at PMC, Faisalabad. September 24-25, 2012

Sr.#	Organizer	Event
4.	Prof. Dr. Ashfaq Ahmad Mann Institute of Agricultural Extension & Rural Development, UAF	Workshop on Gender and Development. December, 2012-January, 2013
5.	Prof. Dr. Ahrar Ahmed Khan Quality Enhancement Cell, UAF	Workshop on Self-Assessment Report (SAR) Preparation/Writing-I. December 08, 2012
6.	Prof. Dr. Amanullah Malik Institute of Horticultural Sciences, UAF	Training Program for Faculty. Module 1: Global GAP December 10-15, 2012 Module 2: IFS January 07-11, 2013
7.	Prof. Dr. Anjum Suhail Department of Entomology, UAF	Workshop on Plantwise: A New Innovative Approach Linking of Diagnostic Labs with Plant Clinic. January/February, 2013
8.	Prof. Dr. Ashfaq Ahmad Institute of Agriculture and Resource Economics, UAF	Training Workshops on: • Statistical Software R & Forecasting and • Developing Joint Research Proposals. January 10-26, 2013
9.	Prof. Dr. Javaid Akhtar Institute of Soil & Environmental Sciences, UAF	Seminar on Remote Sensing for Monitoring Agricultural Crops and Assessing Soil Salinity. January 14, 2013
10.	Prof. Dr. Zahid Ata Department of Agronomy, UAF	International Conference on Crop Management in Changing Climate. February 11-13, 2013
11.	Prof. Dr. Faqir Muhammad Anjum National Institute of Food Science & Technology, UAF	International Workshop on Curriculum Development for Food Safety Management and Food Services Management. March 11-12, 2013
12.	Prof. Dr. Masood Sadiq Butt National Institute of Food Science & Technology, UAF	International Workshop on Polyamines in Cell Proliferation and its Use as a Possible Marker in the Diagnosis of Cancer. March 30, 2013
13.	Prof. Dr. Shahzad M. A. Basra Department of Crop Physiology, UAF	Stakeholder's Seed Workshop. April 17, 2013
14.	Prof. Dr. Aslam Pervez Institute of Horticultural Sciences, UAF.	Workshop on Learning by Doing: Tools & Techniques for Working as a Team. May, 2013
15.	Mr. M. Yaseen Department of Math & Statistics, UAF.	Training Workshop on an Introduction of R- Programming Language for Statistical Computing. May/June, 2013
16.	Prof. Dr. M. Tahir Siddiqui Department of Forestry, Range Management & Wildlife, UAF	Seminar on Role of Forests in Amelioration of the Environment. June 05, 2013
17.	Prof. Dr. Allah Bakhsh Department of Irrigation & Drainage, UAF	International Seminar/Faculty Development Workshop on Precision Agriculture. June 20- July 02, 2013



## HIGHLIGHTS OF SOME EVENTS

### **Stakeholder Conference on Potential and Prospects of data Generation for Improving the Precision of Fertilizer Predication Models**

The conference was organized on August 25, 2012. The objective of the conference was to consider the potential and prospects of data generation for improving the precision of existing fertilizer prediction models, to study the effect of salinity/sodicity on the efficiency of fertilizer use and to quantify the role of moisture content of soil in fertilizer use efficiency for rainfed areas.

It was realized that the number of trials in some of the districts is too low to have the observations for developing the efficient and precise model. For a precise model, there should be at least 8-10 narrowly spaced points. All other institutions/organizations which are involved in conducting fertilizer trials for fertilizer recommendations should also conduct demand oriented fertilizer trials. All the trials must be accompanied by Pre Sowing soil analyses.

## Workshop on Gender and Development

The workshop was organized on December 26, 2012-January 24, 2013. The objectives of the workshop were understanding of the field of Gender & Development and to understand the Development of Research Methods/Methodology and familiarity with Human Rights Discourse. The institute will update their courses and syllabus in the light of this workshop.



## Workshop on the Introduction to Plantwise: A New Innovative Approach Linking of Diagnostic Labs with Plant Clinic

The workshop was organized on January/February 2013. The objectives of the workshop were to develop Plant clinic for the detection of plant pests problems, to provide linkage to the regulatory bodies responsible for surveillance and response and to strengthen the collaboration of Department of Entomology, Plant Pathology, Center of Agricultural Biochemistry and Biotechnology, UAF and Commonwealth Agricultural Bureau International (CABI). CABI is a not-for-profit inter-governmental organization based in the United Kingdom. Integrated and collaborative approach for the development of plant protections was urged. The workshop provided a stage for capacity building (students, contractors, officials) to learn the concept of Plant-wise: plant clinic and development of good links and job opportunity of the skilled personnel (Plant Doctor) for Plant Health and Care





### **International Workshop on Curriculum Development for Food Safety Management and Food Services Management**

The workshop was organized on March 11-12, 2013. All the foreign experts appreciated this activity and showed willingness for the success of these two degree program by delivering lectures and by exchanging internees and by developing some common research projects in the said domains Faculty members of NIFSAT and industrial Personnels taught the ways of curriculum Development



### **International Workshop on Polyamines in Cell Proliferation and its Use as a Possible Marker in the Diagnosis of Cancer**

The workshop was organized on March 30, 2013. The objectives of the workshop was to give an insight about the relationship between polyamines and cancer. The seminar was arranged with the theme to aware the researchers working in the domain of molecular biochemistry and nutraceutical components of food about the possible role of polyamines in the cancer diagnostics. Polyamines are ubiquitous constituents occurring in microbial, plant and animal cells. They are synthesized in all eukaryotic cells from their immediate precursor, ornithine. Polyamines are essential for growth processes. Moreover, molecular biochemistry and nutraceutical worth of some of the indigenous sources were also discussed in the limelight of the discussion. Dr. Ishtiaq shared his research experiences and also discussed a number of possible ways out regarding the adaptability and use of the concept of polyamines in the cancer cell studies.





## Stakeholders Seed Workshop

The workshop was organized on April 17, 2013. The objective of the workshop was to plan about establishment of ISTA seed testing lab. and Pakistan Seed Academy. It was agreed that the incoming International Seed Workshop will be sponsored by private seed sector. people from public and private seed sectors were agreed to establish Pakistan Seed Academy Yousaf Seed Corporation was agreed to provide funds to start a project on seed pelleting and coating of horticultural seeds. Private seed sector appreciated the research activities of Seed Physiology Lab and promised to finance some part of research of PhD students. The establishment of ISTA seed testing lab will be discussed in coming meeting of Seed Association of Pakistan. Seed Association of Pakistan and other public sectors like Federal Seed Certification and Registration Department will coordinate with seed physiology lab regarding human resource development in seed technology.

## Series of Workshops on Learning by Doing: Tools & Techniques for Working as a Team

The workshop was organized on May 2-3 and May 6-7, 2013 (4 Days). The objectives of the workshop were to help Co-Tutors to work with their students in healthy and productive ways, to empower Co-Tutors by providing tools and techniques for enhancing productivity, creativity, motivation and personal growth, and to improve Co-Tutors and students relationships for more productive tutorial classes



## 1.5 Foreign Visitors/Experts Invited

Following foreign experts and researchers were invited at different occasions at the campus.

Sr.#	Name of Visitors	Date	Event
1.	Tahmina Rashid Associate Professor International Studies Discipline Head Arts & Humanities Faculty of Arts & Design, University of Canberra, Australia	December, 2012- January, 2013	Workshop on Gender and Development. Organized by Prof. Dr. Ashfaq Ahmad Mann Institute of Agricultural Extension & Rural Development, UAF
2.	Dr. Muhammad Akram Monash University, Australia	January 10-26, 2013	Training Workshops on: • Statistical Software R & Forecasting • Developing Joint Research Proposals. Organized by Prof. Dr. Ashfaq Ahmad Agriculture and Resource Economics, UAF
3.	Dr. Ishaq Bhatti Monash University, Australia		
4.	Dr. Waqar Ahmad Principal Research Scientist & Research Leader, CSIRO, Centre for Environment and Life Sciences, Perth, Australia	January 14, 2013	Seminar on Remote Sensing for Monitoring Agricultural Crops and Assessing Soil Salinity. Organized by Prof. Dr. Javed Akhtar Institute of Soil & Environmental Sciences, UAF
5.	Dr. D. J. Lee Department of Crop Science and Biotechnology, Dankook University, Chugnam- Korea	February 11-13, 2013	International Conference on Crop Management in Changing Climate. Organized by Prof. Dr. Zahid Ata Department of Agronomy, UAF
6.	Dr. H. Kato-Noguchi Department of Applied Biological Science, Faculty of Agriculture, Kagawa University, Kagawa, Japan		
7.	Dr. B. Honermeier Institute of Agronomy and Plant Breeding, Justus-Liebig-University, Giessen, Germany		
8.	Dr. A.S.M Masuduzzaman Plant Breeding Division, Bangladesh Rice Research Institute Gazipur-Bangladesh		
9.	Dr. Md. Abdul Khayer Mian BARI, RARS, Ishurdi, Pabna, Bangladesh		
10.	Dr. Yoon-Ha Kim School of Applied Biosciences, Kyungpook National University Daegu, Korea		
11.	Dr. Golam Faruq University of Malaya, Kuala Lumpur, Malaysia		

Sr.#	Name of Visitors	Date	Event
12.	Prof. Dr. Jean- Francois Grongnet Agro-campus Ouest, Rennes France	March 11-12, 2013	International Workshop on Curriculum Development for Food Safety Management and Food Services Management. Organized by Prof. Dr. Faqir Muhammad Anjum National Institute Food Science & Technology, UAF
13.	Dr. M. Shahrim Abdul Karim Head of Department Food Services Management, University of Putra, Malaysia		
14.	Prof. Afaf Kamal Eldin Chair, Department of Food Sciences, Faculty of Food & Agriculture, UAE University, Alain, UAE		
15.	Prof. Ishtiaq Mahmud Department of Biochemistry & Molecular Biology University of Dhaka, Bangladesh	March 30, 2013	International Workshop on Polyamines in Cell Proliferation and its Use as a Possible Marker in the Diagnosis of Cancer Organized by Prof. Dr. Masood Sadiq Butt National Institute of Food Science & Technology, UAF
16.	Dr. Tri Nguyen-Quang Dalhousie University, Canada	June 20 - July 02, 2013	International Seminar/Faculty Development Workshop on Precision Agriculture. Organized by Prof. Dr. Allah Bakhsh, Department of Irrigation & Drainage, UAF
17.	Dr. Qamar Zaman Dalhousie University, Canada		
18.	Dr. S. Hmid Hussain Shah Wageningen University, Netherlands		
19.	Dr. Abdul Ghafoor Plitecnico-di Tornio, Italy		
20.	Dr. Arnold W Schumann University of Florida, USA		
21.	Dr. Kenny Corscadden Dalhousie University, Canada		
22.	Mr. Muhammad Azhar Inaam Baig McGill University, Canada		

# TECHNOLOGY TRANSFER

Section

Outreach  
Projects

Demonstration  
on Campus

Organizing  
Farmers' Fairs/  
Exhibitions

Horse &  
Cattle  
Shows

## Overview of the Component

Endowment Fund Secretariat accepts proposals for technology transfer from all public entities which demonstrate needed research and development capabilities and financial responsibilities. The portfolio under this component consists of outreach projects, demonstration on campus, organizing Farmers' Fairs/Exhibitions and Horse & Cattle Shows.

### 2.1 Projects Initiated & Completed During 2012-13

Sr.#	Title of the Project	Name of the PI	Duration
1.	Installation of Demonstration Solar Model for Lecture Rooms in the Faculty of Agricultural Engineering & Technology, UAF	Prof. Dr. Rai Niaz Ahmad Department of Irrigation & Drainage, UAF	1 month

### 2.2 Projects Initiated During 2012-13

Sr.#	Title of the Project	Name of the PI	Duration
1.	Installation of Automatic Weather Data Recording System for Demonstration Purposes	Prof. Dr. Rashid Ahmad Department of Crop Physiology, UAF.	6 months
2.	Development, Fabrication, Installation and Operation of Biogas Plant at UAF	Prof. Dr. Rai Niaz Ahmad Faculty of Agri. Engineering & Technology, UAF	1 year
3.	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
4.	Causes of Low Grain Productivity in Pakistan: Policy Options for Sustainable Growth	Dr. Asghar Ali Institute of Agricultural and Resource Economics, UAF	1 year
5.	Introducing Farmers with UAF-11: A Brassica Oilseed Elite Line of the University of Agriculture, Faisalabad	Prof. Dr. Hafeez A. Sadaqat Department of Plant Breeding & Genetics, UAF	3 years
6.	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
7.	Establishment of Mushroom Cultivation Unit for Demonstration and Growth Trials of Wild and Exotic Mushrooms	Prof. Dr. M. Asif Ali Institute of Horticultural Sciences, UAF	3 years
8.	Improving Farmers' Profitability and Human Nutrition through Popularization of Carrots	Prof. Dr. M. Amjad Institute of Horticultural Sciences, UAF	3 years
9.	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
10.	Spring and Winter Flower Exhibition/ Demonstration for Transfer of Technology at UAF	Dr. Atif Riaz Institute of Horticultural Sciences, UAF	3 years
11.	Demonstration/Dissemination of Promising Ber Cultivars in Marginal Land in Distt. Faisalabad (Punjab)	Dr. Saeed Ahmad Institute of Horticultural Sciences UAF	3 years
12.	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

Sr.#	Title of the Project	Name of the PI	Duration
13.	Establishment of Crop, Seed and Weed Museum	Dr. Hassan Munir Department of Crop Physiology, UAF.	3 years
14.	Demonstration of Technology of Silymarin Extraction from Milk Thistle	Prof. Dr. Khalil-ur-Rehman Department of Chemistry & Biochemistry, UAF	3 years

### 2.3. Projects Completed During 2012-13

Sr.#	Title of the Project	Name of the PI	Duration
1.	Documentation of Traditional Agricultural Knowledge and Technologies in Punjab, Pakistan	Prof. Dr. Iqrar Ahmad Khan Vice Chancellor, UAF	3 years
2.	Salt Affected Soils - Technologies Associated with their Management	Mr. Muhammad Sarfraz Soil Salinity Research Institute, Pindi Bhattian	3 years
3.	On Farm Demonstration of Technologies for Accelerated Growth of Calves and Weaners for Reducing the Age at First Calving of Replacement Dairy Heifers	Dr. Shukat Ali Bhatti Institute of Animal Nutrition and Feed Technology, UAF	3 years
4.	Demonstration of Modern Technologies through Kissan Mela	Dr. Ghulam Murtaza Director Farms, UAF	3 years
5.	Establishment of Biomonitoring Cell for Certification of <i>Bt</i> Cotton Efficiency	Dr. H. Masooma Naseer Cheema Department of Plant Breeding & Genetics, UAF	2 years
6.	Field Demonstration of Salt Tolerant Tree and Forage Species on Salt-affected Land at Proka Farm, UAF	Dr. Muhammad Saqib Institute of Soil & Environmental Sciences	3 years
7.	Operation and Management of Drip Irrigation System for Demonstration at PAR	Prof. Dr. Allah Bakhsh Water Management Research Center, UAF.	3 years
8.	Technology Transfer through on Farm Demonstration of Innovative Techniques for the Sustainable Bovine Dairy Farming and Keeping Herd Healthy by Manipulation of Management Practices	Dr. Muhammad Riaz Department of Livestock Management, UAF	3 years
9.	Relay Cropping of Sesbania in the Wheat for Residues Management and Improving Soil Health	Prof. Dr. Ehsanullah Department of Agronomy, UAF	2 year
10.	Establishment of a Model Fruit Plant Nursery for Demonstration of Container Grown Plant Production in Citrus and Guava	Dr. Muhammad Usman Institute of Horticultural Sciences, UAF	2 years
11.	Development of Molecular Diagnostics for Livestock Based Food Pathogens	Dr. Muhammad Irfan Forman Christian College University, Lahore	2 years

### 2.4 Ongoing Projects

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, Directorate of Farms, UAF	5 years

Sr.#	Title of the Project	Name of the PI	Duration
2.	Synthesis of Available Fertilizer Trials Data for Site-Specific Recommendations and Diagnostic Survey for Low Adoption of Fertilizer Use Technology (three components)	Dr. Muhammad Rashid Ex-Director General Agri. (Research) Punjab/Subject Specialist, Inst. of Soil & Environmental Science, UAF	2 years
3.	Epidemiology and Control of Foot & Mouth Disease in Punjab	Dr. Muhammad Arshad Institute of Microbiology, UAF	2 years
4.	Technology Transfer through Cyber Extension: Helping Communities to Help Themselves	Dr. Babar Shahbaz Department of Agri. Extension, UAF.	3 years
5.	Creating Knowledge-Based Society through Agricultural Technology Transfer via FM Radio	Prof. Dr. Tanvir Ali Division of Education & Extension, UAF	2 years
6.	Demonstration of Fogging and Spraying at the Campus UAF for the Control of Mosquitoes	Prof. Dr. Anjum Suhail Department of Entomology	1 year
7.	Demonstration of Production Technology of Quinoa ( <i>Chenopodium quinoa</i> Willd.) as a New Climate Proof Grain Crop	Prof. Dr Shahzad Maqsood Ahmed Basra Department of Crop Physiology, UAF	3 years
8.	Strengthening Informal Seed Supply System at Two Locations in Potohar Trough Participatory Technology Transfer	Dr. Abdul Razzaq PMAS-Arid Agriculture University, Rawalpindi	2 years
9.	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
10.	Technology Transfer to Potato Growers in Relation to Pathogen Free Seed Potato, Management of Diseases and Adoption of Improved Agro-techniques	Dr. Ishfaq Ahmad Hafiz PMAS-Arid Agriculture University Rawalpindi	2 years
11.	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
12.	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
13.	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
14.	Improving Degraded Soil and Low Quality of Water Using Farm Wastes and their Use for Crop Farming	Dr. Ghulam Murtaza Institute of Soil & Environmental Science, UAF	3 years
15.	Improving Degraded Soil and Low Quality of Water Using Farm Wastes and their Use for Vegetable Farming (vegetable tunnel farming)	Prof. Dr. M. Aslam Pervez Institute of Horticultural Science, UAF	3 years
16.	Drip Irrigation Systems for Fruit Orchards and Row Crops for Research and Demonstration purpose	Prof. Dr. Allah Bakhsh Water Management Research Center, UAF	3 years

## ACCOMPLISHMENT OF SOME SIGNIFICANT PROJECTS

### 1. Salt affected Soils-Technologies associated with their Management

Plant nutritionists are always in search of substitutes or combinations of mineral fertilizers with the organic sources that enhance the efficiency of mineral fertilizers or to compensate / supplement the mineral fertilizers. The Punjab soils are generally and particularly the region of moderately salt affected extremely poor in organic matter status which has appeared to be the main cause of yield reduction. The combined application of composts and mineral fertilizer has proved to be effective, environment friendly and sound nutrient management strategy to enhance crop productivity. Soil phosphorus based estimation of fertilizer requirement is considered an economically and environmentally efficient method to maintain the appropriate P level in the soil. Results of three year experiments suggested that combined application of compost with mineral fertilizer i.e. site specific use of mineral fertilizer with compost in 80:20 ratio and integrated use of chemical fertilizers with compost in 80:20 ratio enhanced paddy / grain yield and improved the fertility status of the soil. Due to the diminishing resources of canal water, farmers are bound to use tube wells regardless of the fitness of water. Poor quality water or brackish water can be used for crop production on a variety of soils using chemical amendments like the use of gypsum and organic sources like compost, FYM, press mud and poultry manure etc. Results of three year experiments suggested that canal water in combination with gypsum application on basis of soil GR proved better followed by brackish water with gypsum application on basis of GR of soil and water on RSC basis. Canal water usage with gypsum application @ 100% GR of soil proved better than the brackish water plus 100% GR of soil and water on RSC basis and improved the crop yields followed by brackish water plus gypsum @100 GR of soil and irrigation water on the basis of RSC at all the three experimental sites.



## 2. On Farm Demonstration of Technologies for accelerated Growth of Calves and Weaners for reducing the age at first Calving of replacement Dairy Heifers

A project was undertaken to demonstrate the benefits of better feeding and management in replacement heifers of Sahiwal cows and buffaloes. The young underfed female calves were given fodder and supplemented with concentrate rations and provided better care. Better feeding and management resulted in the better growth rates, improved their skin colors, general body conditions, reached puberty and calved earlier than their contemporaries and won beauty competitions at the cattle shows. This shows the importance of better feeding and management.

Hay and silage feeding is the only option to provide continuous supply of fodder to livestock. Feeding dairy herd through cut and cut system can't ensure regular supply of fodder to livestock.

Hay and silage was prepared for continuous supply of fodder to the heifers. Supplement concentrate ration was also provided to them. The Sahiwal heifers calved at the age of 39 and buffalo heifers at the age of 48 months. This age at calving could be reduced further, if the female calves are fed properly from day one and their reproductive problems are addressed on time.

Dairy industry could be made profitable by reducing the age at calving of dairy animals, reducing their calving interval and selecting high producing animals. Genetic potential of the animals could only be exploited if they are fed according to the requirements. Thus, nutrition has major role in making a livestock business an economically viable entity.



Prepared oat silage being used from ground silo



Hay stacked in the field after proper drying





### 3. Establishment of Biomonitoring cell for certification of *Bt* Cotton Efficiency

Cotton is a pest loving crop with dozens of insect pests attacking on it. Heavy Pesticide application had been practiced to combat the sucking and chewing insects. Among the chewing, lepidopteran are the major pests causing 20-30 percent annual yield losses. Successful inbuilt resistance against the bollworms was engineered in cotton by incorporating the Bt endotoxin gene derived from a soil bacterium *Bacillus thuringiensis*. Pakistan has approved the Bt cotton varieties in 2010. The delay in approving biotech cotton resulted in the adoption of unapproved and low quality Bt cotton seed by the farmer community. Though the cultivation of these genotypes helped significantly in controlling the insects and pests specially the bollworms, but to attain a complete control on these worms a specific amount of Bt toxin must be present otherwise resistant insect species will emerge. This project was designed to monitor the field situation of Bt cotton cultivation and quantify the amount of endotoxin in the cultivating varieties. To meet the objectives cotton belt was surveyed and seed samples were collected from the farmers and the seed retailers. Transgenic cotton testing facility was established at the University of Agriculture

after optimizing various molecular techniques to detect the Bt gene and quantify the endotoxin in the collected cotton samples. The results obtained from this research revealed that out of 52 Bt cotton genotypes, only 15 percent were found approved while all the remaining genotypes were unapproved. The analysis of the collected samples showed that 14 % of the collected samples with the specification of Bt cotton were not having any type of Bt gene. It showed that poor farmer community is purchasing, whatever is available as Bt cotton seed. They are purchasing unapproved low quality and adulterated cotton seed at higher cost. The lethal level of Bt toxin has been determined as 1.91 µg/g of fresh tissue weight. In the present study most of the samples, contained the Bt endotoxin far below the described lethal level. Only 10 % of the samples were expressing the Cry1Ac gene to synthesize the toxin up to required lethal level. This prevailing situation will ultimately result in the outbreak of the resistant bollworms which will be very difficult to control. This alarming situation need to be observed carefully to take the regulatory measures for the provision of best quality seed of only approved cultivars.



#### 4. Field demonstration of Salt Tolerant Tree and Forage species on Salt-Affected Land at Proka Farm, UAF”

Soil salinity is a major hazard to crop growth in the arid and semiarid regions of the world. Low quality irrigation water is a major contributing factor in converting arable lands to saline lands. In order to increase the agriculture productivity and environmental sustainability we need to manage the salt-affected soils and waters. It has been observed that raising salt tolerant woody plants along with shrubs and grasses is not only cheaper but also profitable and long lasting practice. This project aims to give a field demonstration of salt tolerant tree and grass species which may have the potential to grow on salt affected soil using saline water. According to the plan of work, soil and water samples were collected from different depths and were analyzed in the laboratory for SAR, EC and pHs. Nursery of the selected plant species was raised in a normal field. The project site was prepared for transplantation and the nursery plants were transplanted in the field at the age of 3-4 months. These plants were irrigated according to the need of the plants. Necessary plant protection and management practices like weeding and cleaning of the plots was carried out when needed. Plant growth data i.e. plant height, stem circumference, number of branches per plant and the number of leaves per plant were recorded after every six



months. The plants were divided into good and poor plants for data collection and comparison. Two types of leaves (older and younger) were taken and their ionic composition regarding Na<sup>+</sup>, K<sup>+</sup> and Cl<sup>-</sup> was determined.



Photography of the site was also done before and during the project period. It has been a very successful project as the growth of plants on this salt affected soil has not only given the soil a green look but also improved its properties. The farmers visiting the site were also very much convinced with the technology. They can profitably utilize their salt affected lands and waters using salt tolerant plants species of their choice.



## 5. Operation and Management of Drip Irrigation System for Demonstration at PARS

Initially the site survey was done for designing and installation of drip system on 25 acres orchard farm (Citrus, Dates and Mangoes) at PARS. Samples for soil analysis were taken and a laboratory study was made 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 was 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. Climatic data for evaporation was used and by using the Kc and other parameters such as canopy area, plant spacing, emitter flow rate and irrigation cycles per day were considered during design selection. Next step after designing the system was the installation of the system, for this purpose trenching was done according to the design layout and the drip irrigation field unit which included mainline, sub main line pipes, control valves and laterals were installed. Drip irrigation power unit which included pump, filters (hydro cyclone, sand media and screen filters), pressure gauges, water flow meter and non return valve were installed.



This was not only a research project but also was a practical demonstration for farmers to adopt this technology and try to reduce their water losses and expenditures. The irrigation efficiency was found as 66.4 % more saving water along with fertilizer. There was no wastage of fertilizer and nutrients and were 100% utilized by the plants at their roots. This year the citrus fruit farm has started bearing fruits and expecting the high yield by next year.



dairy animals in addition to improved housing sanitation and waste disposal. The five bucket vacuum line machine milking was installed as an important segment of farm mechanization. Lose barn and open paddocks were

## 6. Technology Transfer through on Farm Demonstration of Innovative Techniques for the Sustainable Bovine Dairy Farming and keeping Herd Healthy by Manipulation of Management Practices

The contribution of livestock sector in national economy cannot be over emphasized. The poor production from animals has been attributed to orthodox management and feeding systems in livestock farming. The manual cut and carry system could not meet the ad libitum feeding of livestock in addition fodder scarcity seasons prevailing in the country. The poor housing conditions may be responsible to environmentally caused mastitis in dairy animals. Hence the project was designed with the objective to sustain the health & production of livestock and improve Farm facilities for demonstration purposes benefiting the visitors. The objectives of the project were to demonstrate and enhance practical capacity of livestock stakeholders through on-farm improved practices/ technologies, demonstration on farm facilities for hygienic milk production, ensure continuous supply of nutrients to control nutritional disorders and Keeping dairy herd healthy throughout the year using preventive measures.

A front-end loader, manure scraper front blade,



hydraulic tipping trolley was also procured to ensure the cleanliness in the sheds & barns for the comfort of dairy animals. The regular transfer of the manure into fodder fields also led to a sustainable fodder production (organic) system for

addedfortheretiring of dairy animals in rest time for clean bedding resting area. Showering facility for x-bred cattle and water pond for wallowing of dairy buffaloes were repaired to control the heat stress upon animals and to maintain the milk production in hot summer. The washing of hands of the milkers/ gowalas before and after milking and milking the infected animals at the last also helped to control the udder diseases. An environmental caused mastitis was controlled by eliminating reservoirs of stagnant water, manure and debris (bacteria habitats) in and around the sheds/ barns and by cleaning the housing environment. Teat dips and other preventive medicines helped to sustain the herd health and practices were demonstrated to the large number of visitors. Careful housing and handling of pregnant dairy animals in last two weeks of their pregnancy and two weeks after parturition also remained helpful to control the udder health or teat injuries. A forage harvester was purchased in the project just to mechanize the fodder cutting and chopping the plenty of fodder present in the fields were made possible to feed the dairy animals at ad-libitum level replacing the manual cut & carry system. Supplementation of legumes such as lucerne has shown improved feed intake, live-weight gain and milk production and higher profit margin due to replacement of costly concentrate by leguminous fodder. The progressive farmers / inquisitive beginners visited the dairy farm facilities and educated about silage making, calf management, dry cow therapy, farm resource management and farm sheds designing etc. Useful messages were also got printed on the techniques and procedures for the feeding management of dairy animals and sustainable health, & hygienic milk production were distributed to the inquisitive beginners in livestock business. Resultantly, some MOU for training and exchange of knowledge were also signed by the organization after reviewing the dairy farm facilities.



## 7. Relay Cropping of Sesbania in the Wheat for Residues Management and Improving Soil Health

In rice-wheat cropping system, wheat residue management stands as a looming problem among the other important issues of this cropping system. Importantly, all the nutrients removed from the soil by crop plant are stored in crop herbage and grain along with the sun energy embodied in the form of different compounds, so it is the common practice in advance counties to collect grain for human use and return the crop herbage to the soil, while in ours, we are lacking the technologies for residues management. So, recycling of these crop residues has the advantage of converting surplus farm waste into useful products for meeting the nutrients prerequisite of field crops. By keeping in view the above mentioned issues the project under reference was conducted to demonstrate this technology for residue management during 2011 and 2012 in Gujranwala and Hafizabad districts of Punjab. Varying categories of farmers like small, medium and large were selected along the main road side. Total sites for the demonstration plots were 8 in both above mentioned districts. The area of each demonstration plot was more than 3 acres during first year of project conducted. The results were promising, extra-ordinary and fruitful.

During second year the technology got too much popularity in the area. Consequently, the farmers practiced this technology on large scales. Jantar was grown on an area of 70 acres in Majju chak (Gujranwala), 85 acres at Ali Pur Chattha (Gujranwala), 15 acres at Haiger (Gujranwala), 15 acres at Tali Goraya (Hafizabad). The feedback from the farmers manifested that the practiced technology was highly sustainable, useful, environment friendly, socially acceptance and economically viable. The soil analysis revealed that the practiced technology improved the physical and chemical properties of soil. The crop residues are precious resource and needs to be managed as an integral component of the system for improving soil health, and sustaining natural ecosystem as well as improving soil productivity. In addition, practiced technology-induced improvement in soil fertility resulted in significant higher production with less use of inputs as compared to control plot. The farmers emphasized that technology must be disseminated to each and every village of rice-wheat cropping system of Punjab. Moreover, in order to expand this technology the demonstration must be ensured at every union council of both districts.

## 8. Establishment of a Model Fruit Plant Nursery for Demonstration of Container Grown Plant Production in Citrus and Guava

- Construction of greenhouse and installation of steam sterilization unit for potting media sterilization is complete and both are functional.
- Surveying and visits of different Citrus and Guava growing regions for assessment of current problems in the field, demonstration of technology developed, discussing drawbacks of conventionally grown nurseries and collection of fruits (guava) for analysis and seed extraction.
- Visits to selected Citrus and Guava orchards and nurseries at Sargodha, Shirkpur, Manawala (Sheikhupura), Faisalabad, Toba Tek Singh, Samundari, Satiana, Tandlianwala.
- Raising nursery of Citrus and Guava, refined existing container grown production system in Citrus and extending this concept and technology to guava. The protocols are optimized and flow charts are present in report.
- Published a brochure for growers to enhance awareness about the significance of container grown nursery production system and introduction to develop model nursery.
- On campus technology demonstration to different stake holders and participation in different exhibitions (Rabi Kissan Mela 2011, Spring Festival 2012) and Citrus Growers Conference held by ASLP Citrus Chapter.
- Signed MOU with progressive nursery growers to develop a model fruit plant nursery in Southern Punjab-Sadiqabad in both Citrus and Guava crops.
- Human resource development through different training courses like ASLP Citrus nursery growers training and training of nurserymen under Benazir Income Support Program (BISP).
- Developed a webpage for technology demonstration and sharing knowledge and expertise in Citrus and Guava nursery production.



## 2.5 Outreach Activities

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 gathering, exhibition and lectures/seminars for the awareness/sensitization of the community.

The outreach activities financed during the year 2012-13 are enlisted as under:



### Name & Department

Mr. Inam-ur-Raheem  
Institute of National Institute of Food  
Science & Technology, UAF

### Title

Organic Mango Pickle Preparation  
held on July 13-16, 2012

### Location

Bhimber, AJK

### Name & Department

Prof. Dr. M. Aslam Pervez  
Institute of Horticultural  
Sciences, UAF

### Title

Home Vegetable Production  
held on September 10-15,  
2012

### Location

Panwan, Sheikhpura



**Name & Department**

Endowment Fund Secretariat,  
UAF

**Title**

Rabi Festival  
held on October 6-8, 2012

**Location**

UAF



**Name & Department**

Prof. Dr. Muhammad Sarwar  
Faculty of Animal Husbandry

**Title**

National Goat Show 2012  
held on October 19-20, 2012

**Location**

UAF



**Name & Department**

Prof. Dr. Muhammad Iqbal  
Faculty of Agri. Engineering &  
Technology, UAF

**Title**

Farmer's Day at Sub-Campus,  
UAF Burrewala  
held on February 13, 2013

**Location**

Burrewala Campus





**Name & Department**

Prof. Dr. Tahir Siddiqi  
Department of Forestry Range Management &  
Wildlife, UAF

**Title**

Farmer's day for Awareness of Tree Growing  
and Field Demonstration of Various Tree  
Species at Chowk Azam, Layyah  
held on March 14, 2013

**Location**

Chowk Azam, Layyah



**Name & Department**

Dr. Farooq Ahmad  
Principal Officer Estate Management, UAF

**Title**

First International Tent Pegging/  
Horsemanship Competition & National  
Horse Show  
held on February 11, 2013

**Location**

UAF



# RESEARCH & DEVELOPMENT



During the previous year a new component (Research & Development) was created to grant funds for proposals relating to Research & Development. However, keeping in view the emergent situation of Dengue virus outbreak, the BoD allowed for funding proposals related to control of Dengue virus as a special case. The successful execution of Dengue Research Program (DRP) is expected to leave a lasting impact on dengue fever control program in Pakistan.

### **3.1 Dengue Research Program (DRP)**

Prof. Dr. Saiyed I. Ahmad, HEC Foreign Professor, Institute of Microbiology, UAF Coordinated with national and international organizations. DRP- research group visited Veterinary Research Institute, Lahore on April 30, 2012. Dr. Zafar Qureshi, Senior Scientist briefed about their working on the dengue virus since 2009. They had been collecting blood samples from Dengue patients since the epidemics of 2009-10 from local Government Health Facility in and around Lahore Region. They had collected a total No. of 270 samples out of which 70 samples have been adopted to Hela Cell Lines.

Dr. Saiyed visited Thailand on July 30, 2012. As a result of this visit, Prof. Dr. Paradya Somboon and Dr. Nopporn Sittisombut of Chiang Mai University, consented to participate in international symposium on "Prevention, Management & Future Strategy in Dengue Fever" organized on September 24-25, 2012 in Punjab Medical College Faisalabad. UAF Faculty Members/Researchers presented their results in this symposium.

Dr. Saiyed presented a paper "A Review of the use of New Approaches and Technologies for Vector Control to Address Increasing Threats from the Global Dengue Fever Epidemic" at International Seminar on Science and Technology Innovation held during October, 2012 at University of Al-Azhar in Jakarta, Indonesia. Dr. Sajjad Rahman presented a paper "Efficacy of Biomoskill Suspension Containing Delta Toxin from *Bacillus thuringiensis* in the Control of Malarial and Dengue Virus Vector" in the 3rd international Conference on Dengue and Dengue Hemorrhagic Fever held in Bangkok, Thailand on October 21-23, 2012.

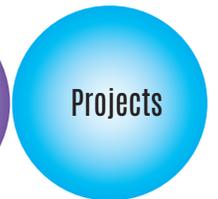
### 3.2 Construction of Bio Safety Lab. (BSL-3)

During the year 2012-13, the Board principally 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 for the years 2012-13 & 2013-14 and the grant funds \$ 1,00,000 cash prize received under IDB Science & Technology Award-2012. The contract for construction of BSL-3 was awarded on 28.12.2012 and work was initiated.





# PRODUCT COMMERCIALIZATION





Endowment Fund supported for establishing Business Incubation Center and UAF-TECH Company (Pvt.) Ltd. After restructuring of the Office of Research by adding the component of Innovation and Commercialization, operational aspects of the commercialization are taken up by BIC, ORIC and Endowment Fund jointly. The proposals having potential for commercialization are evaluated jointly and their fate is decided keeping in view the stage of the product.



#### 4.1 Exhibition Centre

Another milestone is the establishment of Exhibition Center which was started at Main Campus UAF in Dec. 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 centre will act as incubator of scientific knowledge. The exhibits will serve as excellent material for complementing science teaching at UAF.

Under Product Commercialization the Board approved the design and cost estimates of Exhibition Center. The design was provided by M/s National Development Consultants (Pvt) Pakistan.



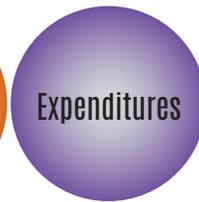
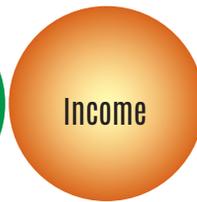
## 4.2 Farm Market

The BoD approved to establish Farm Market at UAF at the cost of Rs. 1,46,35,320/- The contract for construction of Farm Market was awarded on 28.12.2012 and work was initiated. It is pertinent to mention here that apart from the facilitation to general public, the students of the University of Agriculture, Faisalabad pursuing studies in the Faculty of Social Sciences and Institute of Business Management Sciences having specialization in Agricultural Economics and marketing will conduct their studies/internship and research thesis in these markets. So, the Sasta Bazar and Market will act as a laboratory to enhance practical knowledge of the students pursuing their studies.





# FINANCIAL REPORT

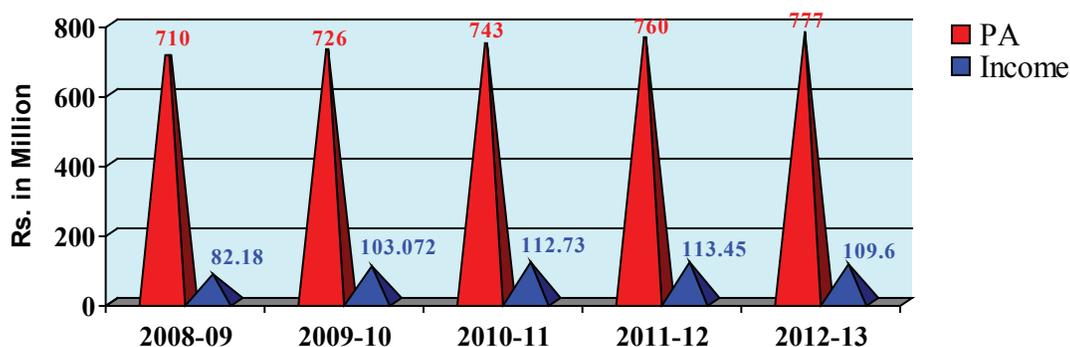


## 5.1 Investment of Funds

The principal amount of Rs. 650.0 million was invested during 2006-07, which has increased to Rs. 777.0 million during the year 2012-2013 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 (Table-I)

**Table-I Income and Investment status**

Description	Financial Year	
	2011-12	2012-13
Investment	760.000	777.000
Income	113.453	109.571



**Figure 1: Growth of Principal Amount (PA) and Income from Investment**

## 5.2 Estimates for the Financial Year 2012-13

### *Expenditure*

The Expenditure for the year, 2012-2013 originally was estimated at Rs. 184.960 million for the five components. The pace of works regarding Exhibition Centre, BSL-III and Farm Market during the financial year 2012-13 remained slow due to one or the other reasons. That's why the allocated amount could not be utilized in toto

### *Income*

The Income from investment out of Endowment Fund was originally estimated at Rs. 110.267 million during the financial year, 2012-2013. However, the income from investment was Rs. 109.571 million.

### *Allocation/Expenditure*

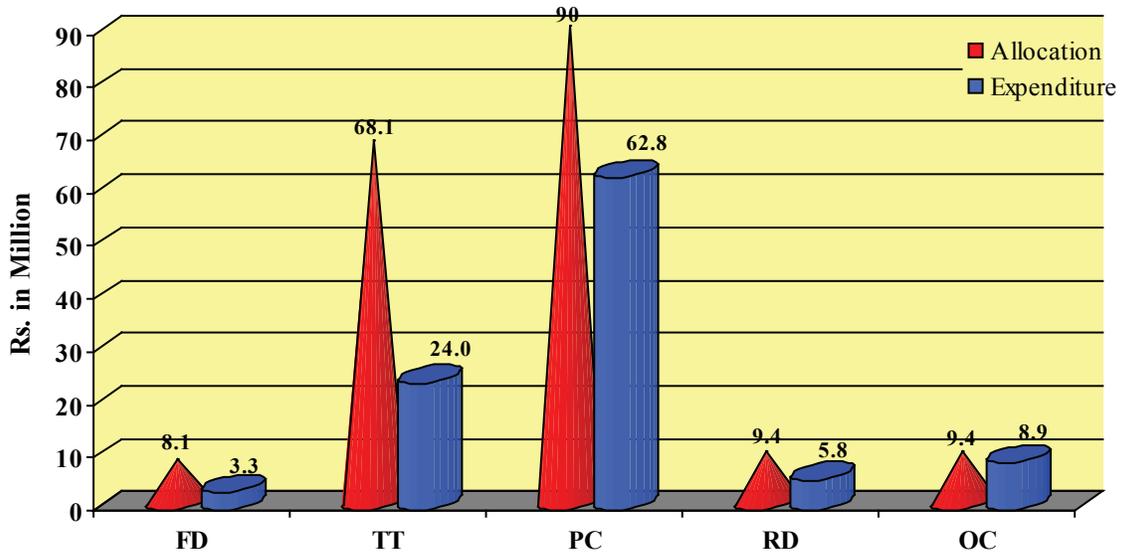
The Budget Estimates and Revised Estimates for the financial year, 2012-13 are shown in Table-II and Allocation/Expenditure in shown in Table III

**Table-II Revised Estimates for the Financial Year 2012-13**

Allocation/Expenditure	Budget Estimates 2012-2013	Revised Estimates 2012-2013
Opening Balance for 2012-2013	91.233	98.338
Income from Investment 2012-2013	110.267	109.571
<b>Total</b>	<b>201.500</b>	<b>207.909</b>
Transfer to Principal Amount (15% of the Income)	16.540	17.000
Expenditure against Components	184.960	95.830
Closing balance	Nil	95.079

**Table-III Component wise Allocation/Expenditure during the year 2012-13.**  
(Rs. in million)

Name of components	Allocation	Expenditure	Unspent Balance
Faculty Development	8.118	3.337	4.781
Technology Transfer	68.096	23.951	44.144
Product Commercialization	90.000	62.792	27.208
Research & Development	9.373	5.75	3.632
Operational Cost	9.373	8.941	0.432
<b>Total:</b>	<b>184.96</b>	<b>104.771</b>	<b>80.189</b>



**Figure 2: Component Wise Allocation & Expenditure**

## ANNUAL EXPENDITURE STATEMENT OF OPERATIONAL BUDGET 2012-2013 (Rs.)

Code	Head	Expenditure
A 01273	Honorarium	958,430
A 03201	Postage and Courier etc.	11,000
A 3202	Telephone and Trunk Calls , E-mail/Internet	59,095
A 03702	Management (Contractual Services)	86,995
A 03805	Traveling Allowance	106,996
A 03807	POL Charges	2,051,187
A 03901	Stationary	96,361
A 03902	Printing and Publication etc.	268,632
A 03903	Seminar/Workshops	2,056,161
A 03940	Hire of Vehicles	Nil
A 03905	News papers, periodicals and Books	6,803
A 03907	Advertising & Publication	46,523
A 03940	Unforeseen	2,035,873
A 6301	Entertainment Charges & Gifts	598,010
A 09203	Purchase of IT Equipment	50,881
A 09501	Purchase of Transport	Nil
A 09601	Purchase of Plant & MACHINERY	225,000
A 09701	Purchase of Furniture & Fixture etc.	58,464
A 13001	Repair of Transport	197,369
A 13101	Repair of Plant & Machinery	16,520
A 13201	Repair of Furniture & Fixture	Nil
A 13301	Repair and Maintenance of Office Building	11,445
A 13703	Repair of IT Equipment	Nil
A 12470	Other – Civil Works	Nil
<b>Grand Total</b>		<b>8,941,745</b>